Assessing the Impact of BRAC in the Northern Virginia Workforce Investment Board Region

Prepared for

July 21, 2007

Prepared by:

Table of Contents

Executive Summary

No region in the country has been more significantly impacted by the 2005 Defense Base Realignment and Closure (BRAC) recommendations than the Washington National Capital area. In particular, with two of the nation's largest recipients of new personnel at Fort Belvoir in Fairfax County and the Marine Corps Base at Quantico in Prince William County, the net impact on military payrolls and local procurement opportunities is expected to have a positive impact on the economy of the Northern Virginia Workforce Investment Board (WIB) region, which comprises Fairfax, Prince William and Loudoun Counties as well as the cities of Falls Church, Fairfax, Manassas Park, and Manassas. However, much of this impact from BRAC relocations into the area comes at the expense of the rest of the Washington metropolitan economy. At the same time, the WIB region is losing positions from Fort Belvoir and other areas of Fairfax County that would result in a modest loss of jobs and economic output for greater Washington.

The 2005 BRAC report recommends nearly 26,000 military, federal civilian, and private embedded contractor jobs to be relocated to Fort Belvoir and Quantico. Of these jobs, 23,470 or 90 percent will be relocated to Fort Belvoir alone, while Quantico will absorb 2,658 jobs. In addition to significant job gains, the WIB region will also lose more than 3,500 jobs moving to other states from these facilities and leased space in Fairfax County. These BRAC-related moves are all scheduled to occur by September 15, 2011 according to current Congressional mandate.

With the expectation of thousands of new personnel moving to Fort Belvoir and Quantico by 2011, these locations will both need to add to their available facilities substantially to support the new workers. It is estimated that approximately 6.2 million square feet of newly built office space and 7 million square feet of parking will be constructed at Fort Belvoir in the next four years, while 700,000 square feet of office space is planned to be constructed at Quantico, based on available data released by the US Army and the US Marine Corps. In addition to the on-post planned construction projects to support the region's BRAC-related personnel moves, many non-BRAC related activities are planned, including the construction of the Army National Museum in Belvoir, development of commercial and residential construction projects southward along the Route1/I-95, the transportation improvement projects in Fairfax County, and the development of office and flex space at the Quantico Corporate Center in Stafford County. These projects will combine to make this area of Fairfax, Prince William and Stafford counties become one of the Washington region's most active construction markets during the next five years.

In general, Northern Virginia has been a key driver of the greater Washington economy in no small part due to federal spending, which accounts for approximately 35 percent of the Washington area's gross regional product. Federal procurement represented $52 billion spent in the Washington area economy in 2005. More than half (52 percent or $27.3 billion) of that amount was spent in Northern Virginia. DOD contracts are especially important to Northern Virginia where more than 70 percent of

DOD procurement occurred in 2005. Between FY2000 and FY2005, DOD procurement in Northern Virginia nearly doubled.

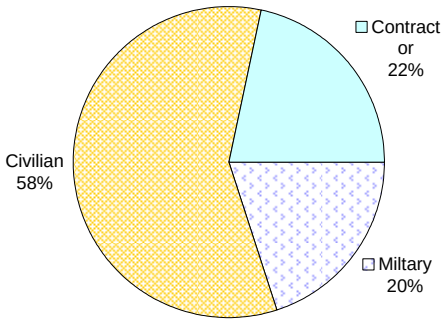
Most DOD contractors are located in Fairfax County where increases have been particularly large, but other jurisdictions including Loudoun and Prince William have also seen significant increases in defense procurement. However, the data show that annual federal procurement spending increases slowed in 2005 and 2006 and will likely to continue moderating during the next few years.

Similar development trends in the Washington area commercial and residential real estate markets are also showing signs of slowing their torrid growth from earlier in the decade. During the past few years, the office market has been strong, but office absorption is not keeping pace with new construction. Likewise, housing prices have moderated, dropping in several jurisdictions during the past few years. Given the expected construction opportunities created by BRAC actions over the next few years, Northern Virginia is still expected to continue leading the way in the region's economic performance.

This study focuses on four key components of impact analysis resulted from the inbound and outbound moves affecting the Northern Virginia WIB region – job relocation impacts, residential relocation impacts, construction impacts, and indirect and induced economic impacts.

1. Job Relocation Impacts

Executive Figure 1:
Inbound BRAC Affected Personnel by Employment Type

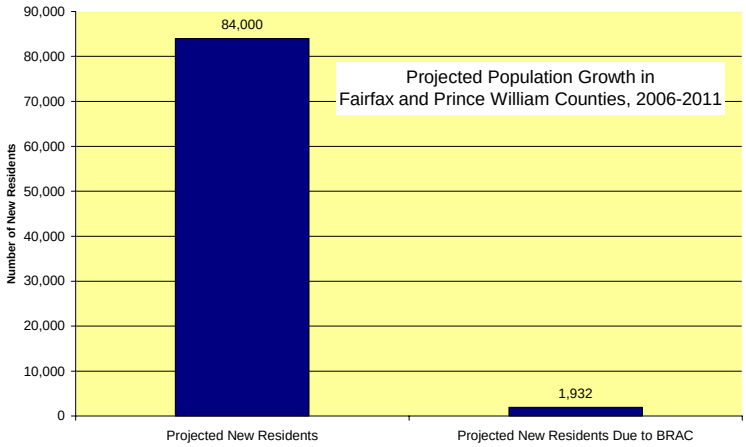


- Military employees account for only 20 percent of the WIB region's DOD affected personnel when factoring both in-bound and out-bound moves (See Executive Figure 1). Of 26,000 inbound jobs expected to be relocated to Fort Belvoir and Quantico, nearly 56 percent are held by DOD civilians, another 20 percent are military jobs, while 24 percent are embedded contractor positions. Similarly, of nearly 4,600 positions relocating from Fort Belvoir, Quantico, and Bailey's Crossroads, nearly three-quarters are federal civilian positions, 20 percent are military jobs, and only 7 percent are embedded contractors.
- The 100 command unit moves resulting from BRAC actions in the Northern Virginia WIB region will add more than 21,500 net new jobs at Fort Belvoir and Quantico, but will shift the great majority of those jobs from other parts of the National Capital area. Losses from Fort Belvoir and Bailey's Crossroads will mostly be jobs leaving the region entirely, resulting in a net loss after all of the planned BRAC moves of nearly 2,000 jobs to the Washington metropolitan area.
- The BRAC actions will result in 4,768 jobs moving from one location to another within the WIB region. Of those, 3,700 are being shifted from NGA

locations in Fairfax County to For Belvoir. An additional 409 jobs are being shifted from Fort Belvoir to Quantico, and 659 jobs are being relocated from Bailey's Crossroads to Fort Belvoir.

2. Residential Relocation Impacts:

Executive Figure 2:
Anticipated Population Growth in Selected BRAC Affected Areas, 2006-2011



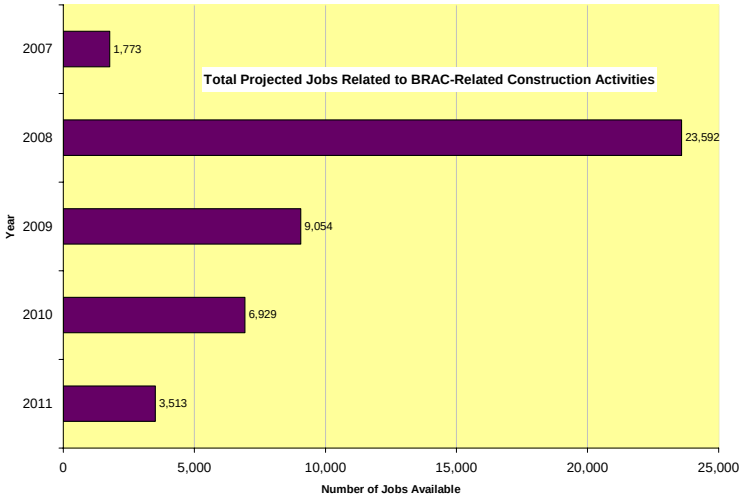
- The net effect by 2011 on southern Fairfax and Prince William Counties is an estimated 677 new workers moving their households into the area and 1,932 new residents living in those households as a result of BRAC actions in Fort Belvoir, Quantico and Bailey's Crossroads. To place this growth into context, Prince William County alone will likely add more than 60,000 total new residents by 2011. Fairfax will likely add another 24,000 residents. Thus, the likely impact of new residents is relatively small compared with on-going growth in the counties.
- The BRAC actions will likely cause an increase in Prince William school enrollment of about 358 new children, southern Fairfax County can expect an additional 50 more children, and Stafford County might expect nearly 145 new students by 2011. These numbers pale in comparison to the on-going growth occurring in Prince William and Stafford Counties already. During that same period, Prince William is already projected to add about 11,000 new school-aged children and Stafford will likely add about 3,000 to their school enrollments.

3. Construction Impacts:

- The total outlays associated with the proposed development programs are estimated to total $4.1 billion inclusive of direct outlays related to construction activities in the Northern Virginia WIB region. Of that amount, $3.8 billion will be invested at Fort Belvoir in Fairfax County and about $297 million will be at Quantico in Prince William County.
- The total impact of all BRAC and non-BRAC related construction activities planned at Fort Belvoir and Quantico would create 50,359 construction and related jobs, add $3.3 billion in new earnings, and $7 billion in total economic activity during the build-out phase between 2007 and 2011.

- For BRAC-related construction alone, the total impact of this BRAC-related construction spending on the regional economy is expected to be $6.2 billion between 2007 and 2011. This spending will also generate an estimate of $2.5 billion in new person earnings that support a total of 44,861 jobs over the entire construction period.
- The actual estimated number of jobs created each year to support the BRAC related construction activities would vary. Based on the current estimated construction schedule for the BRAC-related projects, it is estimated that nearly 23,600 jobs will be generated in 2008, followed by a smaller amount of workers, about 9,054, for those planned construction activities in 2009.

Executive Figure 3:
All Direct and Indirect Job Impacts Resulting from BRAC-Related Construction, 2007-2011



- The non-BRAC-related construction activities planned during the same four-year period at Fort Belvoir are likely to add another 5,498 jobs, $763 million in total economic activity, and $283 million in additional worker earnings. However, no data on the timing of the construction activities is available so impacts by year are not provided.

4. Indirect and Induced Economic Impacts:

- On the whole, 9,537 net new jobs (including gains as well as losses) will be created in the Northern Virginia WIB region to support Fort Belvoir and Quantico. This number includes about 879 outside-the-base contractor jobs in addition to those embedded in with their respective units. The remaining 8,658 jobs will be in occupations that provide goods and services in the retail, wholesale trade, construction, health care, and local government sectors.
- The anticipated gain of 12,568 jobs will result from jobs created to support the 26,128 military, civilian, and embedded contractor jobs being relocated by DOD to Fort Belvoir and Quantico. Of those support jobs, 1,161 positions are most likely to be those contractors with off-base locations, and 11,407 jobs will be those positions created in goods and

Executive Figure 4:
Net Job Impacts from BRAC-Related Moves

Activity	*Net Job Impacts*
BRAC Recommended Moves *	21,537
Indirect Outside the base Contractor Spin-offs	879
Other Indirect Economic Activity	8,658
Total Indirect Impacts	9,537

services, including retail, wholesale trade, construction, health and local government work.

- The movement of jobs from Fort Belvoir and Bailey's Crossroads to areas outside the region will create some job dislocation, eliminating about 282 off-base contract jobs and another 2,749 other service jobs currently located in the region.
- The net retail impacts generated from the inbound and outbound moves in the Northern Virginia WIB region are expected to be $61 million. Of this amount of new retail sales, about 80 percent would be contributed by the sales to workers located in Fairfax County, about 10 percent would result from workers located in Prince William County, and about 10 percent would result from travel-related sales primarily associated with training held at Quantico.

Because DOD was unable to provide complete information about the exact nature and scale of jobs to be moved, we were unable to develop specific estimates of the occupations of the affected jobs. Even so, several identified agencies have clear activities and related occupations that will be relocated to the Northern Virginia WIB region. For instance, the National Geospatial-Intelligence Agency's move will likely localize the demand for people with skills related to remote sensing, geographic information systems, network administration and support, and many other related information and geospatial technology disciplines. Similarly, the realignment of Walter Reed National Military Medical Center's community care facilities to the proposed DeWitt Community Hospital will generate a need for nurses, nursing aids, radiologic technologists, and janitorial services at Fort Belvoir.

The planned $4 billion military construction program at Fort Belvoir and Quantico offers area residents potential employment opportunities in a wide variety of occupations, especially the construction trades. However, these planned construction projects will also increase the demand for supporting jobs in retailing, food services, wholesale trade, administrative services, and local government. The Fort Belvoir and Quantico construction plans alone will result in an estimated 31,000 new construction jobs between 2007 and 2011, while an additional 3,980 workers are expected to find new jobs in retail trade and 1,063 workers will find work in administration and support services during the next five years.

The BRAC-related construction projects will create an unusually large demand for workers in the construction-specific occupations. The planned Fort Belvoir and Quantico projects will require more than 5,500 construction laborers through the construction period, the greatest demand among all occupations. In addition, these projects will also require an anticipated 4,868 carpenters and 2,872 first-line supervisors/managers. The key question is whether the region has the ability to recruit sufficient numbers of workers to meet its demand for BRAC-related construction projects in light of other large efforts on-going in the region. Our study suggests that the timing of the construction projects and the availability of qualified, eligible workers in key skilled construction trades could potentially be two crucial factors affecting the region's ability to meet its demand for workers. These findings are all based on current BRAC plans. Recent announcements

suggesting Congressional support for postponing the final BRAC moves have not been accounted for in the analysis. Such a delay likely would not change the total impacts, but it would spread those impacts over a longer period of time, reducing the concentration of the total economic activity in certain years when the greatest demand for workers will cause strains on construction contractors recruiting available workers.

In conclusion, this report identifies ten major findings summarized here:

1. The vast majority of the jobs being relocated to Fort Belvoir and Quantico are already held by workers living within a relatively easy commuting distance of the two installations.
2. The Fort Belvoir, Quantico, and Bailey's Crossroads relocations' net impact on the greater Washington area will be slightly negative and will especially impact workers living in Maryland.
3. The solutions to addressing worker transition needs must be undertaken in collaboration with other entities in the Washington National Capital region.
4. The likely impact on housing needs will be greatest on Prince William and Stafford Counties, but these impacts will represent only a modest portion of overall growth trends.
5. The largest impact on area school enrollment will be in Prince William and Stafford Counties, but the impact will likely pale in comparison to general growth trends.
6. The first impacts from the BRAC will be seen during the construction phase at Fort Belvoir and Quantico.
7. The great demand for construction trades workers is likely to exacerbate existing shortages in certain occupations.
8. The number of outside-the-base contractors and workers is likely to be relatively small as compared with the number of embedded contractors.
9. The amount of spin-off impacts in retail and consumer services is also expected to be relatively small.
10. To replace workers lost due to attrition and find new hires for DOD positions moving to Fort Belvoir and Quantico, in-demand occupations will likely require two- and four-year degrees in science, technology, engineering, and math (STEM) related fields.

I: Introduction

Project Background

In November 2005, in accordance with the Defense Base Realignment and Closure (BRAC) Act of 1990 (Public Law 101-510), the U.S. Congress approved the BRAC Commission recommendations to close and realign numerous military installations across the nation. The 2005 BRAC recommendations differed substantially from the four previous realignment rounds. Those past rounds focused on consolidating military capabilities and de-commissioning out-dated facilities. The last of those rounds was completed in 1995. This fifth BRAC round had a whole different purpose. In the "post-9/11" environment, the US Department of Defense (DOD) is seeking to reposition the military in light of a new global strategy aimed at increasing operational readiness in the face of an entirely new set of post-Cold War security threats.[1]

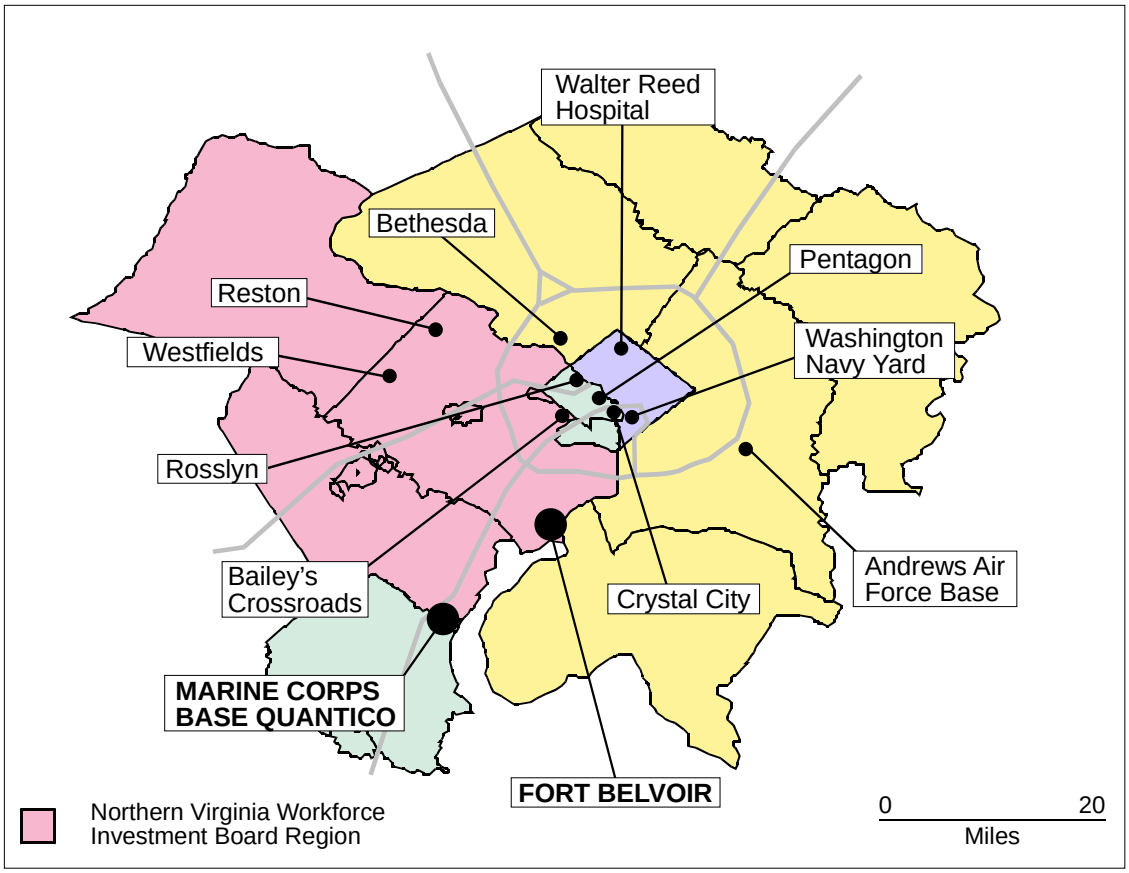
No region has been more significantly impacted by the 2005 BRAC round than the Washington National Capital region. Two of the largest recipients of new personnel are Fort Belvoir and the Marine Corps Base at Quantico (or MCBQ). According to the 2005 BRAC report, nearly 26,000 military, federal civilian, and private embedded contractor jobs will be relocated to Fort Belvoir in Fairfax County and MCBQ in Prince William County. These BRAC-related moves are all scheduled to occur by the legislatively mandated deadline of September 15, 2011. Of these jobs, more than 23,000 positions will be relocated to Fort Belvoir alone, doubling the size of that base and representing more in-bound workers than any other single installation. The large majority of the Fort Belvoir-bound jobs are coming from their current job locations in Arlington, Alexandria, and other areas of Fairfax County (See Figure 1). At the same time, Quantico will absorb approximately 2,600 jobs. Many of the Quantico-bound positions are being relocated from other areas of Northern Virginia as well as Maryland, Ohio, Georgia and California. This influx of new jobs to Quantico would expand the current 12,000-person installation by about 22 percent.

In addition to significant job gains, the Northern Virginia WIB region[2] will also have more than 3,500 jobs relocating from existing facilities. Most of those jobs are moving to other states from Fort Belvoir and leased space in the Bailey's Crossroads area, both in Fairfax County. The leased space in Bailey's Crossroads includes facilities in buildings at Skyline and Seven Corners.

[1] 2005 Defense Base Closure and Realignment Commission Report, page 1-3, http://www.brac.gov/docs/final/Volume1BRACReport.pdf

[2] The Northern Virginia Workforce Investment Board Region includes three counties – Fairfax, Prince William and Loudon, and three incorporated cities – Fairfax City, Manassas City, and the City of Manassas Park. The Northern Virginia part of the Washington DC Metropolitan Area (referred to as Northern Virginia) includes 9 counties (Arlington, Clarke, Fairfax, Fauquier, Loudoun, Prince William, Spotsylvania, Stafford, & Warren) and 6 independent cities (Alexandria, Fairfax City, Falls Church, Fredericksburg, Manassas & Manassas Park)

Figure 1: Washington National Capital Area and Key Sites of the Region's BRAC-related Moves to and From the Northern Virginia Workforce Investment Board Area



Prepared by the Center for Regional Economic Competitiveness

On balance, with both inbound and outbound moves affecting Fort Belvoir, Quantico, and Bailey's Crossroads, the net impact on local military payrolls and procurement opportunities is expected to be positive. Certainly, the media focus has been on the significant influx of personnel to Fort Belvoir. In addition, this net influx of new workers is expected to generate even more spin-off activity resulting from the growing demand for retail sales and other services needed to support the operations of the area's military and federal workers. A key goal of this study is to review the data to determine if this presumed net benefit is expected to occur and just how significant the expected impact will be. Quite clearly, the direct and indirect impacts contributed by the proposed realignment and closure in Fort Belvoir and Quantico could have tremendous influence over local economic and workforce development for the next several years.

Project Goals

The primary purpose of this project is to better understand the relative magnitude and significance of BRAC-related federal and private job shifts. The Northern Virginia Workforce Investment Board region will be particularly affected by the BRAC

recommendations, and as a result, this project also seeks to identify the workforce issues that might result from these job shifts, and formulate strategies to respond to those issues. The Northern Virginia Workforce Investment Board commissioned the Center for Regional Economic Competitiveness (CREC), a national nonprofit economic research organization, and the George Mason University Center for Regional Analysis (CRA) to assess the economic and workforce impacts of the 2005 BRAC recommendations in Northern Virginia. The study was undertaken from February 2006 to June 2007, focusing not only on the Northern Virginia WIB region, but also on the impacts on the entire Northern Virginia portion of the Washington National Capital region. Four major goals were set to be achieved under this study:

- To determine the potential impact on public services, for both military and federal civilian jobs;
- To assess the impact on the area to which the personnel are being relocated, including the impact on retail, personal services that support these personnel;
- To assess the impact on business services firms that support day-to-day facility operations (e.g., other "outside-the-gate" contractors)
- To determine the workforce skills needed by workers affected by direct BRAC-affected relocations and "indirect" personal and business service firms.

Project Tasks and Methodology

To achieve these goals, the research team first set off to compile a complete list of DOD agencies and command units that are scheduled to be affected by inbound and outbound moves related to Fort Belvoir, Quantico, and the Bailey's Crossroads leased space. The BRAC recommendations identified more than 30 DOD agencies and 100 command units set to be relocated or closed. A complete list is included in Appendix 1. In the BRAC report, preliminary information is provided on the number of workers expected to be impacted, but revisions are expected as more specific plans are made for the moves. To gather more up-to-date information and analyze the potential impact that job gains, losses and shifts might have on local need for construction, real estate, business services and workforce education and training, the following five tasks were undertaken:

- *Establish a collaboration with key DOD agencies, military bases and regional stakeholders*

  The project team interviewed one or more representatives from Fort Belvoir and the Quantico Marine Corps Base as well as the largest agencies affected by BRAC, including the Office of the Secretary of Defense/Washington Headquarters Services (OSD/WHS), Defense Information Systems Agency (DISA), Fort Monmouth, and the National Geospatial-Intelligence Agency (NGA). In addition, the team interviewed representatives from the DOD Office of Economic Adjustment, US Department of Labor, the Army Corps of Engineers, the Department of the Navy, the Department of the Air Force, Fairfax, Prince William, and Arlington Counties as well as Alexandria City and the Arlington-Alexandria Workforce Investment Board. The purpose of these interviews

was to better estimate the timing and scale of moves planned for each affected agency

- *Analyzing the direct and indirect impacts of the BRAC recommendations*

  Updated information was released for Fort Belvoir in the Draft Environmental Impact Statement (EIS) released in February 2007. In assessing the environmental impacts, the analysis also provides estimated employment impacts, describes total space requirements, and details facility needs for those affected agencies moving into Fort Belvoir. A similar EIS for Quantico, scheduled for release in July 2007, was not available at the time of our analysis. For Quantico, the personnel data generated were based on the BRAC recommendations combined with updated estimates based on a 2006 survey of DOD Investigative Agencies scheduled to move to the Quantico Marine Corps Base.

  Using known employment information, the team conducted an analysis of likely indirect economic and workforce impacts of BRAC recommendations on the Northern Virginia WIB region. That assessment examined: 1) the proposed construction plans and impacts on workforce and economic development; 2) the likely changes in residential location of affected workers; and 3) the estimated "outside the base" jobs that were expected to be created or lost as a result of the moves.

  In the first part of this analysis, the project team focused on examining the on-base and related off-site infrastructure construction requirements identified to meet DOD and contractor space needs. The purpose of doing so was to identify the demand for construction trades and related workers to support initial build-out of the planned moves to Fort Belvoir and Quantico.

  The second part of the analysis concentrated on determining the likely worker dislocation impacts of the actual moves to Belvoir and Quantico. Using the results of employee surveys and estimates derived from Census journey-to-work data, this part of the study examined the likely residential displacement expected as a result of job shifts. The goal was to better understand the impact on housing and area public schools.

  The third part of the analysis focused on determining total employment of military personnel and embedded contractors moving into Fort Belvoir and Quantico, as well as evaluating the likely new demand for "outside-the-gate" suppliers and service establishments occurring as a consequence of the proposed moves. This analysis was done using two regional economic models—one developed by the US Bureau of Economic Analysis of the U.S. Department of Commerce (Regional Input-Output Model or RIMS II) and the other developed by Economic Modeling Specialists, Inc. (Strategic Advantage), an Idaho-based research firm. The overall impact estimates were very similar between the two models, but the proprietary model provided more extensive estimates of likely

industry- and occupation-specific impacts. Therefore, we reported estimates generated from the EMSI model.

- *Assessed the impact of jobs shifts on training and education requirements*

  In this part of the analysis, the project team first developed an estimate of jobs by industry developed from the economic model, particularly for construction-related workers. These data, combined with an industry-occupation matrix developed by the US Bureau of Labor Statistics, allowed us to translate the number of workers in relevant industries into an estimate of employment by occupation. From these data, the project team determined the availability of, and need for, workers in selected occupations as well as the knowledge, education, and skills required for those workers. Through interviews with regional universities and community colleges (i.e., George Mason University and Northern Virginia Community College), the analysts also identified the availability of training and educational programs to begin gauging the area's capacity to respond to the anticipated needs.

- *Conducted a national search of potential models*

  In developing an appropriate workforce development response, the study also included an assessment of how other states or regions had responded to similar challenges associated with a large influx of workers. These models were selected based on a national search of circumstances that might offer some useful lessons to workforce development planners involved in preparing for the upcoming movement of personnel to Fort Belvoir and Quantico. Based on the team's past experience with BRAC as well as information provided by the Association of Defense Communities, Business Executives for National Security, DOD Office of Economic Adjustment, and the US Department of Labor, two cases studied were identified as particularly relevant to the planned moves to Fort Belvoir and Quantico: (1) the relocation of personnel to Maryland's Patuxent River Naval Air Station, and (2) the expansion of Fort Leonard Wood in Missouri. Through findings generated from interviews and key documents, the project team identified several lessons to be learned by the Northern Virginia Workforce Investment Board in planning for workforce transition as a result of the upcoming moves affecting Fort Belvoir and Quantico.

- *Identified alternative workforce-related recommendations*

  Based on the findings generated from interviews, the impact analysis, and case studies, the project team developed recommendations for the Northern Virginia WIB as it designs a strategy for responding to the dramatic impacts that BRAC 2005 are set to have on Northern Virginia. Those recommendations are included in a separate briefing report submitted to the Northern Virginia Workforce Investment Board.

Data Limitations

The regional economic impact estimates most depend on gathering and analyzing key data inputs. The challenge of obtaining accurate inputs was particularly important in influencing the approach and methodology used in this project. The more accurate the inputs, the more confidence one might place in the study's output. In the case of the 30 different DOD agencies affected by BRAC in the Northern Virginia WIB service area, an ideal analysis would be developed based on specific data provided from each of the agencies about the number of personnel, their occupations, their wages, their current place of residence, and the timing of their moves. These data are not readily available for several reasons. The most important is that many agencies were currently identifying the specific positions to be relocated. In some cases, internal agency negotiations are clearly on-going. In other cases, the agencies were reluctant to release information publicly until they had settled personnel issues internally. In a few cases, personnel survey data were available for certain agencies, but many of the affected agencies have either not conducted a survey or have opted not to make the data public.

The availability of such data would be invaluable to construct better analysis on each phase of the move, including the construction activities needed both inside and outside the base. Frequently, the only information available was that released in the initial BRAC recommendation, or sporadically released personnel survey information, or from the Draft Environmental Impact Statements. It was rare that any additional written information was provided for analysis. Thus, the data used represented an amalgamation of the most current versions of information generated from these various sources. The Fort Belvoir Draft Environment Impact Statement, released in February 2007, proved to be a significant reference point for much of the data used. Unfortunately, the Quantico Draft EIS was not scheduled for release until July, too late to be incorporated into this draft report.

Using whatever information was available, the project team proceeded to develop an estimate of the likely number of impacted workers, including those engaged in construction and related activities as well as those providing the contracted and related business services most likely to follow each agency's move to its new installation. That was supplemented with insights from interviews with the DOD Office of Economic Adjustment, agency BRAC coordinators, Department of Labor, regional economic development authorities, and area WIB officials.

Organization of the Report

This report is organized as follows: This first section (I) provides an overview of the study and key issues. The next section (Section II) details the planned agency moves and the number of affected personnel scheduled to move to and from the Northern Virginia Workforce Investment Board region as recommended on the 2005 BRAC report. Section II also discusses non-BRAC-related moves that are scheduled to occur during the same time period as the BRAC activities Section III examines the economic context in Northern Virginia, particularly as it relates to on-going activities that might be most

related to the proposed BRAC job shifts. The discussion focuses on the current economic base, real estate market, housing, and commercial development.

Section IV provides an in-depth analysis of the economic impacts resulting from the proposed BRAC recommendations on the Northern Virginia WIB region. This section includes four different analytic components. First, the study looks at the direct job relocation impact on the region. Second, it reviews the current and likely future residential patterns of BRAC workers to assess the potential impact on the local housing market of relocating DOD personnel and contractors. Third, the study assesses the likely impact of the substantial BRAC and related facility investments planned during the next four years on the region's construction market. Fourth, the study estimates the indirect and induced impacts generated from proposed job relocations in the region. The indirect impact refers to those employment opportunities that occurred due to the relocation of military personnel, particularly for those non-embedded or outside-the-gate contractors. The induced impact refers to those jobs and sales generated from retail businesses supporting the daily consumption needs of relocated personnel.

Section V provides a detailed analysis of the industry and occupational mix of the workforce required to support the moves and the agencies once relocated to the region. This section also identifies several issues that might affect the availability of those fastest growing occupations related to BRAC-related activities. Section V also includes an overview of the area's education and training programs. Section VI provides lessons learned for Northern Virginia from case studies of related past BRAC realignment and expansion activities at Fort Leonard Wood in Missouri and Patuxent River Naval Air Station in Maryland. The last part, Section VII, offers findings and conclusions that provide a snapshot of the economic impacts of BRAC on the region and its workforce as well as provide a basis for formulating workforce strategies in response to those impacts.

II: An Overview of the BRAC Recommendations

In the next five years, the Northern Virginia Workforce area will experience significant job shifts as a result of BRAC recommendations on realigning and/or closing multiple military operations and offices in the National Capitol area. While many local media reports have focused on the large number of job shifts to Fort Belvoir and Quantico, the area also is set to endure significant job losses. Additionally, the BRAC actions are not the only events impacting Fort Belvoir and Quantico. Several key non-BRAC related development projects are scheduled at the same time, including the Army Museum. The demand for workforce needs generated from those non-BRAC related activities will increase the complexity of the economic and workforce impacts of the mandated BRAC actions. Detailed inbound and outbound moves, as well as non-BRAC development activities, in the region are discussed in this section.

Inbound Moves

The Northern Virginia WIB Region will gain more than 26,000 military, civilian and embedded contractor positions by September 15, 2011, as a result of the 2005 round of BRAC recommendations. According to the Fort Belvoir Draft Environmental Impact Statement (EIS) report, BRAC Commission recommended a total of 23,470 jobs to be moved into Fort Belvoir. As shown in Table 1, those moves predominately will be coming from six major groups, including the Office of the Secretary of Defense/Washington Headquarters Services (OSD/WHS), various Army offices in federally leased buildings in Arlington County and Alexandria, the Headquarters Command Center of the Missile Defense Agency (MDA), the National Geospatial-Intelligence Agency (NGA), Walter Reed National Military Medical Center, and the

Table 1:
BRAC Recommended Moves to Fort Belvoir and Quantico

BRAC Recommendations (#No.)	Jobs Affected	% of Moves
Ft. Belvoir – Inbound Total	23,470	90%
Co-locate Army Leased Locations (#132)	2,720	
Co-locate Office of Secy of Defense/Washington HQ Service et al. (#133)	9,263	
Co-locate Missile Defense Agency HQ Command Center (MDA HQCC) (#134)	292	
National Geospatial-Intelligence Agency Activities (NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY (NGA)) (#168)	8,500	
Realign Water Reed National Military Medical Center (#169)	2,069	
Close Fort Monmouth, NJ (#5) – Elements of Program Executive Office for Enterprise Information Systems (PEO EIS)	480	
Discretionary Moves related to, but not included in BRAC*	146	
Quantico – Inbound Total	2,658	10%
Co-locate Investigation Agencies (#131)	2,658	
Total Inbound	*26,128*	*100%*
Total Inbound from the NVA-WIB Region	*481*	

Source: 2005 BRAC Recommendations Report, the 2007 Fort Belvoir Draft EIS

Program Executive Office for Enterprise Information Systems (PEO/EIS) in Fort Monmouth, New Jersey.

Of those 23,470 inbound positions relocating to Fort Belvoir, 9,260 or nearly 40 percent of the jobs is coming from the Office of the Secretary of Defense/ Washington Headquarters Services (OSD/WHS), the largest group shifting jobs to the base. The second largest group moving jobs to Fort Belvoir is the National Geospatial-Intelligence Agency (NGA), accounting for approximately 8,500 jobs or 36 percent of total inbound moves. The Army will also move more than 2,700 jobs from its multiple leased sites near the Pentagon while the Water Reed National Military Medical Center will relocate at least 2,000 positions from its current DC location to Fort Belvoir to be part of a new DeWitt Community Hospital located on the base. The smallest group of job moves will come from The Missile Defense Agency's (MDA) Headquarters Command Center in Arlington, with less than 300 positions to be relocated to Fort Belvoir. However, more than 4,300 of the 23,470 inbound moves to Fort Belvoir are being shifted within the Northern Virginia WIB region. It is estimated that 3,700 National Geospatial-Intelligence Agency (NGA) jobs will be relocated from Reston and Westfields in Fairfax County, and more than 650 positions from the Office of the Secretary of Defense/Washington Headquarters Services (OSD/WHS), and Army leased spaces will be shifted from the Skyline Buildings in Falls Church. In addition, the closure of Fort Monmouth in New Jersey will result in 480 job shifts into Fort Belvoir as well. This represents the only major move of employees to Fort Belvoir from outside the Washington metropolitan area.

In addition to these BRAC-related agency moves, the Army has identified several activities to be relocated to Fort Belvoir that should remain attached to activities being moved as a result of BRAC-recommended realignments. According to the Fort Belvoir Draft EIS Report, the Army proposes to move 146 positions from five different command units concurrently with BRAC moves in Fort Belvoir. Those realignment actions include a proposal to relocate 90 personnel from the Army's Information Technology, E-Commerce, and Commercial Contracting Center (ITEC4) to support the future activity of the Program Enterprise Office for Executive Information Systems (PEO/EIS) at Fort Belvoir. Most of the remaining realignment activities involve relocating both the Physical Disability Agency and the Physical Evaluation Board from Walter Reed Army Medical Center in conjunction with the construction of DeWitt Hospital.[3]

As for Quantico, more than 2,600 personnel will be added to the base by 2011. The moves are being made as part of a plan to disestablish the Counterintelligence Field Activity (CIFA) and Defense Security Services (DSS). These units would be consolidated into a newly created DOD Counterintelligence and Security Agency in Quantico. The components of CIFA & DSS will be moved from multiple locations in

[3] See page 2-11 of the Fort Belvoir EIS Draft Report. In addition to the 90 positions moving from ITEC4, the discretionary moves also include 37 personnel of the Physical Disability Agency and 15 Personnel of the Physical Evaluation Board at Walter Reed Army Medical Center, 3 personnel of the Acquisition Support Center in Fort Monmouth, and 1 person at the Veterinary Activity of the U.S. Army Garrison in Michigan.

Virginia (including Arlington, Alexandria, and Fort Belvoir), California (i.e., Long Beach), Maryland (i.e., Linthicum and Elkridge), Georgia (i.e. Smyrna) and Ohio (i.e., Columbus). In addition, the military will also establish a joint criminal investigative services facility at Quantico by consolidating the Army, Air Force and Naval Criminal Investigation Service offices currently located at Fort Belvoir, Andrews Air Force Base, and the Navy Yard in Washington, DC. However, these efforts are relatively small compared to the job shifts planned at nearby Fort Belvoir. The Quantico moves represent only about one-tenth of what will be occurring at Fort Belvoir. All of these efforts – both at Fort Belvoir and Quantico—are set to be completed by September 15, 2011.

Outbound Moves

All totaled, the BRAC report recommends moving nearly 4,600 jobs from Fort Belvoir, Quantico and Bailey's Crossroads. This means that roughly one in eight of Fort Belvoir's current personnel will be relocated outside the Washington area. Table 2

Table 2
BRAC-Recommended Moves from Fort Belvoir, Quantico, and Bailey's Crossroads

BRAC Recommendations (#No.)	Jobs Affected	% of Moves
Ft. Belvoir – Outbound Total	2,851	62%
Close Sensors, Electronics, and Electronic Warfare/Information Systems Research, Dev and Acquisition activities to Aberdeen Proving Ground, MD (#5)	694	
Relocate Army Prime Power School Training to Fort Leonard Wood, MO (#127)	102	
Co-locate the Army Criminal Investigation Command (CID) to Quantico, VA (#131)	409	
Consolidate Medial Organizations (Solider Magazine) to Fort Meade, MD (#141)	3	
Relocate Army HQs and Field Operating Agencies – Army Material Command & the Security Assistance Command – to Redstone Arsenal, AL (#148)	1,303	
Realign Joint Centers of Excellence for Chemical, Biological and Medical R&D & Acquisition to Aberdeen Proving Ground, MD (#174)	67	
Co-locate Extramural Research Program Managers to the Naval National Medical Center in Bethesda, MD (#178)	208	
Relocate National Command Region Conventional Armament Research to Eglin Air Force Base in FL (#185)	65	
Quantico – Outbound Total	56	1%
Consolidate Correctional Facilities to Mid-Atlantic Joint Regional Correctional Facility in Chesapeake, VA (#138)	56	
Bailey's Crossroads – Outbound Total	1,684	37%
Co-locate Miscellaneous Army Leased Locations to Fort Belvoir (#132)	96	
Co-locate Miscellaneous OSD/Washington Headquarters Services (WHS) Leased Locations to Fort Belvoir (#133)	563	
Co-locate Missile and Space Defense Agencies to Redstone Arsenal, AL (#134)	328	
Consolidate Defense Information Systems Agency (DISA) to Fort Meade (#140)	36	
Relocate Army HQs and Field Operating Agencies to Fort Knox, KY and Fort Sam Houston, TX (#148)	572	
Realign Joint Centers of Excellence for Chemical, Biological, and Medical R&D and Acquisition to Aberdeen Proving Ground, MD (#174)	89	
Total Outbound	*4,591*	*100%*
Total Outbound from the NVA-WIB Region	*3,523*	

Source: 2005 BRAC Recommendations Report

illustrates that Fort Belvoir will lose 2,851 positions, representing 62 percent of those being relocated in the Northern Virginia Workforce Board region. Most of the remainder, 1,684 military, civilian, and contractor personnel will be moved from leased Army space in Bailey's Crossroads. These units are currently in the Skyline and Suffolk Buildings as well as the Seven Corners Corporate Center. Quantico will lose only a very small portion of outbound positions, with only 56 positions in support of the correctional function being relocated to the Mid-Atlantic Joint Regional Correctional Facility located in Chesapeake, VA.

Among the 2,851 outbound moves from Fort Belvoir, nearly half of them will be relocated to Alabama. Units of the Army's Material Command and the Security Assistance Command are being relocated to Redstone Arsenal in the Huntsville area. Other significant outbound moves include the relocation of the Army's R&D and acquisition activities to Aberdeen Proving Ground in Maryland, Army administrative offices to Fort Knox in Kentucky and Fort Sam Houston in Texas, the Extramural Research Program to the Naval National Medical Center in Bethesda, Maryland, and the Army Prime Power School Training to Fort Leonard Wood in Missouri.

It is also noteworthy that a number of positions are being moved within the Northern Virginia WIB region. For instance, 409 positions are being relocated from Belvoir to Quantico as part of the Army's efforts to consolidate its criminal investigation services. Similarly, of the 1,684 jobs moving out of Bailey's Crossroads, one-third of those outbound moves (659 jobs) are job shifts to Fort Belvoir. In addition, NGA plans to move approximately 3,700 positions from locations around Fairfax County to Fort Belvoir. Together, 4,768 jobs involve movement to other locations within the Northern Virginia WIB region. By removing the intra-regional position realignments, the WIB region's net job loss due to BRAC totals 3,523 positions. More than half of those positions are being moved to the Huntsville, Alabama area.

Related Non-BRAC DOD Moves Planned

With the expectation of thousands of new personnel moving to Fort Belvoir and Quantico by 2011, the two bases will need to substantially expand their available facilities to support the increase in employment. In order to implement the BRAC recommendations in time, the Army and the US Marine Corps have already begun planning an array of construction and building renovation projects. At Fort Belvoir, approximately 6.2 million square feet of newly built office space and 7 million square feet of parking will be constructed in the next four years.[4] According to Fort Belvoir's Draft EIS Report, 20 projects are planned for completion by 2011. Some projects are related directly to income jobs while others relate to expanding the base's current support capabilities to meet the needs of a larger future base population. Table 3 shows a list of those proposed construction and renovation projects with their anticipated completion schedule. The construction of new office facilities is planned to begin this year to accommodate the National Geospatial-Intelligence Agency (NGA), and the remaining

[4] See page 2-12, the Draft EIS report.

Table 3
Proposed Construction and Renovation Projects in Fort Belvoir

BRAC Recommendations	Project Title (Project Number)	Year of Construction
Army Leased	Administrative Facility (Bldgs 211, 214, 215, 220) (65450)	2011
OSD/Washington Headquarters Services (WHS) et al.	Washington Headquarters Services (WHS) Administrative Facility (64243)	2008-2010
Missile Defense Agency (MDA)	MDA Administrative Facility (MDA 580)	2008-2009
National Geospatial-Intelligence Agency (NGA))	National Geospatial-Intelligence Agency (NGA) Administrative Facility (65416)	2007-2011
	Child Development Center (National Geospatial-Intelligence Agency (NGA)) (55661)	2011
Water Reed National Military Medical Center	Hospital (project 64238, 65676, 65677)	2008-2010
	special foundations, central energy plant, helipad, ambulance shelter	2010-2011
	Dental Clinic (64241)	2010-2011
	NARMC (North Atlantic Regional Medical Center) HQs Building (65871)	2009
Program Executive Office for Enterprise Information Systems (PEO EIS)	PEO EIS Administrative Facility (65592, 67231)	2008
	Network Operations Center (part of EPO EIS) (65448)	2010
Supportive construction	Infrastructure (for communications center, access control facilities) (64097)	2010
	Infrastructure (for heating plant building) (67487)	2010
	Infrastructure (for refrigeration & air conditioning unit, water, sewer & electrical services for the EPG) (67959)	2010
	AMC (Army Materiel Command) Relocatables (66228)	2007
	Child Development Center (55662)	2011
	Corps of Engineers Project Integration Offices	2008
	Emergency Services Center (EPG) (64076)	2008
	US Army Nuclear and Chemical Agency (USANCA) Support Facility (65447)	2008
	Access Road/Control Point (63571)	2009
	Modernize Barracks (62892)	2011
	MWR (Morale, Welfare & Recreation) Family Travel Camp - 52 RV campsites, 15 cabins, 12 tent sites (54898)	2007-2010
	structured parking facility (3-level deck) in the 200 Area - used by Defense Systems Management College & admin services (54347)	2011

Source: The Fort Belvoir Draft EIS Report, 200, p.2-14.

office construction will likely follow, beginning in 2008, for the other major groups relocating to Fort Belvoir.

In addition to the 20 planned projects to support BRAC-related activities in Belvoir, the Army also plans to build out another 32 non-BRAC construction or renovation projects on the base including six involving the construction of new structures with more than 100,000 square feet. The other projects planned are largely small in scale and

involve the renovation of existing buildings.[5] The six proposed non-BRAC projects include the construction of the Army National Museum (300,300 sq. ft.) and an associated Museum Support Center (124,800 sq. ft.), the expansion of the Information Dominance Center (300,000 sq. ft.), an expansion of the Post Exchange or PX (186,300 sq. ft.), the construction of a physical fitness center (158,000 sq. ft.) and a training facility for the Operations Security Evaluation Group (130,000 sq. ft.).

Scheduled to be open in 2009, the future US Army National Museum is expected to attract at least 1 million visitors during the first year of its operation, according to Army officials.[6] The new location of the National Army Museum will add another 231 workers to the Belvoir base, according to the EIS Draft report. [7]

Furthermore, under the order of the US Army's Residential Communities Initiatives, Fort Belvoir began a variety of housing development projects in March 2004. The plan to improve military housing was started with the formation of a public-private partnership to develop, rehabilitate, and construct 2,070 homes.[8] The initial phase of this development, planned for completion by the end of 2011, involves constructing 1,630 new homes and renovating 170 historically registered homes.

The Draft EIS Report for Fort Belvoir also identified as many as 187 non-Army projects outside the base that are currently under construction or will be planned within 3 miles of Fort Belvoir in Fairfax and Prince William Counties, including many commercial and residential development projects southward along the Route 1/I-95 corridor into Prince William County as well as the Springfield, Rose Hill, and Mount Vernon Districts.[9] In the EIS, the transportation analysis identifies a critical challenge facing Fort Belvoir because many transportation projects will not be completed until well after construction at the base is well underway. To respond to the continued population and economic growth expected in Northern Virginia, the Federal Highway Administration, Virginia Department of Transportation, and Fairfax County have previously planned a series of transportation improvement projects expected to be completed by 2011 to accommodate the increase in base workforce and population. Those projects include the expansion of Fort Belvoir's Main Post roadway network, the reconstruction of the Springfield I-95/I-395/I-495 interchange, the completion of the Fairfax County Parkway, and the expansion of U.S. Route 1 and its connector route to Telegraph Road.[10]

At Quantico, planned construction activities announced to date include about 700,000 square feet of office space. Private sector development in the area is well underway with

[5] See p.5-4 through p.5-7, the Draft EIS Report, 2007.
[6] See a news report released by the Association of United States Army on October 23, 2003 at http://www.ausa.org/webpub/DeptHome.nsf/byid/KGRG-6DSQEH
[7] Note that this analysis explicitly excludes any evaluation of the likely economic impact resulting from the visitors to the Army Museum during the period beginning 2009 to 2011.
[8] See a news report released by the Villages at Belvoir at http://www.belvoirfamilyhousing.com/rebuilding/abouttheproject.asp. Construction activities associated with this project is not included in this analysis.
[9] See p.5-7 through 5-13 and Appendix H – Off-Post Cumulative Projects List, the Draft EIS Report, 2007.
[10] See p.4-63 & 4-64, the Draft EIS Report, 2007.

the construction of one-million square feet of office and flex space at the Quantico Corporate Center, just south of the base in Stafford County. This $300 million development project is planned in anticipation of continued growth in Stafford County.

Combined, the on-post and off-post construction projects planned throughout the Fort Belvoir to Quantico corridor should make this area of Fairfax, Prince William and Stafford counties one of the Washington region's most active construction markets during the next five years. Understanding how this activity will fit within the context of overall development in the Washington area is a critical concern for policy makers. The next section provides just such an overview.

III: The Washington Economy in 2007

The Washington metropolitan area economy continues to be among the best performing major metropolitan regions nationwide. During the first half of the decade, the region added 359,000 jobs or nearly 72,000 per year (see Figure 2). This blistering pace has since subsided, but the Washington area is still expected to add 45,000 new jobs by the end of 2007, and unemployment is likely to remain consistently among the lowest in major markets. During the past six years, the Washington area has generated more net new jobs than any other metropolitan area in the U.S., and Northern Virginia has accounted for approximately 60 percent of this gain. Job growth through mid-year 2007 has been on target in Northern Virginia with gains averaging around 30,000 net new jobs. The District of Columbia is generating close to its forecast of 5,000 new jobs and Suburban Maryland is adding 10,000. The unemployment rate in the District has dropped below 6 percent and in suburban unemployment rates are now hovering close to 2.0 percent.

Northern Virginia's increasing share of the regional economy has a long history and has important implications for the future directions of growth in the outlying counties. Northern Virginia moved into the role of the Washington area's largest engine for jobs in the early 1980s and has continued to climb as a share of total employment. As illustrated in Figure 3, Northern Virginia already accounts for more than 45 percent of the region's job base and, if current trends hold, will likely be home to over half the region's jobs as early as 2020.

Figure 2: Metropolitan Job Change (2000-2005)

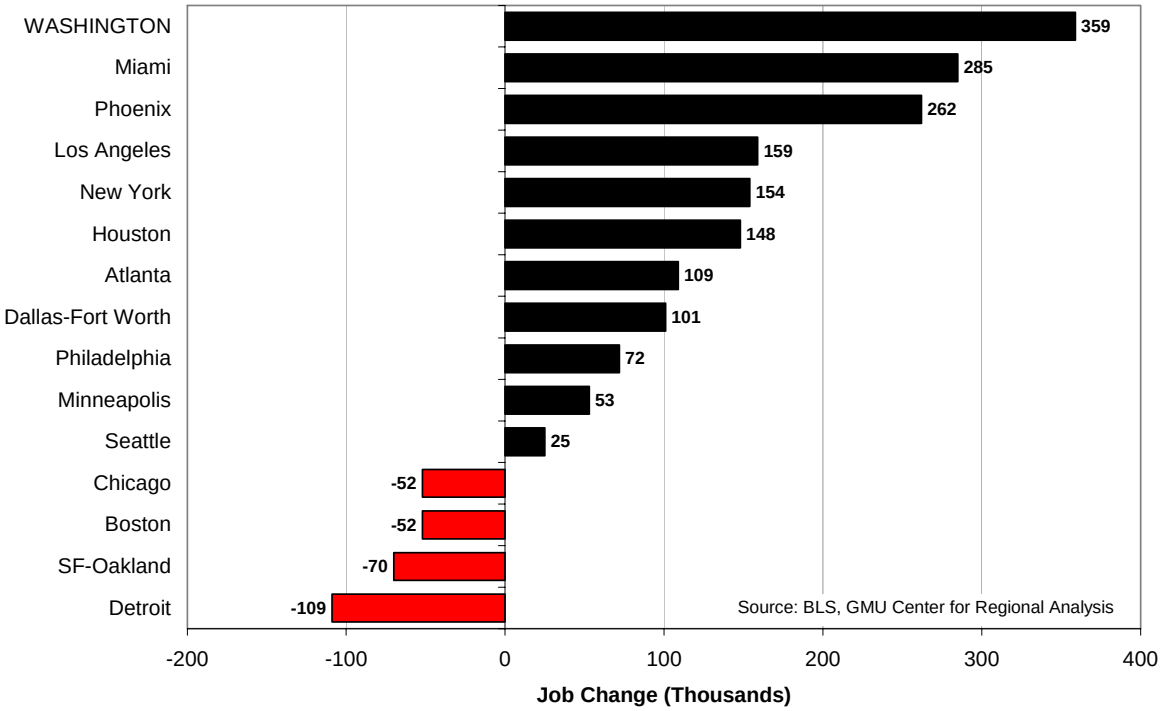
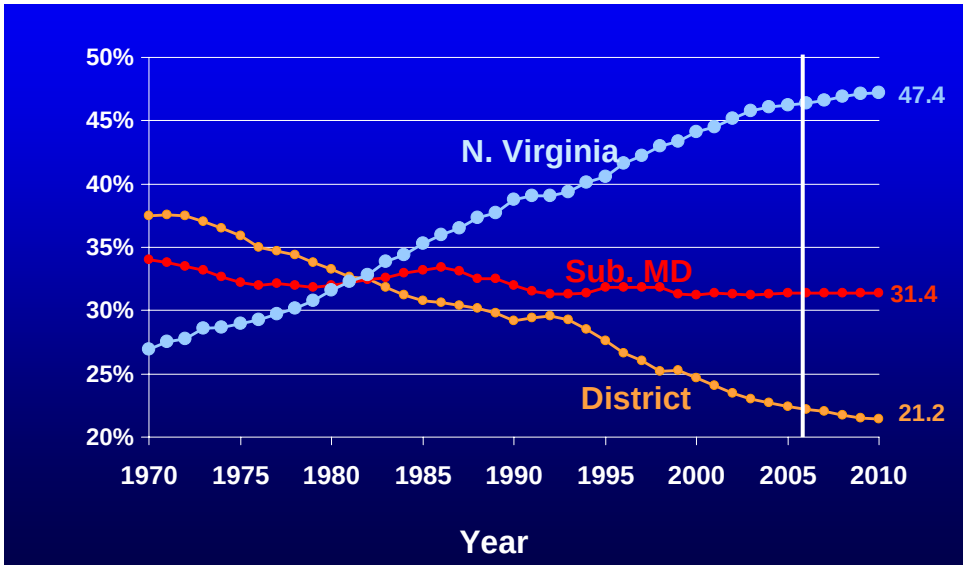


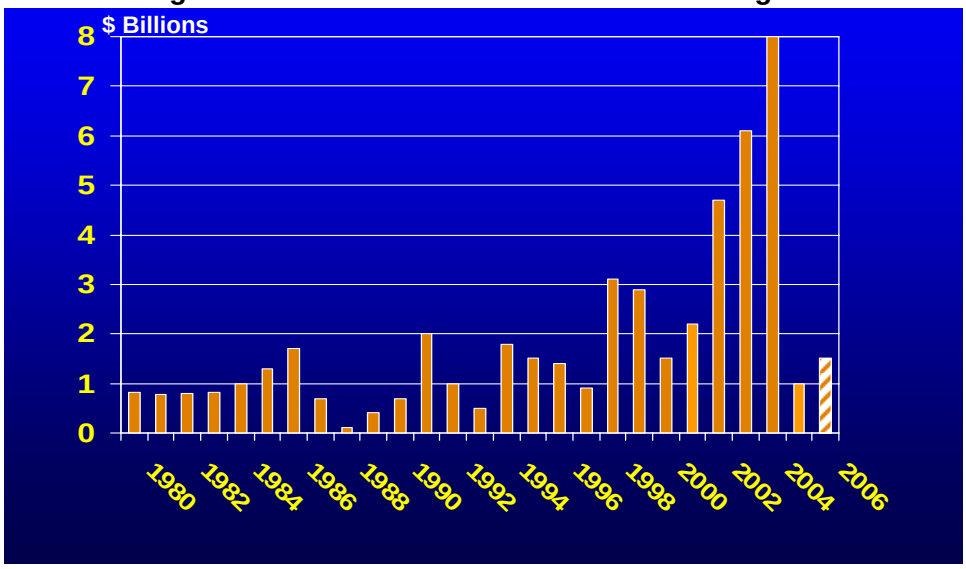
Figure 3: Share of Washington Area Economy
1970-2005



The key factor influencing the Washington region's growth pattern has been federal procurement spending. This has been particularly true for Northern Virginia during the past twenty years and helps to explain its growing share of the regional economy. It also helps to explain the economy's greater volatility in Northern Virginia. Recent data confirm that annual increases in federal procurement spending dramatically slowed in 2005 and 2006 after three years of double-digit increases (see Figure 4).

In 2005, Federal spending totaled an estimated $111.7 billion. This amount, which includes all procurement outlays, payroll, Medicare, retirement and disability payments, as well as grants, accounts for approximately 35 percent of the Washington area's gross

Figure 4:
Annual Change in Federal Procurements in the Washington Metro Area



regional product. Procurement outlays represent nearly half (47 percent) of all Washington area federal spending. The total value for federal spending in 2006 has not yet been reported but is expected to total above $116.5 billion – reflecting a pattern of slower growth going forward.

What is now known is that the largest source of federal spending—procurement outlays for locally provided goods and services—increased only slightly in 2005 and 2006 (up 2.8 percent) in contrast to its 19.0 percent gain in 2004. Preliminary totals (several agencies have not yet reported their data for all FY 2006) reflect federal procurement growth of only $1.5 billion or 2.8 percent.

The historic pattern of federal procurement spending in the Washington area is shown in Table 4 with 2006 preliminary spending totaling nearly $28 billion in Northern Virginia alone.

Table 4
Federal Procurement Spending in the Washington Metropolitan Area, FY 2005 and 2006*
(in billions of current dollars)

Sub-state area	2005	2006*	Change	% Change
District of Columbia	$12.9	$13.8	$0.9	6.7%
Suburban Maryland	$11.9	$12.2	0.3	2.6%
Northern Virginia	$27.3	$27.6	0.3	1.1%
Total Metro Area	$52.1	$53.6	1.4	2.8%

Source: GMU Center for Regional Analysis, 2007
Sources: Eagle Eye Publishers, Inc. and GMU Center for Regional Analysis. Note: federal procurement totals exclude purchases by the US Postal Service, FAA and other "off-budget" outlays.
**2006 values are Preliminary---reporting by some agencies is incomplete.*

The impact of slower federal spending on the Washington area economy will not be as significant as in the late 1980s due to the economy's increased scale and diversification achieved since 1995. However, slower Federal spending growth in 2005 and 2006 relative to prior years has resulted in slower employment and income growth, and this pattern is projected to continue over the next five years as shown in Figure 5. Still, Northern Virginia is expected to continue leading the way into the future as illustrated by the projected Gross Regional Product (GRP) growth rates presented in Table 5.

The employment forecast for the Washington metropolitan area and its sub-state portions is presented in Table 6. With this year's growth of regular, full-time employment averaging 45,000 through four months. At this time, the estimated job growth in Northern Virginia is on target.

The 2008 job growth rate in the Washington region is projected to equal or surpass the job gain in 2007. The annual job growth rate is projected to moderate slowly to the end of the decade. Job growth in Northern Virginia will account for between 50 and 60 percent of the Washington area total although its job growth will be more susceptible to changes in federal procurement spending and could drop below projection if procurement spending slows at a greater rate than currently assumed.

Figure 5:
Economic Outlook to 2011: Percent Change in Gross Regional Product for the Washington MSA and Sub-state Portions

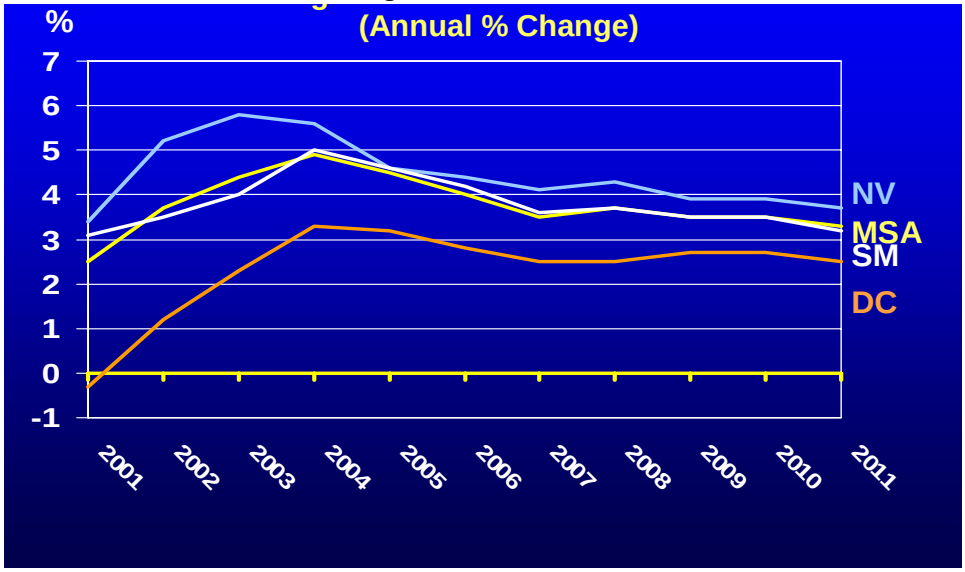


Table 5
Gross Regional Product, 2006-2011 Washington Metro Area and Sub-state Portions (in Billions of 2006 Dollars)

	Metro Area		DC	Suburban MD	Northern VA	
Year	Value	% Change	% Change	% Change	Value	% Change
2006	$346.7	3.9%	2.8%	4.2%	$160.4	4.4%
2007	$359.1	3.6%	2.5%	3.6%	$167.0	4.1%
2008	$372.6	3.8%	2.5%	3.7%	$174.2	4.3%
2009	$385.7	3.5%	2.7%	3.5%	$181.0	3.9%
2010	$399.2	3.5%	2.7%	3.5%	$188.0	3.9%
2011	$412.3	3.3%	2.5%	3.2%	$195.0	3.7%

Source: GMU Center for Regional Analysis, 2007

Table 6:
Forecasted Employment Change by Sub-state Region (in Thousands)

	2006	2007	2008	2009	2010	2011
DC	6.1	5.3	5.7	5.0	4.6	4.1
Suburban MD	10.6	10.5	12.6	12.6	12.5	11.6
Northern VA	30.5	28.7	32.9	31.4	29.6	25.9
Region	*47.2*	*44.5*	*51.2*	*49.0*	*46.7*	*41.6*

Source: GMU Center for Regional Analysis

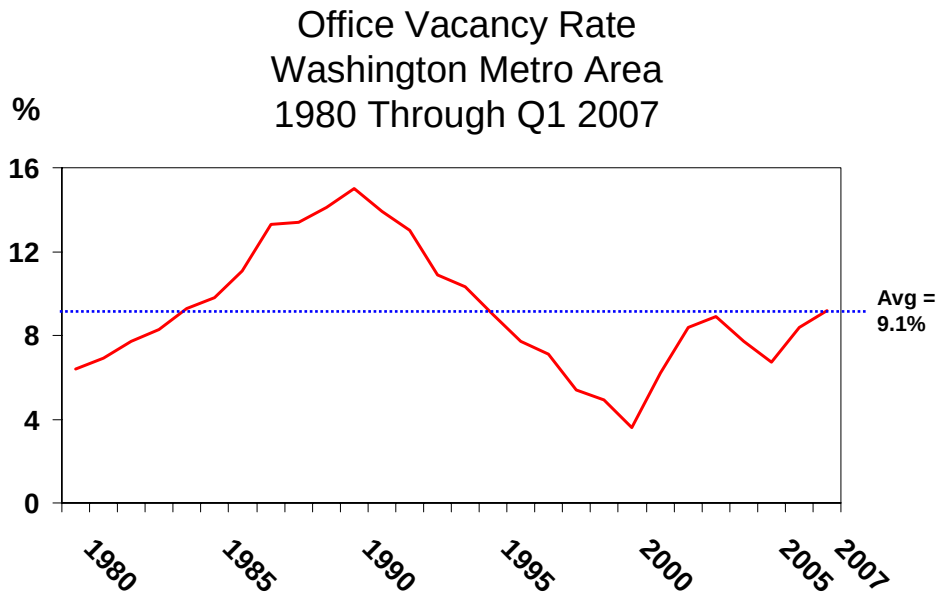
The Region's Commercial Real Estate Market

The Washington metropolitan area office market has reflected the area's economic performance, as the market has been strong for the past few years. The market

experienced steady growth in 2006, although it was below the rapid growth rates experienced in both 2004 and 2005. Absorption for 2006 was approximately 1.5 million square feet less than the long-term average annual absorption. Construction activity remained high through the 2006 but showed signs of moderating as pre-leasing activity for pipeline projects declined.

As illustrated in Figure 6, vacancy rates as of the first quarter of 2007 have crept up to the long-term average and are likely to creep above the long-term average for the rest of 2007 and in 2008. This suggests that there is still some appetite for continued office development, but investors may take a wait and see approach to planning new projects as a number of projects come on line.

Figure 6

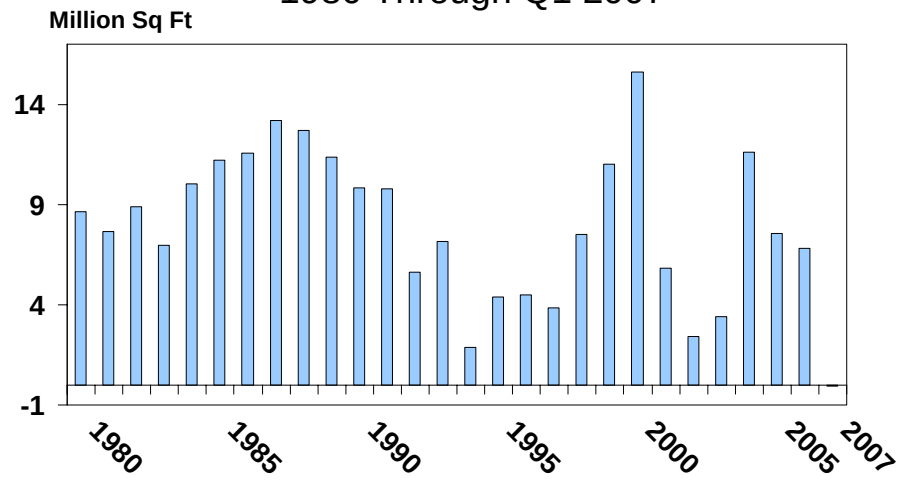


Source: Delta Associates

Deliveries of office space in 2006 totaled approximately 13.4 million square feet, exceeding the long-term average of 11.1 million square feet. Through the first quarter of 2007, the trends suggest the office may be slightly over-built as construction of new space continues to outpace office space absorption. These trends are shown in Figures 7 and 8.

Figure 7

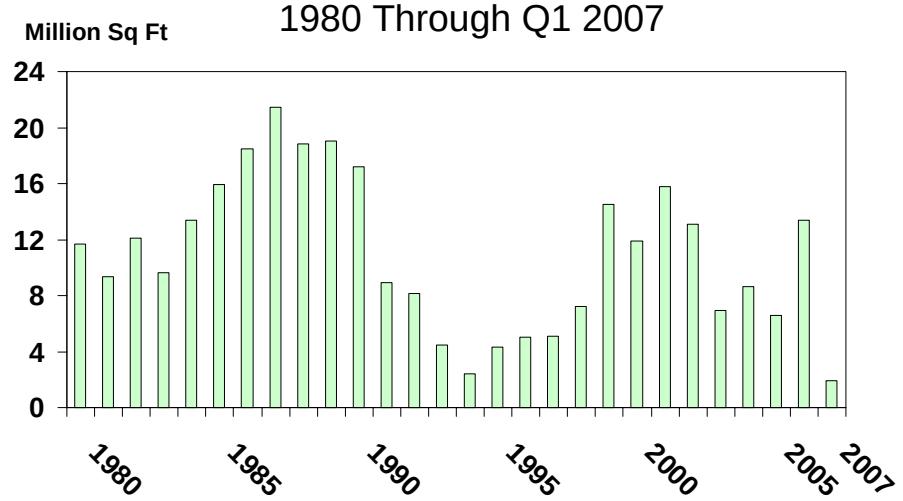
Net Absorption of Office Space
Washington MSA
1980 Through Q1 2007



Source: Delta Associates

Figure 8

Washington Metro Area
1980 Through Q1 2007



Source: Delta Associates

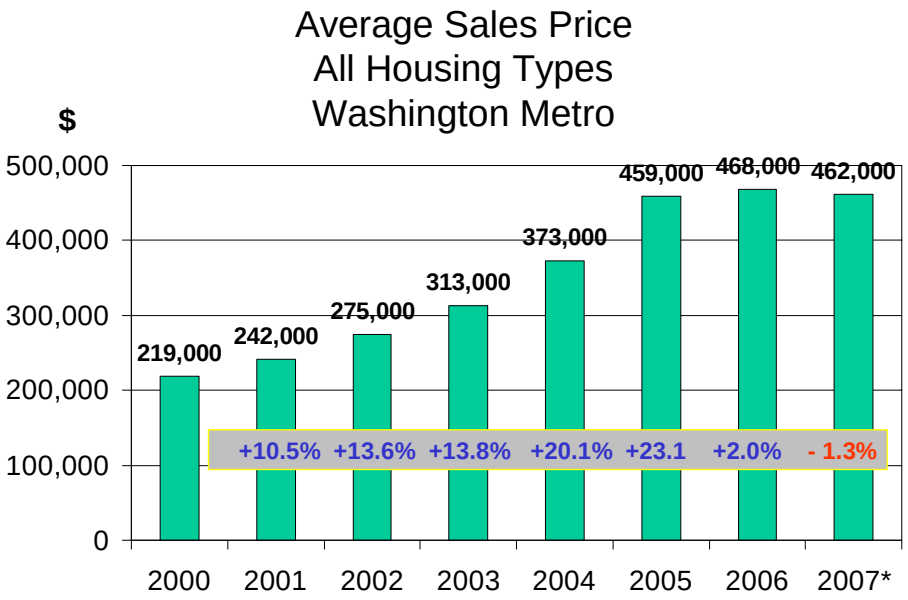
In the first quarter of 2007, the region actually experienced negative net absorption while delivery and construction of new space continued. In 2006, builders started constructing 14.7 million square feet of new office space, of which Northern Virginia accounted for 60 percent. An increased imbalance between new construction and office space absorption will likely lead to rising vacancy rates. In turn, the region can also

expect to see declining rental rates if this trend continues. This will especially be true in Northern Virginia where the majority of construction activity will likely continue. These trends could potentially extend into the 2009-2011 period when construction activities at Fort Belvoir and Quantico and the availability of space (probably dominated by renovated buildings) will begin to show up in the Crystal City and Rosslyn submarkets.

The Region's Housing Market

The housing market in the Washington metropolitan area has cooled significantly in 2006 and into 2007. This market change followed several years of record increases in housing sales and prices. Shown in Figure 9 is the average metro area housing price between 2000 -2007.

Figure 9



Source: MRIS, GMU Center for Regional Analysis

As noted in the Figure, the metro area experienced five consecutive years of double-digit price increases, with increases in each year of 2004 and 2005 at greater than 20 percent. The price increases outstripped the increase in area income levels, and a market adjustment ultimately has begun occurring. Month-over-the-year prices turned negative in mid-2006. In 2007, average prices through April were actually lower than 2006 prices. Inventory levels and other indicators are returning to more normal market levels, suggesting that the adjustment period is likely almost over. Prices in some parts of the metropolitan area have turned positive already.

Using Metropolitan Realtor Information System (MRIS) data for sales from January to April of 2006 and 2007, the average housing price for all housing types for the Washington DC metropolitan area increased 1.9 percent. Table 7 reveals, however, at the jurisdictional level, there was wide variation. For instance, in the District of Columbia the average price was up 3.2 percent; in Northern Virginia the prices declined by 1.2

Table 7
Average Home Prices by Jurisdiction, Washington MSA
All Housing Types, January to April Sales Each Year

Jurisdiction	2006 Prices	2007 Prices	06-07 Price Change	2006-2007 % Change
District of Columbia	$ 510,600	$ 527,000	$16,400	3.2%
Arlington	$ 561,600	$ 534,900	-$26,700	-4.8%
Clarke	$ 445,900	$ 370,100	-$75,800	-17.0%
Fairfax	$ 531,100	$ 524,600	-$6,500	-1.2%
Fauquier	$ 483,200	$ 459,900	-$23,300	-4.8%
Loudoun	$ 539,900	$ 512,500	-$27,400	-5.1%
Prince William	$ 427,400	$ 409,500	-$17,900	-4.2%
Spotsylvania	$ 334,200	$ 324,900	-$9,300	-2.8%
Stafford	$ 390,400	$ 377,500	-$12,900	-3.3%
Warren	$ 278,700	$ 281,600	$2,900	1.0%
Alexandria City	$ 497,500	$ 494,400	-$3,100	-0.6%
Fairfax City	$ 485,400	$ 513,100	$27,700	5.7%
Falls Church City	$ 610,400	$ 650,200	$39,800	6.5%
Fredericksburg City	$ 368,800	$ 291,800	-$77,000	-20.9%
Manassas City	$ 366,000	$ 332,100	-$33,900	-9.3%
Manassas Park City	$ 382,100	$ 344,200	-$37,900	-9.9%
Northern Virginia	$ 486,400	$ 480,700	-$5,700	-1.2%
Calvert	$ 401,200	$ 388,200	-$13,000	-3.2%
Charles	$ 347,900	$ 357,800	$9,900	2.8%
Frederick	$ 352,500	$ 355,500	$3,000	0.9%
Montgomery	$ 506,700	$ 525,800	$19,100	3.8%
Prince George's	$ 329,600	$ 338,900	$9,300	2.8%
Suburban Maryland	$ 403,800	$ 422,600	$18,800	4.7%
Jefferson Co WV	$ 309,000	$ 272,900	-$36,100	-11.7%
Washington MSA	$ 453,900	$ 462,300	$8,400	1.9%

Source: MRIS, GMU Center for Regional Analysis

percent; in Suburban Maryland prices rose 4.7 percent; and Jefferson County, WV, saw prices drop by 11.7 percent. Most individual Northern Virginia jurisdictions also continued to have a negative appreciation in prices while most Suburban Maryland jurisdictions witnessed a turnaround in their sales values. Part of the reason for this difference is that home prices in Northern Virginia rose more rapidly during the 2002-2005 period than did prices in Maryland and have suffered from a greater market adjustment. These jurisdictional variations in home prices will continue as the market stabilizes and recovers at different rates across the metropolitan area.

Prices in Fairfax have almost stabilized as average home values declined 1.2 percent between 2006 and 2007, while average prices in Prince William (-4.2 percent), Loudoun

(-5.1 percent), and Stafford (-3.3 percent) are still dropping indicating that the markets in those three counties have not yet recovered. One of the major reasons for this is that there has been more new housing constructed in Loudoun and Prince William than in many parts of the region so there is more competition for housing buyers. In 2008 and 2009, the outlook is that all markets will have recovered and will slowly return to the long-term normal price growth rate of approximately 7 percent per year.

Defense Contracting Trends

The major reason that the Washington metro economy has outperformed all other major metro markets in this decade is federal procurement from area companies. Northern Virginia companies have benefited most from this spending, and companies providing services to the Federal government have performed very well during the last several years. Data for FY 2005 (the most recent year for which complete procurement data is available) show that Northern Virginia had $27.3 billion, representing 52 percent of the region's total Federal procurement activity.

Of the $52.4 billion total in the region, the Department of Defense represented half. DOD procurement is particularly important to Northern Virginia, more so than in other parts of the Washington metropolitan area. In FY2005, Northern Virginia contractors won 70.8 percent of DOD's regional procurement, totaling $18.5 billion.

Table 8
DOD Procurement in Northern Virginia
FY2000 - FY2004
Millions of Current $

Jurisdiction	2000	2004	Change	% Chg
Arlington	$1,410	$2,587	$1,177	83%
Clarke	$0	$0	$0	0%
Fairfax	$3,940	$8,539	$4,599	117%
Fauquier	$9	$12	$3	33%
Loudoun	$292	$1,269	$977	335%
Prince William	$195	$317	$122	63%
Spotsylvania	$ 0	$61	$61	--%
Stafford	$003	$4	$1	33%
Warren	$0-	$4	$4	--%
Alexandria	$922	$1,685	$763	83%
Fairfax City	$765	$1,375	$610	80%
Fall Church	$1,305	$610	$(695)	-53%
Fredericksburg	$4	$17	$ 13	325%
Manassas	$465	$658	$ 193	42%
Manassas Park	$0	$2	$2	--%
Northern Virginia	$9,310	$17,140	$7,830	84%

Source: Consolidated Federal Funds, GMU Center For Regional Analysis

Data by county is currently available only through FY2004, and Table 8 shows that DOD procurement activity has increased significantly in most Northern Virginia jurisdictions. From FY2000 to FY2004, DOD procurement in all of Northern Virginia increased from $9.31 billion to $18.54 billion, an increase of 99.1 percent.

The majority of contracting is with firms located in Fairfax County, but other jurisdictions including Loudoun and Prince William have seen significant increases in DOD procurement. FY2005 and FY2006 data will likely show moderating levels of growth because overall Federal procurement growth rates are slowing significantly. Certainly, Federal procurement in general and especially DOD procurement are fundamental parts of the strength of the Northern Virginia economy and are expected to remain so for the foreseeable future.

The region's strength with DOD is greatly tied to the location of the Pentagon in Arlington and the relatively easy access to major contracting entities in the Inner-Beltway suburbs and along the Dulles Corridor. The shift of some of the contractors to Fort Belvoir and Quantico could have some impact on future location decisions of these contractors, but it is important to realize that many of the largest contractors have been successful in diversifying their contract base with multiple agencies. A large contractor presence in the Springfield-to-Stafford County corridor would involve a substantial shift of the contracting entities to a relatively small and as yet unproven office market in a period of weakening office development activity and increasingly competitive rents in the Dulles Corridor and Crystal City.

Certainly, a few contractors will need to be nearby the two installations, but the total amount of activity is still uncertain. For instance, many of the military decisions about specific units are still being made so it may still be too early to determine exactly how much outside-the-base contractor facility leasing or acquisition activity might be expected in the emerging I-95-corridor office market. The analysis later in this report demonstrates the impact of outside-the-base contracting will likely be relatively small compared with other Northern Virginia office markets.

IV: Economic Impacts of Proposed BRAC Actions

This section of the report reviews the impact of inbound and outbound job moves affecting the Northern Virginia Workforce Investment Board region. The analysis focuses on four key components. First, the analysis addresses the likely impact of the direct job moves of military, civilian and embedded contractor positions in approximately 100 units affected by the BRAC recommendations pertaining to Northern Virginia. Second, we analyze the likely impact that these moves would have on the residential distribution of current impacted workers once the moves are completed in 2011. Understanding likely residential relocations is particularly useful in determining potential commuting patterns, housing needs and public school enrollments resulting from changes occurring as a consequence of inbound and outbound job relocations.

The third component of the analysis specifically discusses the economic spin-offs likely to occur from anticipated construction activity necessary to accommodate the new facility and infrastructure needs at Fort Belvoir and Quantico. The fourth component then examines the likely spin-off resulting from indirect and induced economic activities generated to support the net new direct job moving to the two installations.[11] This assessment examines indirect and induced impacts to estimate the number of jobs and total income that might be generated as a consequence of the planned moves. These impacts include activity resulting from "outside-the-gate" contractors as well as the spin-off impacts resulting from the relocated workers spending *new* money on consumer goods and services in the Northern Virginia WIB region.

Job Relocation Impacts

As noted earlier in the report, more than 26,000 jobs are expected to be relocated to Fort Belvoir and Quantico. Table 9 specifies the types of positions held by current inbound and outbound workers. According to the BRAC recommendations and more recent data, 58 percent or 14,620 jobs moving to Fort Belvoir and Quantico are held by DOD civilians, another 20 percent or 5,194 jobs are military jobs and 22 percent or 6,314 jobs are for embedded contractor positions. A sizable number, almost 20,000 of these employees work in civilian and military jobs. Most (more than 14,620) are civilian DOD employees working in highly technical fields and management positions in certain command units. Another large share (nearly 5,200) is primarily Army military personnel.

The remaining 24 percent (or more than 6,300) are contractors whose positions are considered mission critical to their respective agencies and who physically work on-site alongside their DOD colleagues. Frequently, these embedded contractors help the agencies to meet operational needs and may help to complete short-term assignments or fill positions for which the government has no Full Time Employee (FTE) allotment or for which the government may prefer to acquire through the private sector. In fact, as

[11] Indirect impacts relate to the economic activity resulting from the military purchasing services from contractors and vendors. Induced impacts result from workers and their households using their paychecks to buy consumer goods and services.

Table 9
Inbound and Outbound Job Moves in the Northern Virginia WIB Region

BRAC Recommendations	Military	Civilian	Embedded Contractors	Total
Direct Inbound Jobs - Total	5,194 (20%)	14,620 (56%)	6,314 (24%)	26,128
Inbound Moves to Fort Belvoir	*4,843*	*12,868*	*5,759*	*23,470*
Army Leased (#132)	557	2,163	0	2,720
OSD/Washington Headquarters Services (WHS) et al. (#133)	2,693	5,066	1,504	9,263
Co-locate Missile and Space Defense Agencies (MDA HQCC) (#134)	13	124	155	292
National Geospatial-Intelligence Agency Activities (NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY (NGA)) (#168)	266	4,134	4,100	8,500
Realign Walter Reed National Military Medical Center (#169)	1,258	811	0	2,069
The elements of the Program Executive Office for Enterprise Information Systems (PEO EIS) (#5)	56	424	0	480
Discretionary Moves*	0	146	0	146
Inbound Moves to Quantico – Investigative Agencies (#131)	*351*	*1,752*	*555*	*2,658*
Direct Outbound Jobs - Total	926 (20%)	3,343 (73%)	322 (7%)	4,591
from Fort Belvoir	450	2,305	96	2,851
from Quantico	50	0	6	56
from Bailey's Crossroads	426	1,038	220	1,684
Net Direct Job Impacts	4,268 (20%)	11,277 (52%)	5,992 (28%)	21,537

Source: the 2005 BRAC Recommendations Report & the Fort Belvoir Draft EIS Report, 2007. Note: The data of military, civilian and embedded jobs were obtained from the 2005 BRAC Report, except for National Geospatial -Intelligence Agency (NGA) and PEO EIS. The estimates of military, civilian and embedded contractor jobs for National Geospatial -Intelligence Agency (NGA) and PEO EIS moving to are calculated based on the proportion of National Geospatial -Intelligence Agency (NGA) jobs moving to Maryland and the ratio of total military, civilian and contractor jobs moved out of Fort Monmouth, New Jersey.

one interviewee noted, a casual observer walking through an office could not be sure which workers are civilian employees of the agency and which are contractors. Some agencies prefer their contractors to be embedded because they can negotiate away some of the overhead costs associated with space rental, and office expenses that they might otherwise have to pay for contractor support. Quite often, however, the embedded contractors are working on sensitive projects that DOD would prefer be completed within their own secure facilities.

Frequently, the embedded contractors are engaged in providing information technology, administrative support, analysis, or technical services on special assignments.

The National Geospatial Intelligence Agency (NGA) employs the largest share of embedded contractors. NGA provides geospatial intelligence support, analyzing, storing, maintaining, and sharing global satellite imagery and sensing intelligence. Washington Headquarters Services (WHS), a DOD administrative function, also has a substantial number of embedded contractors, many of whom work in administrative roles. These personnel, recognized in the BRAC recommendations, are deemed core to the mission of many agencies. Presumably, the respective agencies would ultimately be required to pay for relocating these personnel along with their respective command units.

For the purposes of most analyses, moves by embedded contractor positions are frequently treated like "direct" job impacts even though they are not federal jobs. This is not surprising since they would move simultaneously to the related military and/or civilian jobs for which they provide contractual services. However, as will be explained later, treating these positions exactly the same as federal positions serves to overstate the likely impact of indirect contractor impacts. After all, these jobs represent an important part of the contractor impacts of federal military and civilian job moves. This issue will be discussed in more detail later in the report.

Of the positions relocating from the region, only a small share is composed of embedded contractors. Of nearly 4,600 jobs being relocated from Fort Belvoir, Quantico and Bailey's Crossroads, nearly three-quarters (73 percent) are federal civilian positions, 20 percent are military, and only 7 percent (or 322) are embedded contractors. The largest group of embedded contract positions being relocated from the region currently work in leased space at Bailey's Crossroads. Combined, inbound and outbound moves will add about 21,500 net new workers into the Northern Virginia WIB region. More than half of these positions are DOD civilian workers.

Defining the Geographic Scope of the Impact Analysis

The scope of this analysis primarily focuses on the Northern Virginia Workforce Investment Board region, but it is important to assess the impacts of job shifts on all of Northern Virginia as well as the greater Washington area. As Table 10 illustrates, the jobs shifts to Fort Belvoir and Quantico will either add more than 21,500 net new jobs or cause a net loss of nearly 2,000 jobs – depending on how one defines the region of interest. The table illustrates that if the region of interest is simply the two installations and the leased space at Bailey's Crossroads, there will be a net movement of more than 21,500 jobs. The Northern Virginia WIB region can expect an additional 17,500 workers moving to job sites in the region. For Virginia state policy makers, only 5,800 new workers will be moving into the state as a result of these defined BRAC moves. However, regional leaders will have to address the loss of approximately 2,000 residents from the National Capital area resulting from this same set of moves. These numbers illustrate the dramatic difference that precise geographic boundaries can have in assessing BRAC impacts on a region.

A big part of what makes these particular BRAC moves so complicated to analyze is the on-going churn of job shifts within the region and anticipating the expected impact on the residential decisions of workers. Because so many of the positions already exist in

Table 10:
Net Impacts of Job Relocation by Different Geographic Regions

Region	Military	Civilian	Embedded Contractors	Total
Total – Net Impacts (Fort Belvoir, Quantico, & Bailey's Crossroads)	4,268	11,277	5,992	21,537
Total Inbound moves	5,194	14,620	6314	26,128
Total Outbound moves	926	3,343	322	4,591
No VA WIB Region	4,139	9,343	4,062	17,545
Net Inbound moves	4,568	12,399	4,160	21,068
Net Outbound moves	429	2,996	98	3,523
Within the region moves[1]	1,123	2,628	2,378	6,128
No VA Region	1,224	1,854	2,687	5,766
Net Inbound moves	1,653	4,850	2,785	9,289
Net Outbound moves	429	2,996	98	3,523
Within the region moves	4,038	10,117	3,753	17,907
National Capital Area	-266	-1,959	270	-1,955
Net Inbound moves	163	1,037	368	1,568
Net Outbound moves	429	2,996	98	3,523
Within the region moves	5,258	13,930	6,170	25,628

Note: (1). The moves occurring within the NVA-WIB Region includes the 409 positions moving out of Fort Belvoir to Quantico and the estimated nearly 3,700 positions from National Geospatial-Intelligence Agency (NGA) located in different sites around Fairfax County, VA to Fort Belvoir.

the region and so many workers are already employed in the region, many workers will not have to actually move from their homes to remain with their current jobs. The following section explores the impact of these job shifts on the likely residential patterns of current and new workers.

Residential Relocation Impacts

The media has focused its attention on the prospects of thousands of jobs moving to Fort Belvoir in Fairfax County and Quantico in Prince William County; however, a key complementary question being asked is just how many people will be moving into Fairfax and Prince William County as a result of the BRAC actions. In determining the residence changes we must account for several factors. First, we must examine where BRAC-affected employees of the agencies being relocated to and from the area currently live, then estimate how many will likely follow their jobs, and finally make a number of assumptions about how far they would be willing to commute to their new job locations. A corollary to this analysis is examining the likely natural turnover of employees and the likely residential location of new hires joining the agencies. Combined, this represents a particularly complex exercise for the planned Fort Belvoir and Quantico moves.

Fort Belvoir Residential Distribution

The first step in the process is to determine where the affected workers currently live. We began this exercise by first looking at the residential location of those impacted by the Fort Belvoir inbound moves. As part of the Fort Belvoir Draft Environmental Impact Statement (EIS), certain affected units released information about the current residence of their workers. For example, the EIS provided information about the residential patterns of those currently employed at Fort Belvoir,[12] those working for NGA, and those employed with the Office of the Secretary of Defense's Washington Headquarters Services (WHS).[13] These data were based on both payroll and direct surveys of employees. When we had access to both data sets, we opted for direct surveys because we found that a small proportion of the workers have payroll addresses that represented their permanent address rather than their current physical residence. For this purpose, we felt that the current residence was a more accurate depiction of daily commuter activity and the likely location of their family during the regular school year.

For other agencies relocating to Fort Belvoir, we had no readily available public data about the current employee residential distribution so we set out to estimate the residential pattern of those agencies' workers. For instance, we did not have information about the residential location of current Walter Reed employees. We did, however, have information on the location of workers at the nearby National Geospatial-Intelligence Agency (NGA) Bethesda facility. We used that residential distribution as a proxy for the distribution of Walter Reed workers, assuming that workers commuting to Bethesda and the extreme northern end of Washington, DC (where Walter Reed is located) would likely select relatively similar places to live.

Likewise, we had no information about workers posted in the Army's leased space – located primarily in Crystal City and Rosslyn. Since the Washington Headquarters Services (WHS) is also located primarily in space in Crystal City and to some lesser degree Rosslyn, we assumed that the workers located in Army leased space would likely have similar commuting patterns as those working for WHS.

We also had no information about the residential location of workers employed with the Program Enterprise Office for Executive Information Systems (PEO/EIS), but since that unit is currently located in Fort Monmouth, New Jersey, we naturally assumed that their workforce would be located primarily far outside the National Capital Area. Thus, any of the PEO/EIS workers opting to move with their jobs would be expected to move into the Washington area.

Finally, a small number of workers at Information Technology, E-Commerce, and Commercial Contracting Center (ITEC), Walter Reed, and Fort Monmouth are also included in this analysis. While they are not technically BRAC-impacted, they are expected to be shifted at DOD's discretion so that they can remain closely aligned to their

[12] See Table 4.3-1 on p. 4-43 of Draft EIS for Fort Belvoir BRAC-related construction for residential data on current Fort Belvoir workers.
[13] See Table 4.3-15 on p. 4-75 of Draft EIS for Fort Belvoir BRAC-related construction for residential data on BRAC-affected National Geospatial-Intelligence Agency and Washington Headquarters Services workers.

primary activities. Based on the available data and assumed residential patterns for each of the BRAC-impacted units moving to Fort Belvoir, Table 11 illustrates where those workers currently live – BEFORE the BRAC moves are implemented.

Table 11:
2006 Residential Distribution of BRAC-IMPACTED Employees Scheduled to Relocate to Fort Belvoir

INBOUND RELOCATING EMPLOYEES/ INBOUND (BRAC AND RELATED)	No. of Employees in 2006	2006 % Dist.
Arlington & Alexandria	2,618	11%
N. Fairfax & Loudoun	4,550	19%
Fairfax (southern part)	2,917	12%
Prince William	2,299	10%
Stafford County (Near South)	849	4%
Fauquier, Spotsylvania, King George	1,047	4%
DC	994	4%
Prince George's	2,443	10%
Montgomery	1,937	8%
Howard, Fredrick, Charles	2,753	12%
Outside the Washington Metropolitan area	1,064	5%
Total	*23,470*	*100%*

Since Fort Belvoir is located so close to I-95 and the Capital Beltway in Fairfax County, we assume those employees already living in Northern Virginia would simply rearrange their commuting patterns and continue to live at their current location once their job location is moved to the installation. In addition, we anticipate that the large majority of personnel currently living outside Northern Virginia will likely opt to move with their respective job and most will also change residences to do so. But this is not always the case, especially for those living in the Maryland suburbs closest to Washington, DC.

Unfortunately, we have no precise data on the likelihood that current workers residing in Maryland will move, but we attempted to do our best to make rational assumptions about their likely choices. For instance, we anticipate workers currently living in Montgomery County are most likely to commute from their existing residence, but we had to assume some proportion (in this case an estimated 20 percent) will decide that the commute is simply too far or too onerous and will ultimately buy or rent a new home closer to Fort Belvoir. Likewise, we anticipate a larger share (about 50 percent) of those living in the outer suburban Maryland ring (e.g., Frederick, Charles, or Howard Counties) would make a similar decision. In other words, should they decide to remain with their unit as it relocates to Fort Belvoir, they will eventually decide to relocate their residence to be closer to work. Finally, we expect any worker whose job is relocating from outside the Washington metro area will opt to change residences if they remain with their job.

Clearly, there will be attrition as a result of the BRAC moves. According to US Bureau of Labor Statistics and the Office of Personnel Management data, slightly greater than one-half of the BRAC-affected jobs can be found in one of 24 different occupational

categories. The average turnover rate for these positions is about 3.8 percent annually. Based on this data we can expect by 2011 that 19 percent of all of the BRAC affected jobs would turnover as a part of natural attrition. This information is important because we can expect that new hires, knowing their job will eventually be located at Fort Belvoir, are more likely to select residential locations that are similar to the residential distribution of current Belvoir employees. Factoring in the current residential distribution of current employee locations—including those moving to Fort Belvoir as well as anticipated new hires resulting from attrition, we can expect more than 60 percent of the incoming workforce will live inside the Northern Virginia portion of the Washington Beltway or along the I-95 corridor between the Beltway and Stafford County. Table 12 summarizes the expected residential distribution of the BRAC-affected Fort Belvoir employees once the job shifts have been completed in 2011.

Table 12:
2011 Anticipated Residential Distribution of BRAC-IMPACTED Fort Belvoir Employees

INBOUND RELOCATING EMPLOYEES/ INBOUND (BRAC AND RELATED)	No. of Employees in 2011	2011 % Dist.
Arlington & Alexandria	2,725	12%
N. Fairfax & Loudoun	4,730	20%
Fairfax (southern part)	3,965	17%
Prince William	2,919	12%
Stafford County (Near South)	1,100	5%
Fauquier, Spotsylvania, King George	1,241	5%
DC	1,023	4%
Prince George's	2,561	11%
Montgomery	1,583	7%
Howard, Fredrick, Charles	1,582	7%
Outside the Washington Metropolitan area	41	0%
Total	23,470	100%

A key element of this analysis involves looking at the expected change in residential distribution over the five-year period between 2006 and 2011. This analysis assumes no new employment added to any of the agencies during the BRAC-recommended relocation process. A summary for the in-bound BRAC-affected employees (found in Table 13) suggests that southern Fairfax, Prince William, and Stafford Counties will add the most new households as a result of the employee moves – totaling 1,919 new employees. Prince George's County, Maryland, is likely to add a few more employees (especially as the completion of the Wilson Bridge makes the commute to Fort Belvoir much easier than in the past), but Montgomery and other Maryland counties can expect to lose 1,525 households as a result of the move. In addition, another 1,023 people will likely relocate from outside the Washington metropolitan region as a result of the shift of jobs to Fort Belvoir.

Table 13:
Change in Residential Distribution 2006-2011
for Inbound BRAC-IMPACTED Fort Belvoir Employees

INBOUND RELOCATING EMPLOYEES/ INBOUND (BRAC AND RELATED)	Net Employee Moves to (from) a Location
Arlington & Alexandria	107
N. Fairfax & Loudoun	180
Fairfax (southern part)	1,048
Prince William	620
Stafford County (Near South)	251
Fauquier, Spotsylvania, King George	194
DC	29
Prince George's	118
Montgomery	(354)
Howard, Fredrick, Charles	(1,171)
Outside the Washington Metropolitan area	(1,023)
Total	--

Thus far, this analysis has focused on Fort Belvoir's in-bound moves; however, the base is also expected to lose approximately 2,851 positions to other installations. Based on data from the recent survey of current Fort Belvoir employees, about 70 percent of those impacted workers live in southern Fairfax, Prince William, and Stafford counties (See Table 14).

Table 14:
Current Residential Distribution of
BRAC-IMPACTED Fort Belvoir Employees

OUTBOUND RELOCATING EMPLOYEES/ (BRAC-RELATED)	No. of Employees in 2006	2006 % Dist.
Arlington & Alexandria	125	4%
N. Fairfax & Loudoun	203	7%
Fairfax (southern part)	1,091	38%
Prince William	648	23%
Stafford County (Near South)	262	9%
Fauquier, Spotsylvania, King George	204	7%
DC	34	1%
Prince George's	132	5%
Montgomery	30	1%
Howard, Fredrick, Charles	120	4%
Outside the Washington Metropolitan area	0	0%
Total	2,851	100%

About 617 of those positions would be relocated elsewhere in the Washington metropolitan area (with 409 positions being moved to Quantico, and the remaining 208 largely to Bethesda). For the positions being shifted within the metropolitan area, no net changes in the residential location of relocating employees were assumed. However, about 19.1 percent of the jobs are expected to change due to attrition and some change in

residential location is anticipated for those new workers. Likewise, for the 2,314 positions being relocated, it is expected that almost all of those who do not leave their positions through attrition will likely relocate outside the Washington metropolitan area. With these moves, by 2011, about 29 percent of these same workers will still live in southern Fairfax, Prince William, and Stafford counties. About 58 percent will have moved outside the Washington area (See Table 15).

Table 16:
Anticipated 2011 Residential Distribution of BRAC-IMPACTED Fort Belvoir Employees

OUTBOUND RELOCATING EMPLOYEES/ (BRAC-RELATED)	No. of Employees in 2011	2011 % Dist.
Arlington & Alexandria	52	2%
N. Fairfax & Loudoun	85	3%
Fairfax (southern part)	455	16%
Prince William	270	9%
Stafford County (Near South)	109	4%
Fauquier, Spotsylvania, King George	85	3%
DC	14	0%
Prince George's	55	2%
Montgomery	13	0%
Howard, Fredrick, Charles	50	2%
Outside the Washington Metropolitan area	1,663	58%
Total	2,851	100%

In looking at the changes between 2006 and 2011, a large proportion of those being relocated from Fort Belvoir is expected to move to locations outside the Washington metropolitan region. This is a key fact overlooked in most discussions of the likely impact of BRAC-related activity at Fort Belvoir. Table 16 illustrates the changes that are occurring and the likely impact on the residences of those workers as a result of moves

Table 15:
Change in Residential Distribution 2006-2011 for BRAC-IMPACTED Fort Belvoir Employees

INBOUND RELOCATING EMPLOYEES/ INBOUND (BRAC AND RELATED)	Net Employee Moves to (from) a Location
Arlington & Alexandria	(73)
N. Fairfax & Loudoun	(118)
Fairfax (southern part)	(636)
Prince William	(378)
Stafford County (Near South)	(153)
Fauquier, Spotsylvania, King George	(119)
DC	(20)
Prince George's	(77)
Montgomery	(18)
Howard, Fredrick, Charles	(70)
Outside the Washington Metropolitan area	1,663
Total	-

planned from Fort Belvoir. Combined, southern Fairfax, Prince William, and Stafford Counties will lose 1,167 employees from these outbound BRAC moves. Most of these workers will be moving to Redstone Arsenal in Huntsville, Alabama with a sizable contingent moving to Fort Sam Houston in San Antonio, Texas.

In summary, during the next five years, 1,663 workers will likely move to homes outside the Washington area as compared to the 1,023 that will likely move to the metropolitan region as a result of BRAC-related moves to Fort Belvoir (See Table 17). Even so, there are also localized impacts resulting from the shifting of jobs within the metropolitan area. As a consequence, southern Fairfax County, Prince William, and Stafford are expected to gain 752 new households as a result of these net employment shifts. At the same time, suburban Maryland can expect to lose, on balance, 1,572 workers who currently live there but will likely eventually move to Northern Virginia.

Table 17:
Anticipated Net Population Change Due to Fort Belvoir BRAC Recommendations

RELOCATING EMPLOYEES/ (BRAC-RELATED)	Net Employee Residence Impact due to BRAC Activity	Net Impact on Population
Arlington & Alexandria	34	76
N. Fairfax & Loudoun	62	128
Fairfax (southern part)	412	1,121
Prince William	242	696
Stafford County (Near South)	98	303
Fauquier, Spotsylvania, King George	75	218
DC	9	19
Prince George's	41	113
Montgomery	(372)	(992)
Howard, Fredrick, Charles	(1,241)	(3,216)
Outside the Washington Metropolitan area	640	1,662
Total	--	--

Using a standard technique for estimating population, we determined the persons-per-household from US Census data and assumed that each new worker represented approximately one household. This method allows us to project the net number of new residents that would locate to each jurisdiction as a result of the Fort Belvoir-related BRAC recommendations (both the inbound and outbound moves). This analysis suggests that about 2,120 people will move to southern Fairfax, Prince William, and Stafford counties as a result. Suburban Maryland stands to lose nearly 4,100 people as a result of the BRAC moves to Fort Belvoir. Table 18 provides detail on the likely population impacts resulting from the planned BRAC moves.

Quantico Residential Distribution

The next step in the process will be to examine the likely impacts that BRAC recommendations will have on the residential distribution of personnel stationed on the Marine Corps Base at Quantico. Almost all of the moves associated with Quantico are inbound, reducing the complexity of the Quantico situation substantially. Of the 2,658

Table 18:
Anticipated Net Impacts of Inbound and Outbound Moves on Fort Belvoir's Residential Distribution

RELOCATING EMPLOYEES/ (BRAC-RELATED)	Net Inbound Employee Moves to (from) a Location	Net Outbound Employee Moves to (from) a Location	Net Residence Impact of Inbound and Outbound BRAC Activity
Arlington & Alexandria	107	(73)	34
N. Fairfax & Loudoun	180	(118)	62
Fairfax (southern part)	1,048	(636)	412
Prince William	620	(378)	242
Stafford County (Near South)	251	(153)	98
Fauquier, Spotsylvania, King George	194	(119)	75
DC	29	(20)	9
Prince George's	118	(77)	41
Montgomery	(354)	(18)	(372)
Howard, Fredrick, Charles	(1,171)	(70)	(1,241)
Outside the Washington Metropolitan area	(1,023)	1,663	640
Total	--	--	--

employees expected to move to Quantico, only 182 are coming from outside the Washington metropolitan area. Already noted, 409 are currently located at Fort Belvoir. In addition, about 800 personnel area expected to relocate from Andrews Air Force Base, 710 from the Washington Naval District, and 455 from leased space in Arlington and Alexandria. Another 102 personnel are relocating from an unspecified location.

No data on the current distribution of these BRAC-affected personnel are currently available.[14] As a proxy, we used US Census Bureau journey-to-work data to estimate the current residential patterns of the employees being moved to Quantico. Since a large share of these workers is based at Fort Andrews, most currently live in Maryland. Based on these assumptions, Table 19 illustrates that the employment distribution of the new employees being relocated to Quantico are particularly dispersed with as many as 50 percent currently live in Maryland.

We assumed that new hires and relocating workers moving to Quantico by 2011 would locate in a similar residential pattern as current Quantico workers. In addition, we assumed a workforce attrition rate of 3.8 percent annually based on the average federal rate. We also assumed that (1) most of those workers will relocate to Quantico with their position and (2) about 20 percent of the current Prince George's County residents, 50 percent of the current Montgomery County residents, and 80 percent of those living elsewhere in Maryland will eventually relocate due to their job change. Therefore, Quantico will likely have a large contingent of its BRAC-impacted workers who choose to continue to living in Maryland while commuting to the base. This is probably

[14] It is possible that this information might be included in the Draft Environmental Impact Statement for Quantico. However, the Draft EIS was not available at the time of this analysis. It was scheduled for release in July 2007.

Table 19:
2006 Residential Distribution of BRAC-IMPACTED Inbound Employees Scheduled to Relocate to MCB Quantico

INBOUND RELOCATING EMPLOYEES/ INBOUND (BRAC AND RELATED)	No. of Employees in 2006	2006 % Dist.
Arlington & Alexandria	174	7%
N. Fairfax & Loudoun	163	6%
Fairfax (southern part)	319	12%
Prince William	178	7%
Stafford County (Near South)	74	3%
Fauquier, Spotsylvania, King George	64	2%
DC	265	10%
Prince George's	645	24%
Montgomery	201	8%
Howard, Fredrick, Charles	476	18%
Outside the Washington Metropolitan area	99	4%
Total	2,658	100%

especially true given that Maryland commuters would likely be against the traditional flow of commuters. Table 20 summarizes the likely new residential distribution of those whose jobs are being relocated to Quantico. Certainly, future surveys of inbound employees will likely confirm or disprove these assumptions, but the total likely impact on southern Fairfax and Prince William Counties would result in about 550 new workers moving their families into the area.

Prince William and Stafford Counties are likely to add the most new households as a result of the shifts to Quantico. Based on current and future residential patterns, about 794 new employees are likely to move to the two counties as a result of the inbound moves, relocating largely from Maryland's outer suburban counties – including Howard,

Table 20:
Change in Residential Distribution 2006-2011 for Inbound BRAC-IMPACTED Quantico Employees

INBOUND RELOCATING EMPLOYEES/ INBOUND (BRAC AND RELATED)	Net Employee Moves to (from) a Location
Arlington & Alexandria	(25)
N. Fairfax & Loudoun	70
Fairfax (southern part)	(20)
Prince William	577
Stafford County (Near South)	217
Fauquier, Spotsylvania, King George	152
DC	(46)
Prince George's	(244)
Montgomery	(130)
Howard, Fredrick, Charles	(463)
Outside the Washington Metropolitan area	(88)
Total	--

Frederick, and Charles Counties. Table 21 provides a summary of the likely changes in the residential patterns of the inbound Quantico workers.

Quantico has only 56 positions being realigned from the facility. These positions are being moved to Chesapeake, VA. Not surprisingly, using US Census commuting data, we estimate that about 70 percent of the affected workers live in Prince William and Stafford Counties. This group likely already includes commuters traveling from outside the Washington metro area as illustrated in Table 22.

We expect that all of the workers taking these positions would relocate from the region. Table 23 illustrates the net change in residences for the 56 positions during the next five years.

Table 21:
Current Residential Distribution of
Outbound BRAC-IMPACTED Quantico Employees

OUTBOUND RELOCATING EMPLOYEES/ (BRAC-RELATED)	No. of Employees in 2006	2006 % Dist.
Arlington & Alexandria	0	0%
N. Fairfax & Loudoun	5	8%
Fairfax (southern part)	2	3%
Prince William	29	51%
Stafford County (Near South)	11	19%
Fauquier, Spotsylvania, King George	8	14%
DC	0	0%
Prince George's	1	1%
Montgomery	0	0%
Howard, Fredrick, Charles	0	0%
Outside the Washington Metropolitan area	0	0%
Total	56	100%

Table 22:
2011 Anticipated Residential Distribution of
BRAC-IMPACTED Quantico Employees

INBOUND RELOCATING EMPLOYEES/ INBOUND (BRAC AND RELATED)	No. of Employees in 2011	2011 % Dist.
Arlington & Alexandria	149	6%
N. Fairfax & Loudoun	233	9%
Fairfax (southern part)	299	11%
Prince William	755	28%
Stafford County (Near South)	291	11%
Fauquier, Spotsylvania, King George (Remainder of VA)	216	8%
Fauquier, Spotsylvania, King George	219	8%
DC	401	15%
Prince George's	71	3%
Montgomery	13	1%
Howard, Fredrick, Charles	11	0%
Total	2,658	100%

Table 24:
Change in Residential Distribution 2006-2011
for Outbound BRAC-IMPACTED Quantico Employees

INBOUND RELOCATING EMPLOYEES/ INBOUND (BRAC AND RELATED)	Net Employee Moves to (from) a Location
Arlington & Alexandria	0
N. Fairfax & Loudoun	(5)
Fairfax (southern part)	(2)
Prince William	(29)
Stafford County (Near South)	(11)
Fauquier, Spotsylvania, King George	(8)
DC	0
Prince George's	(1)
Montgomery	0
Howard, Fredrick, Charles	0
Outside the Washington Metropolitan area	56
Total	-

For Quantico, examining the anticipated changes between 2006 and 2011, the key issue is that a large proportion of those being relocated to the base are already living in the Washington metro area. However, a large number are living in suburban Maryland and the key question is whether they will opt to make the longer commute, ultimately leave their jobs, or relocate closer to the base. Combined, southern Fairfax, Prince William, and Stafford Counties will lose 42 of the 56 outbound employees, many of whom will likely move to the Hampton Roads area. Table 24 illustrates the impact on the residences of area employees currently based at Quantico.

Table 23:
Anticipated 2011 Residential Distribution of
BRAC-IMPACTED Quantico Employees

OUTBOUND RELOCATING EMPLOYEES/ (BRAC-RELATED)	No. of Employees in 2011	2011 % Dist.
Arlington & Alexandria	0	0%
N. Fairfax & Loudoun	0	0%
Fairfax (southern part)	0	0%
Prince William	0	0%
Stafford County (Near South)	0	0%
Fauquier, Spotsylvania, King George	0	0%
DC	0	0%
Prince George's	0	0%
Montgomery	0	0%
Howard, Fredrick, Charles	0	0%
Outside the Washington Metropolitan area	56	100%
Total	0	100%

Factoring both the inbound and outbound moves related to Quantico, southern Fairfax, Prince William and Stafford Counties can expect 732 more workers living in the area as a direct result of the Quantico-related BRAC actions (See Table 25). This is almost as large as the net impact of the Fort Belvoir moves on the same I-95 corridor area. Also as a result of the BRAC activities at Quantico, suburban Maryland can expect to lose about 836 workers who currently live there but will likely relocate.

Table 25:
Anticipated Net Impacts of Inbound and Outbound Moves on Quantico's Residential Distribution

RELOCATING EMPLOYEES/ (BRAC-RELATED)	Net Inbound Employee Moves to (from) a Location	Net Outbound Employee Moves to (from) a Location	Net Residence Impact of Inbound and Outbound BRAC Activity
Arlington & Alexandria	(25)	0	(25)
N. Fairfax & Loudoun	70	(5)	65
Fairfax (southern part)	(20)	(2)	(22)
Prince William	577	(29)	548
Stafford County (Near South)	217	(11)	206
Fauquier, Spotsylvania, King George	152	(8)	144
DC	(46)	0	(46)
Prince George's	(244)	(1)	(243)
Montgomery	(130)	0	(130)
Howard, Fredrick, Charles	(463)	0	(463)
Outside the Washington Metropolitan area	(88)	56	(32)
Total	--	--	--

Again, using a standard persons-per-household measure for each of the jurisdictions affected, we estimated the net number of new residents that would likely locate to each jurisdiction as a result of the Quantico-related BRAC recommendations (both the inbound and outbound moves). This analysis suggests that about 2,152 people will move to southern Fairfax, Prince William, and Stafford counties as a result – slightly more than the number expected because of the Fort Belvoir moves (see Table 26). Suburban Maryland stands to lose more than 2,200 people as a result of the BRAC moves to Quantico.

Bailey's Crossroads Residential Distribution

The remaining step in the process of analyzing the residential distribution impacts of BRAC-impacted workers involves examining the moves from leased space at Seven Corners and Skyline. The BRAC recommendations impacting Bailey's Crossroads affects 1,684 workers, 659 of which are being shifted to Fort Belvoir and 36 are being moved to Fort Meade. The remaining jobs are being relocated outside the National Capital area. The distribution of employees is estimated based on Census-derived commuting patterns for workers located in Fairfax, Arlington, and Alexandria combined. That estimated distribution is described in Table 27.

Table 26:
Anticipated Net Population Change Due to Quantico BRAC Recommendations

RELOCATING EMPLOYEES/ (BRAC-RELATED)	Net Employee Residence Impact due to BRAC Activity	Net Impact on Population
Arlington & Alexandria	(25)	(56)
N. Fairfax & Loudoun	65	135
Fairfax (southern part)	(22)	(62)
Prince William	548	1,574
Stafford County (Near South)	206	640
Fauquier, Spotsylvania, King George (Remainder of VA)	144	421
Fauquier, Spotsylvania, King George	(46)	(97)
DC	(243)	(682)
Prince George's	(130)	(347)
Montgomery	(463)	(1,199)
Howard, Fredrick, Charles	(32)	(82)
Total	--	--

Table 27:
Anticipated 2011 Residential Distribution of BRAC-IMPACTED Bailey's Crossroads Employees

OUTBOUND RELOCATING EMPLOYEES/ (BRAC-RELATED)	No. of Employees in 2011	2011 % Dist.
Arlington & Alexandria	76	5%
N. Fairfax & Loudoun	89	5%
Fairfax (southern part)	146	9%
Prince William	92	5%
Stafford County (Near South)	41	2%
Fauquier, Spotsylvania, King George	32	2%
DC	8	0%
Prince George's	29	2%
Montgomery	7	0%
Howard, Fredrick, Charles	20	1%
Outside the Washington Metropolitan area	1,143	68%
Total	1,684	100%

More than two-thirds of these jobs will be shifted to Redstone Arsenal in Alabama and Fort Sam Houston in Texas. We assume almost all of those workers will either relocate or leave their positions. We also assume that many of the workers being relocated to Fort Meade or Aberdeen would likely move to Maryland. However, we do not expect much change in the residential patterns for those moving to Fort Belvoir except as a result of attrition. The projected residential distribution of these employees in 2011 would shift most of the jobs outside the region, but a few would remain. Table 28

Table 28:
Current Residential Distribution of
Outbound BRAC-IMPACTED Bailey's Crossroads Employees

OUTBOUND RELOCATING EMPLOYEES/ (BRAC-RELATED)	No. of Employees in 2006	2006 % Dist.
Arlington & Alexandria	152	9%
N. Fairfax & Loudoun	177	11%
Fairfax (southern part)	455	27%
Prince William	286	17%
Stafford County (Near South)	126	8%
Fauquier, Spotsylvania, King George	101	6%
DC	42	3%
Prince George's	143	9%
Montgomery	34	2%
Howard, Fredrick, Charles	101	6%
Outside the Washington Metropolitan area	67	4%
Total	1,684	100%

illustrates the anticipated residential distribution of workers for the 1,684 jobs in 2011. Nearly 70 percent of the jobs will be lost to the Washington metropolitan area.

As a result of the shifts, nearly 2,800 people are expected to relocate from the Washington metropolitan area. For Bailey's Crossroads, examining the anticipated changes between 2006 and 2011, the large proportion of those being relocated will be moving to Texas, Alabama, and Maryland. Texas and Alabama, in particular, will gain from households moving from Northern Virginia. Table 29 illustrates that southern Fairfax, Prince William, and Stafford Counties can expect to lose 1,663 people as a result

Table 29:
Anticipated Net Impacts of Outbound Moves from Bailey's Crossroads on Area Residential Distribution

RELOCATING EMPLOYEES/ (BRAC-RELATED)	Net Outbound Employee Moves to (from) a Location	Net Residence Impact of Inbound and Outbound BRAC Activity
Arlington & Alexandria	(76)	(165)
N. Fairfax & Loudoun	(88)	(183)
Fairfax (southern part)	(308)	(840)
Prince William	(194)	(558)
Stafford County (Near South)	(85)	(265)
Fauquier, Spotsylvania, King George	(69)	(199)
DC	(34)	(70)
Prince George's	(114)	(320)
Montgomery	(27)	(72)
Howard, Fredrick, Charles	(81)	(210)
Outside the Washington Metropolitan area	1,076	2,794
Total	--	--

of these planned moves.

Within-Region Job Shifts

In preparation for combining the inbound moves to Quantico and Fort Belvoir as well as the outbound moves from Bailey's Crossroads and the two installations, it is important to remember that a proportion of the jobs are being moved from one of these locations to another. As noted earlier, 409 jobs are being shifted from Fort Belvoir to Quantico and 659 jobs are being relocated from Bailey's Crossroads to Fort Belvoir. The residential distribution of these BRAC-impacted workers is found in Table 30. It is anticipated that there would be very minor shifts in the residential distribution of these workers as a result of the job changes. In fact, most of those changes would occur as a direct consequence of attrition in which the newly hired worker opts to live slightly closer to their new job location.

Table 30:
Anticipated 2011 Residential Distribution of
BRAC-IMPACTED Fort Belvoir Employees*

OUTBOUND RELOCATING EMPLOYEES/ (BRAC-RELATED)	No. of Employees Relocated from Fort Belvoir to Quantico	No. of Employees Relocated from Bailey's Cross Crossroads to Ft Belvoir	Total Employment Impact
Arlington & Alexandria	18	59	77
N. Fairfax & Loudoun	29	69	98
Fairfax (southern part)	157	178	335
Prince William	93	112	205
Stafford County (Near South)	38	49	87
Fauquier, Spotsylvania, King George	29	40	69
DC	5	16	21
Prince George's	19	56	75
Montgomery	4	13	17
Howard, Fredrick, Charles	17	40	57
Outside the Washington Metropolitan area	0	26	26
Total	409	659	1,068

**Note: NGA is moving a portion of its employees from locations within Fairfax County; however, the residential distribution of these personnel was included in a survey of BRAC-impacted employees so they are not included here.*

Total Impacts

Combining BRAC recommendations affecting Fort Belvoir, Quantico, and Bailey's Crossroads, the net effect on southern Fairfax and Prince William Counties is 677 new workers and 1,932 new residents. In addition, Stafford will add about 219 new workers and 678 new residents. By comparison, during the past six years, Fairfax added 6,800 new residents per year; Prince William added nearly 12,800 per year, and Stafford added 4,600 per year. Maryland counties stand to lose the most from the shifts, with 2,632 workers being relocated from the state and about 6,924 people moving as a result of the BRAC recommendations. Table 31 provides a detailed analysis by locality.

Table 31:
Anticipated Net Change in Residential Distribution for all BRAC-IMPACTED Activities in the Northern Virginia Workforce Investment Board Area

Residential Relocation Affects on Employees for ALL BRAC-RELATED ACTIVITIES	2006 Employee Residence	2011 Employee Residence	Number Changing Residence	NET POPULATION IMPACTS
Arlington & Alexandria	3,069	3,003	(66)	(145)
N. Fairfax & Loudoun	5,098	5,137	39	81
Fairfax (southern part)	4,784	4,864	81	220
Prince William	3,440	4,036	596	1,712
Stafford County (Near South)	1,322	1,541	219	678
Fauquier, Spotsylvania, King George	1,424	1,575	151	440
DC	1,335	1,264	(71)	(147)
Prince George's	3,364	3,046	(319)	(889)
Montgomery	2,203	1,674	(529)	(1,411)
Howard, Fredrick, Charles	3,451	1,667	(1,784)	(4,624)
Outside the Washington Metropolitan area	1,230	2,914	1,684	4,375
Total	30,719	30,719	--	--

To generate an estimate of the total number of children without the benefit of a direct worker survey, we used data from the US Census on the number of school-age children per household. According to the American Community Survey, Fairfax County households had an average of 0.60 school-aged children per household in 2005. Likewise, Prince William County had 0.65 and Stafford had 0.67 school-aged children per household. Using these averages and the population changes summarized in Table 31, the planned BRAC moves will likely cause an increase in Prince William school enrollment of about 358 new children, southern Fairfax County can expect an additional 50 more children, and Stafford County might expect nearly 145 new students by 2011.

These are very modest increases in school-aged enrollment when one considers that Prince William added nearly 2,200 school-aged residents per year during the first half of this decade. Meanwhile, Stafford added 600 school-aged residents per year between 2000 and 2005; and Fairfax added about 800 school-aged residents per year. In relative terms, the largest strain on the school system caused by BRAC may be felt in southern Prince William and Stafford Counties, adding to the impact resulting from more rapid population growth.

Construction Impacts

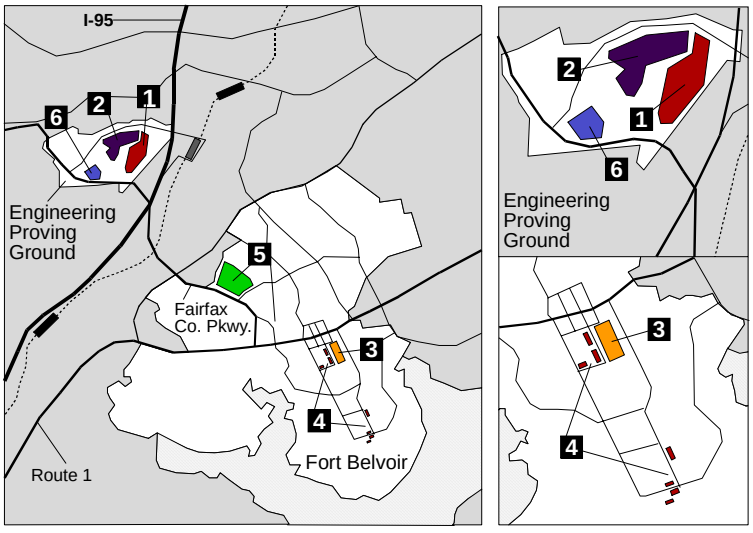
One of the most immediate impacts of the BRAC recommendations will be during the construction phase of the project – especially between 2008 and 2011. More than 7 million square feet of office space and numerous planned infrastructure improvements will be underway, creating job opportunities and disruption at Fort Belvoir and Quantico. In this section, we assess the impact of those construction projects in terms of economic output and jobs on the regional economy.

The analysis of construction impacts focuses on examining the on-base and related off-site infrastructure construction requirements identified to meet DOD and contractor

space needs. The BRAC-recommended moves will eventually double the size of the workforce at Fort Belvoir. Figure 10 illustrates that the Engineer Proving Ground (EPG) will likely serve as the site for 18,000 of those workers. As proposed in the Belvoir New Vision Plan, the EPG site would be the home to Washington Headquarter Services and the National Geospatial Intelligence-Agency. The remaining 4,000 workers—representing the DeWitt Army Hospital, Army leased space occupants, the Missile Defense Agency, and the Program Enterprise Office for Executive Information Systems—are slated to join the 23,000 military and civilian employees already working on the Main Post of Fort Belvoir. In addition, the Army Museum and ancillary facilities will be located on the Main Post.

According to the Fort Belvoir Draft EIS report, the Army will spend nearly $3.78 billion alone for constructing facilities to house and support the proposed BRAC actions.[15] However, specific building cost estimates for individual proposed construction and renovation projects were not available in the EIS report. The project team consulted with builders, architects, and economic development experts to obtain the most current regional average construction costs for different kinds of facilities. The estimates varied widely, from $140 to $275 per square foot for relevant office-style construction and an estimated $250 per square foot for hospital construction. However, many experts contended that the costs for building secure facilities at Belvoir would likely result in higher than average estimates. Based on the total amount of $3.78 million budgeted for construction and renovation projects at Fort Belvoir, we estimated the construction costs for office style construction would be closer to $377 per square foot. These per-square

Figure 10:
Fort Belvoir BRAC Preferred Siting Strategy



Source: Fort Belvoir Draft EIS, Preferred Alternative

[15] See Appendix page G.1-3, the Draft EIS Report, 2007. The total construction expenditures for the proposed BRAC action at Fort Belvoir are $3,784,298,100 covering from 2007 through 2011.

foot estimates are factored in to include the cost of construction for all projects at Fort Belvoir and Quantico, except the Army Museum. According to the *Belvoir Eagle*, Fort Belvoir's base newspaper, the construction cost for the museum is estimated to be $181 million for the 300,300 square-foot facility. The 124,800 square foot museum support facility is expected to cost another $34 million.[16] Thus, the per-square-foot cost for museum construction is projected to be about $603 and the ancillary facility is $272.

Table 32 provides a rough estimate of the construction costs for various proposed BRAC action and non-BRAC related construction activity in Fort Belvoir and Quantico. In our analysis, the BRAC-related construction activity includes the office facility needed for the six major agencies relocating to Fort Belvoir, the new parking required to accommodate the facility's expanded workforce, numerous newly planned renovation projects on the base, and transportation improvement projects designed to serve increased traffic on the facility. These estimates were developed using data representing the preferred land use alternative as identified in Belvoir's Draft EIS report.

At Fort Belvoir, the cost of completing 6.3 million square feet of BRAC-related office and related construction projects is estimated as $2.4 billion for a proposed built space. These office projects refer to the construction of administrative facilities and a new hospital. In addition, Fort Belvoir's plan for in-bound workers also calls for parking an additional 16,482 vehicles. This would require an estimated 7 million square feet of parking facilities. Currently, DOD has not yet made any final decisions on how parking will be configured, but since more than 80 percent of new workers will be added to the Engineer Proving Ground, we estimate that nearly 13,220 parking spaces of those spaces will be required at the EPG. The remaining 3,260 parking spaces would be needed on the Main Post. Given the large parking requirement needed at EPG in a relatively small land area, we assumed that a substantial portion of that parking would have to be made available through structured parking. Our review of the parking footprint for the Main Post suggests that most of it would be built as graded and landscaped asphalt parking with some components provided in the form of above-ground structured facilities.

To derive the estimated costs for these facilities, we consulted a number of construction experts who suggested that per-square foot costs for structured parking would be about $83 per square foot. Paved-ground parking was estimated at about $29 per square foot. These costs include all grading, circulation routes, and related entry and exit routes. Assuming these rates for building structured parking, the per vehicle space construction estimate is about $35,360 and the estimated cost for paved-ground parking is approximately $12,340 per vehicle.

At Fort Belvoir, the estimated total value for constructing the above-ground structure for about 13,220 spaces would be an estimated $467 million and about $40 million for the 3,260 at-grade spaces. Combining both parking requirements, the estimated construction cost at Fort Belvoir would be approximately $507.7 million in order to

[16] The estimated construction costs for the Army museum and its support facility are reported in the news released by Belvoir Eagle at https://www.officialbrac.com/bracNews_old.asp#16. The actual size of the facility is obtained from the Draft EIS report at Table 5-1, page 5-5.

Table 32:
Estimated Construction Costs for Proposed BRAC Action and Non-BRAC related Activity in Fort Belvoir and Quantico
(in 2006 dollar values)

	Facility Size (sq. ft.)	Estimated Direct Outlays (in thousands)
BRAC-Related Construction Activity		4,081,562
Fort Belvoir		*3,784,298*
BRAC-related office construction projects	6,303,515	2,377,375
New Parking[1]	7,000,000	507,656
Supportive Construction Projects	1,005,174	236,266
Transportation Improvement Projects[2]	n/a	663,000
Quantico		*297,264*
Office facility construction	712,000	268,531
Pre-trial Detainee Facility[3]	n/a	5,284
New Parking[4]	806,061	23,449
Non-BRAC Construction Activity in Belvoir	n/a	498,929

Source: the Belvoir Draft EIS Report, 2007 and the Department of the Army and the Navy FY 2008 Budget.
Note: [1] – New parking includes 13,220 spaces provided through above-ground structured parking and 3,260 spaces provided through paved-ground parking.
[2] - Transportation Improvement Projects include those transportation projects planned by the state that will occur even without BRAC recommendations (i.e., Complete the Fairfax Parkway, Widen I-95 from Newington to Route 123, and Complete the connector road between Telegraph Road & US Route 1) and the transportation projects fall under the preferred land use alternative.
[3] – The construction of the 10-person Pre-trial Detainee Facility in Quantico is requested in the Navy's FY2008 budget.
[4]- Quantico's new parking includes 1,900 spaces provided through paved-ground parking.

accommodate the needs. It is critical to note that these are not official estimates, but our best estimates to approximate information not previously released by the Army's planners.

Other BRAC-related activities include a series of construction and renovation projects to support BRAC-related moves. Those supporting projects refer to 20 major construction and renovation projects referenced in the Belvoir's EIS Report, excluding the above mentioned projects for administrative facilities and parking. These supporting projects are expected to cost about $236 million for building or renovating approximately 1 million square feet of facilities.

Moreover, a number of transportation improvement projects are planned on or adjacent to the base to improve the flow of traffic as a result of the increased on-base workforce. Those transportation projects include three pre-planned state projects for improving road conditions designed to meet the needs of continued growth in Fairfax County as well as 14 small-scale transportation projects identified as key components of Fort Belvoir's preferred land use alternative.[17] The costs for those transportation-oriented projects are estimated at $663 million.

[17] See Table 4.3-41 on page 4-137 & 4-138, the Draft EIS Report, 2007.

In addition to the BRAC projects at Fort Belvoir, a few smaller projects are planned that are not directly related to the Commission's recommendations but that are expected to be completed simultaneously. For instance, Army National Museum construction is anticipated during this period. The museum also has a support facility planned. Other on-post construction projects are planned as well while BRAC construction is underway. Based on the available data released by Fort Belvoir, the cost for these ancillary non-BRAC construction projects is estimated to be nearly $500 million.

Meanwhile at Quantico, the construction activity is expected be a bit more modest. The largest project identified to date is the construction of a 712,000 square-foot building to house incoming activity, but no other data have been released yet, including information about the provisions for parking. Some of this data is expected to be released in the upcoming Quantico Draft EIS (due in July 2007). Given the dearth of information, the project team assumed that parking would be provided in the form of graded and landscaped asphalt facility adjacent to the office space. Based on the number of 2,658 new employees coming to Quantico and assuming standard employee-per-parking-space ratios, we estimated that at least 1,900 parking spaces will be required. An additional facility is planned according to the Navy's FY2008 budget report. Quantico plans to construct a 10-person pre-trial detention facility starting in 2009 as part of its BRAC action. This project is also added as a component of our analysis.

No public information was currently available for any other non-BRAC related construction activity in Quantico. Therefore, this analysis of Quantico construction impact is limited to the identified office building and the related parking facilities. The number is subject to substantial revision as more information about the construction design and related costs become available in the upcoming Draft EIS report. Using similar per-square-foot construction estimates prepared for Fort Belvoir, we estimated the total construction costs for Quantico activities to be $298 million.

The total outlays associated with the proposed development program are estimated at $4.1 billion—including BRAC and non-BRAC activities identified earlier. Of that amount, $3.8 billion will be in Fairfax County and $298 million in Prince William.

The total impact of this BRAC-related spending on the regional economy over the five-year (2007-2011) construction period is expected to be $6.2 billion. This means that in addition to the $4.1 billion being spent directly on the BRAC and related projects, an additional $2.1 billion in economic activity will be generated to pay suppliers not working on site and through the paychecks that workers spend on local goods and services in the area.[18] Including non-BRAC activity, the total regional economic output would be increased to nearly $7 billion during 2007-2011.

[18] This estimate is based on an "aggregate multiplier" of 1.53. The multiplier is expressed as $0.53 of indirect expenditures for every $1.00 expended directly on the construction projects. These indirect expenditures include local suppliers in Prince William and Fairfax as well as the personal expenditures of workers for on-site contractors. When looking at a broader area, all of Northern Virginia, the multiplier of spin-off expenditures captured is slightly higher, at $0.55 in additional indirect expenditures for every $1.00 spent on the construction projects. This means that only about $0.02 per $1.00 expended will be captured in Northern Virginia counties other than Prince William and Fairfax.

Table 33:
Combined Economic Impacts of the Construction Program for BRAC and Other Key Activities in Fairfax and Prince William Counties, 2007-2011
(in 000s of 2006 dollars)

Activities	Estimated Direct Outlays for Construction	Estimated Total Output[1]	Estimated Personal Earnings[2]	Estimated Total Jobs Supported[3]
Quantico BRAC				
BRAC-related Construction	273,815	418,937	169,963	**3,017**
BRAC-related parking[4]	23,449	35,876	14,555	**258**
Subtotal Quantico ALL	*297,264*	*454,814*	*184,518*	***3,275***
Fort Belvoir BRAC				
Army Leased Space	50,161	76,746	31,136	**553**
Washington HQ Services/Office of the Sec'y of Defense	836,897	1,280,453	519,480	**9,221**
Missile & Space Defense Agencies	40,355	61,743	25,049	**445**
National Geospatial Intelligence Agency	919,716	1,407,165	570,887	**10,134**
DeWitt Hospital	353,390	540,687	219,357	**3,894**
Army Program Exec Office Enterprise Info System	176,855	270,589	109,778	**1,949**
Transportation Infrastructure (Preferred Alternative)	458,000	700,740	284,290	**5,047**
BRAC-related parking[5]	507,656	776,714	315,113	**5,594**
Subtotal Fort Belvoir BRAC Related Activities	*3,343,030*	*5,114,837*	*2,075,090*	***36,837***
Fort Belvoir Discretionary				
Transportation Infrastructure	205,000	313,650	127,248	**2,259**
Discretionary Moves[6]	225,949	345,701	140,251	**2,490**
Subtotal Fort Belvoir Discretionary BRAC Related Activities	*430,949*	*659,351*	*267,499*	***4,749***
Fort Belvoir Non-BRAC				
National Army Museum & support facility	215,000	328,950	133,455	**2,369**
Other Army projects	283,929	434,411	176,241	**3,129**
Subtotal Fort Belvoir Non-BRAC Activity	*498,929*	*763,361*	*309,696*	***5,498***
Total BRAC-Related Construction	**4,071,243**	**6,229,002**	**2,527,107**	**44,861**
Total ALL Construction (BRAC & Non-BRAC)	**4,570,172**	**6,992,363**	**2,836,803**	**50,359**

Source: GMU Center for Regional Analysis and Center for Regional Economic Competitiveness
(1) An estimate of the total value of goods and services generated directly and indirectly as a result of the initial construction outlays within Fairfax and Prince William Counties;
(2) An estimate of the additional earnings generated to individuals in Fairfax and Prince William Counties from direct outlays during the construction phases;
(3) An estimate of the additional new jobs supported in the US by the spending and re-spending of direct outlays associated with the proposed development program. This is the total for the entire 4-year construction program.
(4) Assumes all 1,900 spaces are provided through paved-ground parking;
(5) Assumes about 13,200 spaces are provided through above-ground structured parking and 3,300 spaces are provided through paved-ground parking.
(6) Includes 400 above-ground structured parking.

In conducting this analysis, the regional economy is specifically defined as Fairfax and Prince William counties and the independent cities of Falls Church, Fairfax City, Manassas City, and Manassas Park. Based on our estimates, about $5.8 billion of the impact would be in Fairfax County and $455 million would be in Prince William County. Table 33 provides a summary of the direct construction outlays anticipated for these projects and provides an estimate of the total impacts.

Focusing on the direct BRAC-related construction spending in the region, workers in Fairfax and Prince William Counties can expected to receive an estimated $2.5 billion in new personal earnings. About $2.1 billion of these earnings will accrue to workers in Fairfax and $185 million for workers in Prince William. These new earnings would support a total of 44,861 jobs over the entire four-year construction period. On average, the projects would require 11,215 jobs per year over the four-year period between 2007 and 2011. Adding the additional impacts generated by non-BRAC related construction projects, the increase of new personal earnings at $2.8 billion will support 50,391 jobs over next four years.

However, the actual number of jobs generated each year would vary based on when the construction expenditures actually occur. In general, a relatively small number of jobs are required in the first year of planning, but many more workers would be needed in 2008 and 2009 as key construction projects get well underway. Table 34 shows the estimated economic impacts of BRAC-related construction projects at Fort Belvoir and Quantico for each year between 2007 and 2011. The timing of impacts is based on a ratio of construction expenditures as provided in the Fort Belvoir Draft EIS.[19] Of the total $4.1 billion to be invested in these new activities, we estimated that 53 percent or $2.1 billion will be spent in 2008, followed by 20 percent in 2009 and 15 percent in 2010.

Table 34
Estimated Construction Spending of BRAC-related Projects in Fort Belvoir and Quantico, 2007-2011
(in thousands)

	2007	2008	2009	2010	2011	Total
Fort Belvoir						
Commercial	$105,054	$1,393,933	$471,931	$389,342	$134,604	$2,494,863
Residential	-	-	-	$32,559	$32,559	$65,118
Heavy Construction (infrastructure)	$ 55,844	$734,469	$182,100	$155,392	$86,194	$1,213,998
Subtotal – Fort Belvoir	$160,898	$2,128,401	$654,031	$577,292	$253,357	$3,773,979
Quantico						
Commercial	-	$11,595	$153,461	$47,999	$60,761	$273,815
Residential	-	-	-	-	-	-
Heavy Construction (infrastructure)	-	$1,079	$14,186	$3,517	$4,666	$23,449
Subtotal - Quantico	-	$12,673	$167,647	$51,516	$65,428	$297,264
Total BRAC-related Construction	$161,338	$2,146,894	$823,466	$630,387	$319,478	$4,071,243

[19] See Table G.1-1 on page G.1-3, the Belvoir's Draft EIS Report, 2007.

Furthermore, based on available information, 93 percent or $3.8 billion of construction money will be spent in Belvoir.

Using these data, we estimated the spending for construction activities over the next few years and categorized those expenditures into three different types of activity: commercial, residential, and heavy construction development. Of the Fort Belvoir expenditures, 66 percent (or $2.5 billion) is expected to be invested in commercial construction projects, and 32 percent will be spent for heavy construction projects, including on-post infrastructure development, new parking spaces, and outside the base transportation improvement projects. For Quantico, the single largest investment is likely to be in the construction of the office facilities and the detention center, representing about 92 percent of the total. The remainder is expected to be spent on parking and road construction activities.

As illustrated in Table 35, the total amount of explicitly BRAC-related commercial construction activity is $2.5 billion at Fort Belvoir and $273 million at Quantico. This commercial activity is likely to spin off nearly 30,500 jobs at the two locations. Heavy infrastructure activity will total about $1.24 billion at the two facilities, creating more than 13,600 jobs.

Table 35
Economic Impact of BRAC-related Construction Projects at Fort Belvoir and Quantico (in 2006 dollar values)

	Direct Outlays	Total Output	Personal Earning	Jobs Supported
Fort Belvoir				
Commercial	$ 2,494,862,990	$ 3,817,140,374	$ 1,548,616,000	27,490
Residential	$ 65,118,070	$ 99,630,648	$ 40,445,000	718
Heavy Construction (infrastructure)	$ 1,213,997,946	$ 1,857,416,857	$ 753,555,000	13,377
Subtotal	$ 3,773,979,006	$ 5,774,187,879	$ 2,342,616,000	41,585
Quantico				
Commercial	$ 273,815,236	$ 418,937,311	$ 169,964,000	3,018
Heavy Construction (infrastructure)	$ 23,448,643	$ 35,876,424	$ 14,555,000	258
Subtotal	$ 297,263,879	$ 454,813,735	$ 184,519,000	3,276
Total	$ 4,071,242,885	$ 6,229,001,614	$ 2,527,135,000	44,861

The multi-year phasing influences the total amount of personal earnings and jobs generated at Fort Belvoir and Quantico in each of the years. Table 36 highlights the estimated impacts resulting from the BRAC-related construction activities in 2008. Of the total $6.2 billion impact of BRAC-related activities, $3.3 billion will be spent in the Northern Virginia WIB region in that year alone based on the current schedule of activity. As a result, the projects will generate more than $1.3 billion in personal earnings and will support nearly 23,600 jobs in 2008.

As the construction activity slows down in the following years, the economic and job impacts will decrease as well. For instance, $822 million in construction are planned for

Table 36
Estimated Economic Impacts of BRAC-related* Construction Projects, 2007-2011
(in 2006 dollar values)

Year	Direct Outlays	Total Output	Personal Earning	Jobs Supported
2007	$ 160,897,562	$ 246,173,270	$ 99,873,000	1,773
2008	$ 2,141,074,737	$ 3,275,844,348	$ 1,329,012,000	23,592
2009	$ 821,677,657	$ 1,257,166,815	$ 510,034,000	9,054
2010	$ 628,808,150	$ 962,076,469	$ 390,340,000	6,929
2011	$ 318,784,779	$ 487,740,712	$ 197,876,000	3,513
Total	$ 4,071,242,885	$ 6,229,001,614	$ 2,527,135,000	44,861

**Note: Excludes non-BRAC related activities.*

2009, a somewhat smaller amount than in 2008. These activities will still employ a significant number of workers, but will be relatively smaller than in 2008.

Of the 44,861 jobs that will be created by the BRAC-related activities during the entire construction period, about 41,585 jobs and $6.2 billion in output will occur at Fort Belvoir, representing 93 percent of the investment. About 3,276 and $455 million in spin-off economic activity will be at Quantico. The economic impacts of construction programs in Fort Belvoir and Quantico will certainly be concentrated in Fairfax and Prince William Counties, but some activities are expected to extend to other Northern Virginia jurisdictions (see Table 37).

Table 37:
Economic Impacts of BRAC-related Construction Projects in Northern Virginia
(in thousands, 2006 values)

Region	Direct Outlays	Total Output	Personal Earning	Jobs Supported
BRAC Region – Fairfax & Prince William Counties	$ 4,071,243	$ 6,229,002	$ 2,527,135	44,861
Other NOVA Counties	$0	$ 81,424	$ 18,128	823
NOVA Region – Washington DC MSA Region	$ 4,071,243	$ 6,310,426	$ 2,545,263	45,684

Source: GMU Center for Regional Analysis and Center for Regional Economic Competitiveness

In addition to the $4.1 billion spending estimated for supporting related BRAC moves to Fort Belvoir and Quantico, we estimated that the impact on the entire Northern Virginia's regional economy will receive more than $6.3 billion in total output, about $81.4 million of which will be in Northern Virginia counties outside the two BRAC-impacted counties. In addition, another $18 million of personal earnings and about 823 new jobs would be created in the counties outside Fairfax and Prince William during the entire construction period.

Indirect and Induced Economic Impacts

The impact of the BRAC-related job relocation can go well beyond the military installation itself. The job shifts to Belvoir and Quantico would have both indirect and induced impacts on the local economy. "Indirect impacts" refer to the economic activity resulting from the military purchasing services from contractors and vendors. "Induced impacts" result when workers and their households use their paychecks to buy consumer goods and services.

Indirect Impacts to Suppliers

DOD is the largest federal agency and a substantial portion of its budget is allocated to purchasing goods and services. Consequently, substantial spin-off impacts might be expected. In this particular case, a sizable portion of those services are provided by embedded contractors supplemented by support contractors.

The BRAC recommendations reported the number of contract employees working on-site in each agency. Most analyses treat the embedded contractors as direct moves, but we believe this overstates the overall impact of the planned relocation by double counting the embedded contractors, first as "direct impacted" workers and then again as "indirect impacted" workers. Economic impact models typically estimate the total economic activity for all suppliers, but these models do not distinguish embedded contractors from off-site contractors. Instead, the model simply identifies an estimated total number of spin-off jobs created through agency procurements. Thus, if embedded contractors are counted as part of the direct BRAC impact, the model counts them again as indirect impacts. In other words, economically, these contractors rely on a DOD procurement action and must be considered to be part of the indirect spin-off from the relocation of military and civilian jobs. Consequently, an accurate impact analysis would remove contracted employees, counting them as part of the indirect impacts resulting as spin-offs generated by the relocation of military and civilian jobs.

We used two economic models, the US Bureau of Economic Analysis (BEA) RIMS II model as well as Strategic Advantage, produced by Economic Modeling Specialists, Inc. These models use data from the US BEA that tracks the buyer and supplier relationships among firms to estimate how much impact a particular event might have on the overall economy. The data tracks how much companies buy from one another (indirect impacts) and how much their workers buy from the local economy (induced impacts). These indirect and induced effects are combined and added to the total DOD expenditures to equal the overall impact. The ratio of this total impact compared with the total revenues represents the multiplier. To illustrate, if the total budget for relocated DOD activities were $1 billion and the total spin-off in terms of contracts with suppliers as well as the purchase of consumer goods and services totaled $500 million, then the multiplier is said to be 1.5 (i.e., the $1 billion budget combined with $0.5 billion in spin-offs, then divided by the direct impact of $1 billion).

These data can also be analyzed in terms of jobs as well expenditures. On average, for every $1 billion in federal expenditures, the government typically employs slightly

more than 5,000 people. In addition, another 3,200 people work in an array of other organizations including contractors, retailers, local government agencies, and a number of other industries. Our model estimates also indicate which industries are most likely to employ these spin-off workers. In examining the effect of embedded contractors on the analysis, we first looked at the number of estimated spin-off jobs created in two key industries: professional and technical services (NAICS Code 54) and administrative and supportive services (NAICS Code 561). We expect that the embedded contractors will be represented primarily in one of these two categories.

To determine the number of out-of-base contractor spin-offs, we subtract the number of known embedded contractors (using the information provided in the BRAC recommendations report or in more recent updates) from the total spin-off employment in these two industry categories. We expect that any other industry employment that would likely require office space to deliver their good or service would be the best candidates for outside-the-base employment.

Using this approach, we estimated that approximately 12.6 percent of the total job changes created by embedded contractors would be professional and administrative service jobs that were not already accounted for in the embedded contractor employment. Table 38 provides more detail about the likely indirect impacts generated by the anticipated military and civilian job moves to Belvoir and Quantico as well as outbound activity from the two installations and Bailey's Crossroads. Of a total of 26,128 jobs being moved to Belvoir and Quantico, one might expect an additional 12,568 jobs to support those jobs. The model estimates that 90 percent of those indirect jobs (or 11,262) will be in Fairfax while all of the remaining 1,306 would likely locate in Prince William. Of course, because Quantico is relatively near the county line, there may be some leakage of these jobs into Stafford County. The model also estimates that the spin-off jobs will include about 1,161 positions working for professional and administrative services firms that are most likely to be contractors with off-base locations. In addition, 11,407 jobs are

Table 38:
Indirect Impacts of BRAC Recommendations in the Northern Virginia WIB Region

	BRAC Recommendations (including embedded contractors)	Indirect Outside the base Contractor Spin-offs	Other Indirect Impacts	Total Indirect Impacts
BRAC-Inbound				
Fort Belvoir	23,470	1,059	10,203	11,262
Quantico	2,658	102	1,204	1,306
Total	26,128	1,161	11,407	12,568
BRAC-Outbound				
Fort Belvoir	2,851	240	1,738	1,978
Quantico	56	2	29	31
Bailey's Crossroads	1,684	40	982	1,022
Total	4,591	282	2,749	3,031
Net Indirect Impacts	21,537	879	8,658	9,537

expected to be created in goods and services, including retail, wholesale trade, construction, health and local government work.

In contrast, more than 3,000 jobs will likely be lost as a result of the plan to move 4,591 positions out of the region. This estimate includes 282 jobs that are currently already working for contractors located outside the base as well as 2,749 jobs that currently provide other goods and services. On balance, about 879 net new professional and administrative service jobs will be created outside the base. Assuming a requirement of 250 square feet per worker, this would suggest a demand for about 220,000 square feet of office space in the area directly related to needs of these professional and administrative service firms. Much of this space may need to be near Fort Belvoir or Quantico because many contractors have a restriction in their contract that requires that they be located within a certain distance (often three to five miles) or travel time (often within 20 minutes) of the facility.

At the same time, the net indirect impact generated from the moves would total about 9,537 new jobs providing goods and services to support the larger workforce at Fort Belvoir and Quantico, primarily located in Fairfax and Prince William Counties.

Retail Impacts

Estimates of the impact of the planned job shifts to the area on increased purchases of consumer goods and services provides a basis for understanding likely increased retail sales as well as related activities. To determine this, we estimated the number of retail jobs that would be required to support the increased number of military, civilian, and embedded contract workers. Using a standard ratio of total retail sales per job in Northern Virginia garnered from the US Census, we then estimated the total amount of sales that would likely be generated by the added retail jobs.

Based on this analysis, the 26,000 new jobs moving to Fort Belvoir and Quantico would generate approximately $66.6 million in increased retail sales (see Table 39). This

Table 39:
Induced Impacts of BRAC Recommendations in the Northern Virginia WIB Region

	Induced Consumer Goods & Services Spin-Offs
BRAC - Inbound	
Belvoir	$59,675,732
Quantico	$6,962,138
Total	$66,637,870
BRAC - Outbound	
Belvoir	$7,694,787
Quantico	$24,841
Bailey's Crossroad	$4,336,641
Total	$12,156,269
Net Induced Impacts	$54,481,600
Additional Training Impacts	$6,522,400
Total Induced Impacts	$61,004,000

would be offset by $12.2 million lost from those 4,600 jobs being relocated from the region, leaving about $54.4 million in net new retail sales. Of this amount, about 90 percent would be contributed by the sales to workers located in Fairfax County, while most of the remaining 10 percent would result from workers located in Prince William County. The dilemma is that we do not have details on the precise location of those sales. For instance, a large proportion of the lost jobs are in the Skyline and Seven Corners area, an important shopping area in eastern Fairfax County while many of the new jobs are moving to Fort Belvoir and Quantico. The related retail at those two installations will be either captured on base or at new workers' highly dispersed residential locations across the region.

The $54.5 million of net new retail sales could have potentially significant implications if a sizable share could be captured at retail locations on base or near Fort Belvoir or Quantico. According to retail experts, Northern Virginia's estimated retail sales per square foot are approximately $400 to $500 per square foot in 2006 dollars.[20] This per-square-foot rate would translate $54.5 million of retail sales into a need for a total of at least 100,000 to 130,000 square feet of related retail space. Of course, the space required adjacent to the two facilities would be less because so little of the sales would likely be captured immediately outside either of the two installations.

In addition to these retail sales, one other impact that is not fully incorporated into the model is related to on-base training activities at Quantico. MCBQ has long served as the focal point for professional military education, including Marine Corps University. Through various education and training programs, marine officers, training officers in the U.S. Armed Forces or international officers from other countries all receive basic or intermediate leadership training at Quantico. According to base officials, approximately 263 students are on- site during any given day to receive training. In assessing the impact, we assumed these students spend their time in local hotels and the average is based on 200 days of training per year. In addition, we also assumed that trainees receive government per diem at $124 per day.

Based on these assumptions, we calculated the total impact of student spending to be more than $6.5 million a year, creating jobs for 139 workers in Prince William County, primarily in food services and accommodations. Combined with $54.5 million in induced impacts, the $6.5 million in training impacts total $61 million in retail sales, food services, and related consumer services related to the expanded employment in the region.

[20] Estimated retail sales per square foot range widely from $200 to $600 per square foot. We opted for relatively moderate rate reflecting the potential construction of new facilities.

V: Occupation Needs and Training Options

An analysis of the increased occupation demand and related training needs should focus on two major components. The first emphasizes the workers being relocated to the region, and the second examines the particularly substantial needs of the huge public construction program anticipated at both Fort Belvoir and Quantico.

During the course of the past year, we continuously sought to gain data on jobs and occupations that will be shifted to the two facilities. However, publicly available data are still sparse about the specific jobs and occupations being relocated in many of the command units. This is related to two key issues. First, the agencies in DOD's Washington Headquarters Services (OSD/WHS) and Army leased space are still finalizing which actual offices and positions will be moving to new facilities at Fort Belvoir. Second, many of the intelligence and security activities moving to Quantico and Fort Belvoir (e.g., the National Geospatial-Intelligence Agency (NGA) require a high degree of secrecy and clearance. As a consequence, only limited information is available about those activities.

In addition to the moving agencies, the construction trades also offer substantial employment opportunities for area residents. These jobs are being created as a result of the $4 billion construction program, and they represent new opportunities that would not otherwise be available were the BRAC recommendations not implemented. This section translates the findings to date from available data to determine implications for training and education programs that would be needed to respond to the array of BRAC opportunities.

Preliminary Assessment of the Occupations of Relocating Units

While available data about BRAC-related worker relocations are indeed meager, the very nature of the BRAC-impacted agencies offers some insight into the kinds of activities and occupations that will be relocated to the Northern Virginia region. For instance, the move of the National Geospatial-Intelligence Agency activities will involve the relocation of information technology and geospatial technicians to Fort Belvoir. This will localize the demand in the Northern Virginia WIB region for people with skills related to fields such as remote sensing, geographic information systems, network administration and support, intelligence information tasking, collection, processing, exploitation, and dissemination (TCPED), as well as archiving, and reporting-related activities. The relocation of employees currently working out of Army leased space, the Missile and Space Defense Agency Headquarters, as well as Washington Headquarters Services indicates that there will be more administrative workers in the region.

More detailed assumptions can be made about the nature of the activities associated with the movement of activities out of Walter Reed National Military Medical Center. In this instance, we assume that the proposed DeWitt Community Hospital at Fort Belvoir will resemble other general medical and surgical hospitals. Using the national staffing matrix produced by the Bureau of Labor Statistics, we find that the five largest

occupations (in descending order of demand) associated with these facilities include (1) registered nurses, (2) licensed practical/licensed vocational nurses, (3) nursing aides, orderlies and attendants, (4) maids and housekeeping cleaners, and (5) radiologic technologists and technicians.

Table 40 provides an estimate of the number of workers employed in these occupations already and an estimate of the number of new workers likely to be needed due to attrition. Registered nurses overwhelmingly represent the largest occupation associated with the relocation of activities from Walter Reed. Given that an estimated 2,121 positions will be part of this move, we can assume that roughly 600 of these positions will be registered nurses. Nursing aides, orderlies and attendants are the next most prominent occupation, and we can assume that of the jobs relocated from Walter Reed almost 170 will fall into this occupation. Table 40 also applies the replacement rate for these key occupations in order to estimate the demand for new workers to fill these jobs between 2007 and 2011. Once again, registered nurses represent the most pressing challenge, as an estimated additional 78 RNs will be needed to support the Belvoir hospital.

Unfortunately, the Department of Defense was unable to provide complete information about the exact nature and scale of the jobs—for either the DOD personnel or the embedded contractors—being relocated to Fort Belvoir and Quantico. The lack of data precludes us from estimating the specific occupational patterns and worker needs for the jobs in those fields. While BLS provides staffing patterns data for all Federal agencies, these are not specific enough to make credible estimates of staffing patterns at the affected agencies.

Table 40:
Estimated Demand in Key Occupations Relocated to DeWitt Community Hospital

OCCUPATION	PERCENT OF INDUSTRY EMPLOYMENT*	ESTIMATED NUMBER	REPLACEMENT RATE (2007-2011)**	ESTIMATED NEED, Excluding Non-Relocaters**
Registered Nurses	28.11%	596	13%	78
Nursing Aides, Orderlies and Attendants	7.84%	166	11%	18
Licensed Practical Nurses and Licensed Vocational Nurses	3.51%	74	8%	6
Maids and Housekeeping Cleaners	2.37%	50	10%	5
Radiologic Technologists and Technicians	2.34%	50	9%	4
Estimated Total Employees		2,121		

**Based on Staffing Patterns for General Medical and Surgical Hospitals (http://www.bls.gov/oes/current/naics4_622100.htm)*

***Estimated need is based on attrition expected as a result of natural attrition. This includes neither the jobs vacated due to workers opting not to move to the new location nor any hospital employment growth.*

****Source: Economic Modeling Specialists Inc.*

Construction Industry Impacts

We do not have sufficient data to analyze the occupational employment needs for many of the relocating agencies. We do, however, have sufficient information to develop estimates of the occupational requirements expected to arise from nearly $4 billion in anticipated construction investments planned at Fort Belvoir and Quantico. The following section reviews those occupational needs and identifies the most in-demand occupations, recognizing that the critical need for workers will occur in 2008 and 2009.

The planned construction at Fort Belvoir and Quantico will have a much broader economic impact than just increasing the demand for construction trades workers. As noted earlier, many related industries provide support to construction and they stand to gain significantly from these investments. Among those industries include retailing, administrative services, local government, food services, and wholesale trade.

As Table 41 illustrates, the Fort Belvoir and Quantico construction plans will result in nearly 31,000 new construction jobs in the next five years. In the most active year, 2008, the nearly 21,000 active construction jobs would represent nearly one quarter (23 percent) of the 92,300 construction jobs in the Northern Virginia WIB region. The largest impact on the workforce will be among those construction workers doing office and related commercial projects. They represent about 70 percent of the construction workers so the primary competition for workers for these projects will be with other construction jobs in the Washington metropolitan area.

Table 41:
Industries Impacted by BRAC-Related Construction at Fort Belvoir and Quantico

Industry	Job Change 2007-2011
Construction	30,871
Commercial Construction	22,072
Residential Construction	440
Heavy Construction	8,359
Retail trade	3,983
Administration and support services	1,063
Local Government[1]	1,049
Food services and drinking places	946
Wholesale trade	709

Note: [1] Local government industry refers to those jobs occurred at all levels of local governments, excluding federal and state government positions.

The anticipated slow-down in commercial construction might provide some solace to managers seeking workers in the trades, where shortages are said to already exist. In addition, workers who work for heavy construction firms represent the next largest group, representing 27 percent of the trades. These projects will likely compete for workers with other major transportation projects such as the Wilson Bridge, the Springfield I-95/I-395 "mixing bowl," and the Nationals Stadium. Several major projects along the Anacostia waterfront and National Harbor will be keen competitors for workers. Residential construction is viewed as only a minor component of these projects. These

workers will be working on housing projects as the market anticipates an emergence from its current sales doldrums in 2008 and 2009.

Other industries that will see sizable impacts as a result of BRAC include retail trade, administrative and support services, local government and food services and drinking places. However, these increases are more modest and are projected to increase by just one to three percent. Of these non-construction industries, retail trade is projected to increase the most, as it will require an additional 3,983 workers over five years. This represents a three percent increase and is consistent with other areas in which retail growth is driven by population growth.

Construction Occupational Impacts

The jobs shifts resulting from implementation of the relevant BRAC recommendations will also create opportunities for certain career pathways. Thus far, the analysis has focused on the industries that stand to benefit from the expansion of the two installations. Available data allows us to translate the likely construction industry impacts into estimates of expected occupational gains for those workers helping to build new facilities and infrastructure at Fort Belvoir and Quantico. Using the BLS staffing pattern matrix,[21] we can identify which occupations are most like likely to experience the greatest new demand.

The substantial construction activity planned at the two military installations will not only create a huge demand for construction workers, but it will also increase the demand for a number of other occupations in supporting retail, government, and administrative services. Table 42 identifies 20 in-demand occupations and the anticipated job demands for each occupation as a result of the BRAC-related construction activities during 2007-2011. In the Northern Virginia WIB area, these projects will create a particularly large demand for numerous construction-specific occupations (i.e., jobs in the construction trades and related management). Construction laborers will be in the greatest demand. Our projections suggest that projects at Fort Belvoir and Quantico will require more than 5,500 construction laborers.

Interviews with construction companies in the area suggest that it is not always easy to find enough laborers, but since they tend to require very little on-the-job training, the region's large unskilled labor force, especially its immigrant population, provides a sufficient quantity of people to fill most need. These companies, however, have expressed concern about finding more technically skilled construction trades workers. In particular, skilled workers in three occupations – carpenters, first-line supervisors, and operators – are particularly hard to find. Skilled carpenters are especially hard to find in the Northern Virginia WIB region. The projected impact analysis indicates that the BRAC-related projects at Fort Belvoir and Quantico will need as many as 3,100 carpenters in 2008 and most will be needed into 2009. First-line construction supervisors are also in short-supply, and construction companies will need as many as 1,600 by next year on various job sites in the region.

[21] This information can be found on the BLS website at http://www.bls.gov/oes/current/oessrci.htm

Table 42:
20 Fastest Growing Northern Virginia Workforce Region Occupations Resulting from Proposed BRAC-related Investments

Occupation	Jobs 2007	2008	2009	2010	2011	Total Jobs
Construction Laborers	236	3,119	958	846	371	5,530
Carpenters	208	2,746	844	745	327	4,868
First-Line Supervisors/Managers of Construction Trades and Extraction Workers	122	1,620	498	439	193	2,872
Operating Engineers and Other Construction Equipment Operators	69	913	281	248	109	1,619
Construction Managers	60	795	244	216	95	1,409
Retail Salespersons	44	586	180	159	70	1,039
Cement Masons and Concrete Finishers	36	482	148	131	57	855
Truck Drivers, Heavy and Tractor-Trailer	34	445	137	121	53	788
Cashiers	32	422	130	114	50	748
Cost Estimators	30	394	121	107	47	698
General and Operations Managers	26	338	104	92	40	600
Paving, Surfacing, and Tamping Equipment Operators	21	282	87	76	34	500
Bookkeeping, Accounting, and Auditing Clerks	22	297	91	81	35	527
Office Clerks, General	21	284	87	77	34	504
Structural Iron and Steel Workers	19	258	79	70	31	457
Helpers--Carpenters	19	254	78	69	30	450
Executive Secretaries and Administrative Assistants	18	238	73	64	28	422
Civil Engineers	17	220	68	60	26	390
Secretaries, except Legal, Medical, and Executive	16	213	65	58	25	377
Plumbers, Pipefitters, and Steamfitters	16	212	65	57	25	375

Likewise, these projects will likely demand more than 900 crane, heavy equipment, and machine operators and nearly 800 construction managers in 2008. Certainly, a large portion of these jobs will be filled by personnel moving from regional projects elsewhere that are scheduled to finish in 2008, but the sheer numbers of these job openings may create a short-term crisis for companies operating to meet strict congressionally mandated deadlines. Assuming that area construction firms are not able to find these personnel locally, they will be paying a premium to recruit the most skilled workers from other metro regions for the year or two when the greatest demand exists. This could create a need for temporary housing and exacerbate the current demand for affordable housing in one of the nation's fastest growing suburban areas.

In addition to the construction trades, several other occupations are tied closely to the projects planned at Fort Belvoir and Quantico. For instance, the region will need about 800 more truck drivers, many driving heavy-duty dump trucks, large semi-trailer trucks, and other heavy equipment to deliver materials and haul away construction debris. This

demand for truck drivers will be particularly acute for the heavy road and construction projects planned. The projects will also create an increased demand for key office support occupations, including managers, bookkeepers, and administrative support. For instance, the region is projected to need 600 new general and operations managers, 527 new bookkeeping, accounting and auditing clerks, and 504 new general office clerks. In short, not only will the construction activities create a demand for on-site workers, but it will also have an important impact on the support personnel managing and administering the very large construction contracts.

The economic impacts associated with the BRAC-related construction projects will also create new demand in a number of occupations that are not explicitly related to building buildings or infrastructure. Many of these jobs are created when construction workers and other support personnel spend their earnings at local retail establishments or service businesses. As an example, the region will need many more service workers, including retail salespersons and cashiers, to meet the need of increased retail and food service sales. Our estimates suggest that the Fort Belvoir and Quantico construction projects will create jobs for 1,039 new retail sales people and 748 cashiers during the next five years.

Other occupations that will demand more workers are local government as well as other administrative and support services. Local government workers are those employed in counties, localities, and special taxing districts. They typically consist of local public education workers (e.g., teachers, teaching assistants, and administrators). They also include patrol, sheriff, and correctional officers. Firefighters are also included. In addition, many local entities employ nurses at local public hospitals, janitorial staff, maintenance workers and groundskeepers, as well as cooks and other food preparation workers. For instance, our projections suggests that Fairfax and Prince William Counties will create 104 jobs over a five-year period for police and patrol officers to handle the increased population and employment activity resulting from the BRAC-related construction and related spin-off activities. In addition, the growth in administrative and support services will also create demand for more workers in janitors and cleaners, landscapers and security guards.

Two key issues will affect the region's ability to meet its demand for workers: the timing of the projects and the availability of qualified, eligible workers. The first recognizes that the demand for workers will occur at different rates throughout the five-year (2007-2011) construction schedule. Certainly, not all of the jobs identified will be demanded immediately. According to the planned construction schedule, about four percent of the activity will occur in 2007. The greatest push is expected to come in 2008 when 56 percent of the investments made in construction-related activities at Fort Belvoir and Quantico are scheduled to occur. After this, 2009 will witness a decline in the total demand, representing about a 17 percent share of the total investment. The share should remain almost steady at 15 percent in 2009, then decline to 7 percent in 2011. We assume that the demand for workers will follow a similar schedule. Slightly more than half of the workers would be needed in 2008, and then decline steadily until the BRAC-related work is completed on schedule in 2011. This schedule, of course, assumes that Congress does

not change the mandated deadline for all BRAC-related moves to occur. Recent news stories suggest that area legislators are advocating an extension for completion of some BRAC moves at Fort Belvoir and other legislators are advocating an adjustment to the recommendation to realign Walter Reed. Should these or other legislative amendments to the original BRAC mandate occur, the estimated impacts would likely also change.

The other issue that will affect the region's ability to meet the demand for workers is the fact that many construction workers will have to be US citizens to work on certain secure US government facilities. Furthermore, contractors are required to issue employees with photo identifications and submit fingerprints of all employees to DOD. According to DOD officials, this citizenship requirement is most relevant for construction projects involving secure or sensitive buildings. This obviously poses a key workforce challenge for many construction firms, especially for some occupations. An Arlington-based demographics firm—Decision Demographics—analyzed Census Bureau microdata to provide a summary of the key occupations in which non-citizens make a large proportion of the Northern Virginia[22] construction trades workforce. These data are presented in Table 43.

The citizenship requirement is most pressing for several key occupations – most notably construction laborers. Almost two-thirds of Northern Virginia's construction laborers are not US citizens. This occupation already has the greatest demand for workers, making the challenge for finding workers eligible to work on-base even greater. Only half of carpenters are US citizens. Finding a sufficient supply of these skilled trades workers may be especially difficult for construction project managers at Fort Belvoir and Quantico. In addition, cement masons, concrete finishers and terrazzo workers—an occupation in which 855 more workers will be needed during the next five years—also has an overwhelmingly large percentage (78 percent) of workers who are not US citizens. Other occupations that have a large percentage of non-US citizens include brick masons, block masons and stone masons (53.8 percent), and paving, surfacing and tamping equipment operators (42.9 percent). These occupations, all already in short supply, could suffer from acute shortages as a result of the shrinking of available workers who are eligible to work on base. Assuming the DOD projects pay a premium to attract eligible and qualified workers, the shortage in some of these occupations may be felt most acutely by construction companies undertaking commercial projects.

Education and Training Opportunities

Three area higher education institutions will be particularly important in meeting the education and training demands created by the expansion of Fort Belvoir and Quantico. These institutions include George Mason University, Virginia Tech, and Northern Virginia Community College. Table 44 illustrates the extensive array of education and training already provided at these institutions.

[22] In this instance, Northern Virginia refers to Arlington, Alexandria, Fairfax and Prince William counties.

Table 43:
Table Major Occupations Arlington, Alexandria, Fairfax, Prince William Counties:
Census 2000: 5% Public Use Sample

	Counts			Percents		
		US Citizen			US Citizen	
	All	Yes	No	All	Yes	No
Occupation						
General & operations managers	10,460	9,908	552	100.0	94.3	5.7
Construction managers	5,382	4,767	615	100.0	88.9	11.1
Cost estimators	1,080	905	175	100.0	88.9	11.1
Civil engineers	3,991	3,671	320	100.0	92.5	7.5
Cashiers	19,541	13,524	6,017	100.0	69.9	30.1
Retail salespersons	30,496	26,048	4,448	100.0	85.3	14.7
Bookkeeping, accounting, & auditing clerks	10,328	9,537	791	100.0	92.4	7.6
Stock clerks & order fillers	6,147	5,224	923	100.0	86.0	14.0
Secretaries & administrative assistants	38,478	35,112	3,366	100.0	92.0	8.0
Office clerks, general	10,791	9,394	1,397	100.0	87.8	12.2
First-line supvr/mgrs of construction trades& extraction workers	5,786	4,473	1,313	100.0	77.6	22.4
Brick masons, block masons, & stonemasons	1,094	486	608	100.0	46.2	53.8
Carpenters	9,016	4,501	4,515	100.0	50.0	50.0
Cement masons, concrete finishers & terrazzo workers	946	203	743	100.0	21.6	78.4
Construction laborers	9,213	3,345	5,868	100.0	36.4	63.6
Paving, surfacing & tamping equipment operators	171	98	73	100.0	57.1	42.9
Operating engineers & other construction equipment operators	1,329	1,089	240	100.0	80.7	19.3
Electricians	2,781	2,352	429	100.0	83.9	16.1
Pipelayers, plumbers, pipefitters, & steamfitters	2,414	1,833	581	100.0	76.1	23.9
Structural iron & steel workers	349	206	143	100.0	62.5	37.5
Maintenance & repair workers, general	1,850	1,473	377	100.0	79.5	20.5
Welding, soldering, & brazing workers	761	689	72	100.0	91.4	8.6
Driver/sales workers & truck drivers	11,221	8,998	2,223	100.0	79.9	20.1
Laborers & freight, stock, & material movers	5,843	4,316	1,527	100.0	75.6	24.4

Source: Prepared by Decision Demographics tabulations of the Census 2000 5% Public Use Sample

George Mason University has several engineering programs, which could potentially support construction-related technical degree programs. At both the undergraduate and graduate level, GMU offers programs in Civil, Environmental and Infrastructure Engineering, and Construction Systems and Management. GMU also provides a number of relevant programs in policy, information technology, and engineering. The university recently received faculty approval to add key certificate programs in support of geographic information systems (GIS) and geospatial technology designed to meet the professional development needs for the NGA personnel. The University also has well-placed leadership with relevant practical and academic credentials, giving it a particular

Table 44:
Relevant Education and Training Opportunities That Could Support BRAC-related Needs

TRAINING PROVIDERS	CONSTRUCTION-RELATED	DEFENSE-RELATED
George Mason University	Civil, Environmental and Infrastructure Engineering	DoD Employee or Veteran Benefits
	Construction Systems and Management	Graduate Certificate in Geographic Information Science
Northern Virginia Community College	Associate's Degree in Engineering Technology	Medical education through the Springfield Medical Center
	Associate's degree in Construction Management Technology	Associate's degree or Certificate in Information Technology and Information Systems/Network Engineering
	Career Studies Certificate in Construction Supervision	Associate's degree or certificate in Computer and Electronics Technology
	Career Studies Certificate in Basic Welding Techniques	
	Continuing education programs in Advanced Contractor Licensing, Building Code Basics, etc.	
Virginia Tech University	Graduate courses in Civil Engineering, Electrical Engineering, Engineering Management	Certificate in Information Technology
	Graduate courses in Environmental Engineering	Certificate in Science & Technology Studies
	Graduate courses in Industrial System Engineering	Graduate courses in Computer Science & Applications, Information Technology & Systems, Systems Engineering
Other	Craft Training and Apprenticeship Programs through the Associated Builders and Contractors	
	Management Courses and Seminars through the Associated Builders and Contractors	
	Workplace Safety Training through the Heavy Construction Contractors Association	

expertise to support the intelligence and spatial analysis activities consolidating at Fort Belvoir.

At the same time, Virginia Tech provides many technical education and training programs at its Alexandria campus. Among those offered, courses include several that support the construction and related industries including graduate courses offered in Civil, Electrical, Environmental and Industrial System Engineering. Virginia Tech also

offers graduate courses in engineering management. Defense-related education and training programs are supported through Virginia Tech's certificate programs in Information Technology and Science and Technology studies. It also offers graduate courses in Computer Science and Applications, Information Technology and Information Systems and Systems Engineering.

Northern Virginia Community College is also a critical post-secondary partner, providing a wide array of programs relevant to workers in several key occupations that will be relocating to Fort Belvoir and Quantico. For instance, the DeWitt Community Hospital will be able to turn to NVCC's Medical Education Campus in Springfield, to access nursing, lab technology, diagnostic imaging and health information technology programs. NVCC also offers courses and programs to support several information technology careers. The college offers both associate degrees and certificates for information systems and network engineering, as well as computer and electronics technology.

Northern Virginia Community College further plays an important role in providing programs for several key construction-related occupations. For instance, construction managers and first-line supervisors can access construction management programs at NVCC. The construction management technology program currently has roughly 90 students, according to NVCC officials, and has been growing during the past several years. In many instances, NVCC students are older students who are incumbent workers seeking to advance in the construction industry with the help of this certification. In some cases, the students are managers changing careers, entering the construction industry and needing to learn basic skills and the industry vocabulary.

NVCC also offers Heating, Ventilation and Air Conditioning (HVAC) skills training at its Woodbridge campus. Unlike the Construction Management curriculum, this program tends to attract younger students. NVCC also offers several continuing education courses related to the construction trades including Basic and Advanced Contractor Licensing, Building Code Basics, Print Reading for Construction, and Understanding Federal Taxes for Small Businesses in the Construction Industry. The college also offers a Career Studies Certificate in Welding, but the program is geared more toward auto repair than the construction trades. In the past, NVCC had a Career Studies Certificate in Carpentry, but that program was discontinued due to the loss of key staff.

A number of private providers offer construction-related training programs. These are too numerous to mention, but three particularly relevant examples include construction management courses and seminars offered by Associated Builders and Contractors. ABC also organizes craft training and apprenticeship programs. Recently, Goodwill Industries has also organized an apprenticeship program, initially targeted toward women in contracting. In addition, the Heavy Construction Contractors Association provides training courses on construction workplace safety.

For many of the trades, apprenticeships are the most important way to develop skills credentials. Apprentices must take up to 144 hours of class instruction in combination with on-the-job work experience to receive journeyman status that ranges from two years

for certain maintenance fields to four years for most carpentry occupations. The Virginia Department of Labor and Industry manages the state's apprenticeship training programs for approximately 2,000 employers statewide in a variety of occupations including the construction trades. Two representatives serve northern Virginia from the agency's Manassas office.

Education and Training Program Summary

In the short term, the Northern Virginia WIB region will need to access hundreds of workers in key skilled and unskilled construction trades. Efforts to expand access to these programs and increase the supply of these workers will be critical for the region's success in placing workers in new jobs being created at Fort Belvoir and Quantico. Once that initial flood of job requirements is met, the region will need to meet the increased demand for skilled health care workers to be employed at DeWitt Community Hospital and help meet the growing need for information technology, security, information management, and intelligence analyst jobs that will be available at both Fort Belvoir and Quantico.

As a consequence, the Northern Virginia WIB should begin to immediately plan and develop strategies and actions aimed at responding to these rapidly pressing workforce skill needs. The experience of other BRAC-impacted regions can be particularly instructive. The next section examines two case studies and provides lessons for the Northern Virginia WIB on how best to respond to these unique workforce opportunities.

VI: Lessons Learned from Past BRAC Actions

Congressional adoption of the most recent BRAC Commission report in November 2005 represented the fifth military major base realignment effort since 1988. Most of the past four BRAC efforts involved closing major facilities, but a few of those included realignments that moved significant personnel from one location to another. The study team sought to examine experiences similar to those anticipated at Fort Belvoir and Quantico in other regions. In reviewing dozens of BRAC actions, we identified two cases that provided possible lessons for Northern Virginia: one in Maryland and another in Missouri.

Rationale for Case Studies

The planned Northern Virginia moves are unique in that the large majority of the workers are being relocated from off-base leased space to on-base facilities—many within reasonable commuting range of their current homes. In selecting appropriate case studies, we explored projects in which the military moved a large worker contingent to facilities that were a relatively short distance (under 30 miles) from their originating location. In addition, we also examined cases in which the project represented a relatively sizable portion of the local employment base. The goal was to determine the impact of such a move on the attrition rate of those moving into (or to different parts of) the region and on the employment impacts to the surrounding area. In addition, we were also looking to identify one or more sizable realignments that were deemed so large that local officials expected a strain on the delivery of local public services (e.g., schools, housing, or transportation).

In fact, we identified two cases that closely paralleled what is occurring at Fort Belvoir and Quantico. Both of those cases directly impacted the National Capital area: (1) the movement of personnel into Maryland's Patuxent River Naval Air Station and (2) moves from Crystal City into the Washington Navy Yard. After conducting several interviews with key participants, we deemed that the moves to the Navy Yard were not particularly instructive since the effort did not appear to involve human resource or workforce development issues. However, interviews with those involved in the Patuxent River moves suggested that this case would be particularly instructive.

We continued to explore other examples of realignments, and after some research determined that the experiences at Missouri's Fort Leonard Wood could offer insights for Northern Virginia leaders. Base realignment experts and stakeholders frequently cite this relatively trouble-free base expansion as exemplary because the base had such strong community support for the federal and local investments that were required to make the entire effort a success. In the following sections, we share the stories we heard and the lessons learned from the Patuxent River and Fort Leonard Wood moves during a series of interviews and a review of key documents. These projects offer invaluable lessons for Northern Virginia as it completes the upcoming moves affecting Fort Belvoir and Quantico.

The Patuxent River Naval Air Station Realignment

Patuxent River Naval Air Station is located in St. Mary's County in Southern Maryland. The base had been relatively small until the 1991 and 1993 Defense Base Closure and Realignment Commissions (BRAC) decided to move major units to the facility. In particular, the 1993 decision involved moving the headquarters of the Naval Air Warfare Center from Crystal City. This move led to a substantial increase in the base's size.[23] Since those decisions, about 5,000 military and embedded contractor jobs moved to the area from a variety of locations. Local officials estimate that another 3,000 indirect jobs were created in the region as a result of the move. Currently, there are nearly 17,000 personnel on base, of which approximately 2,000 are active-duty military. Thousands of other contractors are located in facilities around the base itself.

This influx of new workers created a host of challenges for the communities surrounding the base. At the time of the moves, the area was predominantly rural. In addition to absorbing new workers, St. Mary's, Calvert, and Charles counties all indicate that they have made substantial investments in new infrastructure, schools, and other amenities.

Job Transition Patterns

Because most of the transitioned personnel were previously based in more urban areas (near Philadelphia, PA, Trenton, NJ, and the DC Metro area), many observers expected that few workers would actually move with their jobs. These fears proved to be unfounded as large numbers of workers actually followed their positions to Pax River. Roughly 80 percent of the Crystal City workforce transferred to Pax River. Transfer rates from the other locations, Warminster, PA and Trenton, NJ, were lower at 40 percent and 48 percent respectively. Most of these personnel moves occurred in the 1997-1998 time frame, about five to seven years after the initial BRAC decisions. Many of the Crystal City workers opted to commute to Pax River via van pools and other means; the other workers moved to the area with their families. At present, the region does not have data on how many workers have opted to move vs. commute to Pax River.

Community Responses

The affected communities were very aggressive in terms of reaching out to affected workers. They sent teams to meet with employees at each of the closing sites, and provided them with information packets on the benefits of living in Southern Maryland. This effort was led by the Tri-County Council, a regional economic development group. These regional leaders built their response around three issue areas:

- Quality of Life

  Local leaders feared that workers wouldn't move to Southern Maryland due to a shortage of amenities in the region. To allay these fears, the community stressed the quality of local schools and also invested in

[23] *This case study is based on information generated from a series of interviews with area leaders.*

facilities to attract new higher educational institutions. They also began a series of efforts to improve local cultural offerings (e.g. a local concert series, etc.).

- Infrastructure

  The region had to make huge investments to upgrade the local infrastructure needed to support new workers. In an effort to build consensus around the most critical investments, the Council formed a blue-ribbon Southern Maryland Infrastructure Advisory Commission. The Commission developed a list of 22 priority infrastructure needs that has driven subsequent planning. Overall, between $350 and $400 million in state and federal funds have been invested in the region since the original BRAC decisions.

- Education/Workforce

  The absence of higher education training resources was quickly identified as the region's greatest shortfall. In response, the region developed the Southern Maryland Higher Education Center (www.smhec.org). This facility houses higher education and training providers offering 83 academic programs, including 56 masters and three doctorate programs, to Pax River personnel and community residents. NAVAIR also uses the facility for in-house training. The facility has become a major anchor for the community.

The region has also expanded its investments in a Career and Technology Center, but local leaders recognize that further work on this front is needed. Part of the reason that the career and technical education activities have not been fully addressed has been the challenges facing the area's workforce development leadership. At the time that the BRAC decisions were made, the region's Private Industry Council (PIC) was not actively engaged in planning for or responding to BRAC. In fact, the PIC was primarily focused on operating as a social and human services organization so it was not included among organizations within the core group responding to the economic development and higher education opportunities presented through the Pax River BRAC experience.

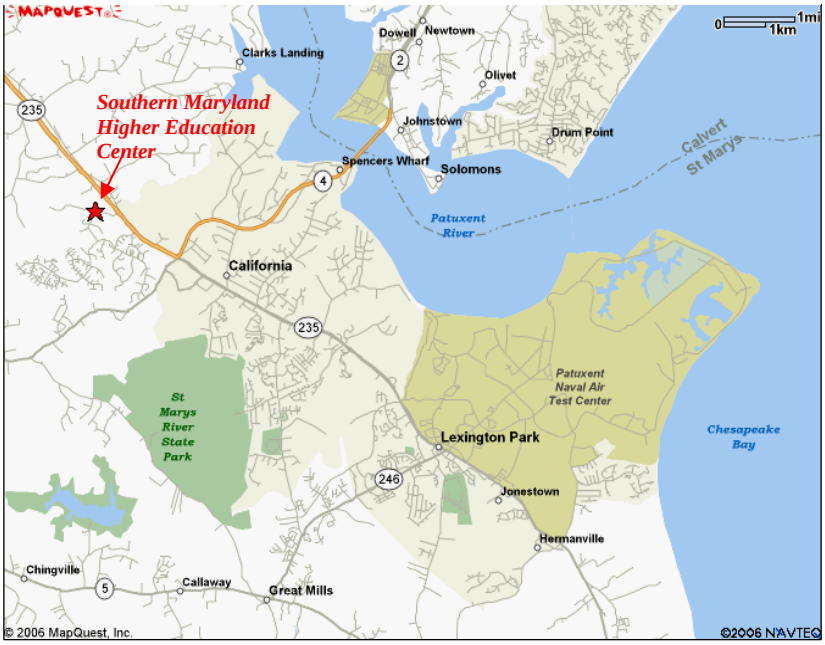
Since the transition from the Job Training Partnership Act to the Workforce Investment Act, the WIB has become more responsive. However, the WIB's response generally has been to provide standard services and placements onto the Pax River base as well as to the larger field of military contractors associated with Pax River. In 2006, the Southern Maryland Workforce Investment Board, serving the area around Pax River dissolved due to federal funding cuts and related fiscal constraints.

Southern Maryland Higher Education Center

A critical outcome of the workforce planning done as part of BRAC process was the creation of the Southern Maryland Higher Education Center (SMHEC). The Maryland state legislature established SMHEC in 1994 in response to the expanded role of the U.S. Navy at Patuxent River. SMHEC provides on-site comprehensive quality graduate

education degree programs in a region historically underserved by the State's higher education institutions. Maryland also created SMHEC to support the economic development of the Maryland's southern region. SMHEC is located on a 24-acre campus within the Wildewood Professional and Technology Park in California MD, approximately six miles north of the Patuxent River Naval Base on the Chesapeake Bay's western shore.

Figure 11:
Southern Maryland Higher Education Center



The creation of the Southern Maryland Center stemmed from regional technology executives, the Patuxent River Naval Base's top leaders, local elected officials and county administrators, the region's state legislative delegation, as well as several key private sector business leaders who understood the direct link between knowledge-based technology graduate education, and successful economic growth. A developer, Joseph Waldschmitt, who also owned Wildewood Technology Professional Park in nearby California, Maryland, donated the site for the new campus.

To obtain money for the facility's construction, southern Maryland's leadership led an advocacy effort that eventually convinced then-Governor Donald Schaeffer to support a State grant of $2.5 million to construct the Center's first 14-classroom building completed in 1994. The project was so successful that the State funded the construction of a second 21-classroom building that opened for classes in January 2003. Currently, a third building is in the early planning stages. Today SMHEC provides access to 35 high technology classrooms, five computer labs, and four meeting and conference rooms, in addition to staff and faculty offices, student lounges and support facilities.

Nine colleges and universities are among the current academic partners offering degree programs at SMHEC:

- Bowie State University
- College of Notre Dame of Maryland
- George Washington University
- Johns Hopkins University
- Old Dominion University
- Towson University
- University of Maryland College Park

- University of Maryland University College
- Washington College

In addition to degree-granting institutions, the US Navy at Patuxent River Naval Base uses SMHEC training, conferencing, and meeting facilities. The defense contracting industry; technology trainers; state, county and local governments; public schools, and community organizations also can use the facilities.

The Governor of Maryland appoints citizens to SMHEC's Board of Governors, reflecting the institution's status as a State higher education institution. The SMHEC Board of Governors includes thirteen citizens from the region's three counties. Significantly, since SMHEC was established through state legislation, its executive director has the same standing as the chancellors of the State's universities and colleges. This is critical when seeking funding for capital and operating expenses. Further, this provides the SMHEC (and the other similar higher education centers around Maryland) a degree of independence and security that may not be otherwise available.

Since its initial offering of classes in the fall of 1995, SMHEC's roster of approved graduate programs have grown to 56 master's degrees, each offered by distinguished universities, and approved by the State for presentation in Southern Maryland. Included are graduate degrees in engineering (30 distinct programs), management, information systems, education, nursing, and social services. Additional post-master's certificates, graduate certificates, a Ph.D., and upper division engineering and nursing degrees are also offered.

Typically, SMHEC's staff leadership takes the lead in identifying new degree programs of value to the community. SMHEC also works with focus groups in specific fields and responding to the professional development needs of area employers and employees throughout the defense, technology, education and business sectors. SMHEC will then identify universities and other education providers and seek a partnership to provide the degree program. In recent years, a strong business group—the Pax River Partnership (www.PaxRiver.org)—formed to improve the linkage between the military base leadership and the local business community. Often, SMHEC will coordinate a visit to Southern Maryland to convince the potential university partner of the area's economic vibrancy and related educational opportunities as well as, and the course's value to the region. Once a partnership is outlined, the educational provider is invited to submit a formal curriculum proposal. That proposal then goes through the following process:

- Review by SMHEC's curriculum committee, comprised of board members
- Review by the full SMHEC board of directors
- Review by the Maryland Higher Education Commission.

During the review process, the Commission sends the proposal out to the presidents and chancellors of educational institutions in the state. Any of these presidents / chancellors can object to the proposed curriculum, but SMHEC has the right to counter any objection. In the nearly 12 years of SMHEC's history, it has only been denied one proposed course of study (out of 83 programs in the Center's history).

One example of how this process works is SMHEC's courtship of Johns Hopkins University. It took four years of discussions between SMHEC and JHU before the first JHU courses were offered in Southern Maryland in 1997. Since that time, the JHU programs have been tremendously successful, serving more than 150 students.

SMHEC's class enrollments have increased at a steady pace. In the last school year for which data were available (2005-2006), class enrollments numbered over 2,700. Nearly half of the enrollment is from Pax River or Pax River-related contractors. Interestingly, most of the other half of enrollment is from area teachers taking continuing education programs and other academic programs.

SMHEC's total annual budget is slightly more than $1 million, and the Center supports four full-time staff. SMHEC is financed through a number of resources, reflecting SMHEC's strong entrepreneurial philosophy and culture. The authorizing legislation permits SMHEC to charge its university partners rental fees for the use of its classrooms. Rental income from organizations other than universities and other educational providers accounted for approximately $340,000 in the most recent fiscal year. SMHEC charges flat rates for use of space, including the use of technology to ease billing and accounting for military customers. In 1994 that fee was set at $1,200 per semester per course. Presently the fee is set at $1,594 per semester for classrooms, and $1,800 per semester for the computer labs. In the most recent fiscal year, university rentals generated $310,000 in income for SMHEC.

SMHEC also receives approximately $100,000 from grants from the three local counties (St. Mary's, Calvert, and Charles). Up until last year (2005), SMHEC received an annual $100,000 appropriation from the state. Recently a new funding formula has been proposed that would result in an annual $1.2 million appropriation from the State (this formula has not been finalized or approved, but is based on an automatic $200,000 base, an FTE calculation, and proposed special projects).

Today, the region around Pax River is booming. The Pax River expansion helped get the ball rolling, and it is a significant regional economic driver. Before BRAC, a mid-1990s study found that only 15 percent of local growth could be attributed to activities related to the base. Today, however, the base represents a much larger portion of the area's growth, accounting for as much as 85 percent of the county's economy according to Mel Powell of the Southern Maryland Higher Education Center. Other factors, such as proximity to the DC metro area, have also played a significant role in the transition's success.

Fort Leonard Wood Expansion

Ft. Leonard Wood is located in Pulaski County in central Missouri, about 90 minutes northeast of Springfield.[24] The 61,000-acre base has 30,000 people employed there. The Fort is one of the Army's largest training facilities, and it hosts the Army's Maneuver Support Center as well as its Chemical, Engineer, and Military Police Schools. Annually,

[24] This case study is based on information generated from a series of interviews with area leaders and experts.

the base provides training to 40,000 people. The annual base operating budget is approximately $120 million, and its spillover economic impact on the state gross product is estimated at significantly more.

Ft. Leonard Wood has operated since the 1940s and has always served as a major training center. In 1995, the Defense Base Closure and Realignment Commission (BRAC) decided to move two major units to the facility. The Army's Chemical and Military Police Schools, then located at Ft. McClellan (AL), were relocated to Ft. Leonard Wood. This move brought 4,000 new workers to the region. On the base, this move required an investment of $230 million in new military construction.

Ft. Leonard Wood is located in a rural region. The surrounding three-county area (Pulaski, Laclede, and Phelps Counties) contains no major cities. Rolla is the largest city (population: 16,367) in the area while St. Robert, the closest community to the base has only 2,760 people. Overall, the current population for the entire Ft. Leonard Wood Region is 122,213, and Ft. Leonard Wood represents one-third of area employment.

Responding to Change

Given these population dynamics, the influx of 4,000 new workers was expected to generate significant strain on local capacity. With support from the US Office of Economic Adjustment (OEA), surrounding communities created a Local Redevelopment Authority (LRA), called the Ft. Leonard Wood Regional Commerce and Growth Association. The LRA soon hired an outside contractor (HNTB) to develop a regional growth management study.

The community planning process went quite smoothly. The surrounding political jurisdictions (Pulaski County and five small towns) came together fairly quickly, and reached a consensus on next steps. As in other regions, the collaboration was fostered by both the carrot (i.e., the prospect of receiving OEA grants), and the stick (i.e. the fear of being "over-run" by large numbers of incoming workers).

At the time of the transition (1998-1999), community leaders focused on two primary challenges:

- Developing new housing for incoming personnel, and
- Responding to local workforce needs.

Housing Availability

Most early attention focused on an impending housing shortfall. At the time, local communities did not have detailed planning and zoning regulations in place. This legacy created several complications. The region needed new housing quickly. It also wanted to stimulate the development of quality housing even though it lacked the planning and governance tools to accomplish this goal. The region opted to set an "endorsement program" whereby developers who agreed to build to code would receive faster support in the build-out of community amenities like curbs, gutters, and other infrastructure. This modified fast-track process seems to have worked as the region has been able to build

approximately 1,800 new housing units per year—a major jump from the previous rate of roughly 1,000 new housing units per year.

The Workforce Response

The Ft. Leonard Wood region also faced several challenges in terms of the incoming workforce. Since most of the incoming personnel were enlisted military, the region did not face much uncertainty about the willingness of personnel to move to the region. All of the affected military personnel made the move, and a large portion (approximately 80 percent) of the BRAC-affected civilian workforce also moved. According to Ron Selfors, a local economic development leader, similar percentages of affected contractor personnel also moved with their jobs.

Given that so many personnel and their families made the move, community leaders focused their attention on two key issues:

- Developing quality employment opportunities for trailing spouses and other skilled workers, and
- Ensuring that the K-12 school system would be able to absorb all the school-age children coming to the region.

The region organized a delegation of local leaders and representatives from key agencies and institutions to visit the major bases that would be combined with Ft. Leonard Woods. The region's workforce board participated in these delegations. The delegations developed and provided all necessary and relevant information, with a particular emphasis on the concerns and needs of spouses. The workforce board, however, never received funding designated specifically to support BRAC or to provide services and training for new personnel coming to Central Missouri.

Instead, the community partnered with the University of Missouri to create the University of Missouri Technology Park at Ft. Leonard Wood (http://www.um-mrp.org/otherparks.htm). The facility is located on base property, but was developed as a partnership between the US Army, the Missouri Department of Economic Development, and the University of Missouri. At present, the 62-acre park houses roughly 60 percent of all contractors serving the base. Other tenants include the Army, the University of Missouri, and private businesses.

The original vision for the park included mixed uses. Education and training providers were encouraged to locate in the park. However, with the exception of the University of Missouri, no other training providers are housed at the facility and no training is done at the park. Instead, the park has mainly served as office space for base-serving contractors. Local businesses have faced challenges in terms of moving into the Park, largely due to the complications of developing long-term leases on government-owned property.

The park's experience is replicated in the wider Ft. Leonard Wood region. In general, there is very limited connection between local training providers and the base. This stems from several factors. First, the base itself is a training center. Thus, it does not need to import such services from the community. Second, the base's unique mission

limits its overall community impact. The sheer numbers of military personnel at Ft. Leonard Wood generate a strong local impact in terms of spending on food, retail and other sectors. But, their effect in terms of spinning off new economic activity is relatively limited. Local career technical schools, colleges, and universities do offer lots of training and support activities, but base personnel or related contractors are not major customers for such services.

The Central Region Workforce Board has established two one-stop career centers in response to Ft. Leonard Woods' needs—one on the base itself and one located right outside the post in the town of Waynesville. The one-stop located on the base serves approximately 1,000 individuals monthly, both uniformed personnel and their spouses. The base provides the space for the one-stop at no cost. Base commanding offices have expressed strong support for and satisfaction with the services and value brought to its facility. The primary challenge with this set-up is the matter of gaining access to the base for the one-stop's civilian personnel during times of increased security. Even so, this situation has not been so burdensome as to have caused a change in any arrangements or circumstances.

In short, the success of this effort can largely be attributed to the region's quick organization and response to the BRAC decision. Regional leaders were able to reach rapid consensus on their most pressing and immediate challenge: a shortage of available housing. Because the shortage was so glaring, few observers disagreed with this assessment. As a result, the region was able to target its initial work plan and investments behind an achievable and widely accepted set of objectives.

Regional leaders began the process early to establish close ties with the military leadership at Ft. Leonard Wood. This allowed local leaders to obtain information on the timing of the base expansion, and the composition of the incoming workforce. These relations also paved the way to establish a one-stop center on the base, with the space provided to the workforce board at no cost, as well as the development of the Missouri Technology Park on base.

The regional team made a conscious decision to engage the press from the very beginning of their efforts. Not only were the press perceived as an important vehicle for improving intra-regional communication, but the press was also viewed as an independent entity that could hold the BRAC team—and those of other key stakeholders and decision-makers—accountable for getting things done and moving the process along.

The one drawback of the Ft. Leonard Wood experience is that the surrounding community failed to fully capitalize on the opportunities presented by the base's expansion. While the base is a major economic force in the region, its expansion did not trigger very many new economic development opportunities nearby. The Technology Park and other responses are providing effective services to the base and its employees, but they are not being used to help provide support to businesses or workers in the surrounding communities.

Key Lessons Learned for Northern Virginia

Both the Pax River and Fort Leonard Wood examples provide excellent examples of past BRAC efforts that were smoothly managed. From those experiences, several lessons emerged that could be particularly helpful for Northern Virginia officials as they prepare for the considerable workforce relocation and transition expected in the coming years.

- Focus on the highest priorities first – housing, traffic, or whatever the issue. By becoming involved in these issues, the workforce development board becomes viewed early as a "member of the response team."
- Reach out early to the military and government agencies (especially the base leadership) to better understand and respond to the timing of the new workforce's transition. This may take multiple initiatives before the workforce board is viewed as a reliable resource to the military.
- Work closely with the State to ensure that the existing metrics governing workforce development are either aligned to meet or adjusted to reflect the needs associated with BRAC. Frequently, workforce investment program measures are not suitable to the types of initiatives required to meet the needs of base-related activities
- Work closely with the local business community to encourage them to articulate their future workforce needs. This effort should perhaps focus on organizing area contractors and expanding their presence in the region.
- Focus on new entrants to the workforce (esp. K-12 and longer term unemployed) who might be able to benefit from new employment opportunities created by the base. This is especially true for indirect impacts resulting from the relocating military personnel.
- Engage the press in the effort. The press can be useful both as a resource for information as well as a medium for communicating with businesses and potential workers in the area.
- Take a long view in effecting a transition. The relocation process at both Pax River and Fort Leonard Wood took five years from the announcement to the move. Frequently, critical decisions emerged at different points over an extended period of time. Furthermore, planning associated with the relocation should also recognize that the impacts will continue many years after the transition has been completed.

In short, the role of the WIB can, and should, be to plan, align, and support delivery of workforce development services to two of Northern Virginia's largest employers. These case studies offer examples of how that might be accomplished and potential strategies to be implemented.

VII: Findings and Conclusions

This report provides a snapshot of a continuously evolving situation. With more than 26,000 workers moving to Fort Belvoir and Quantico and more than 4,500 relocating from those two installations as well as Bailey's Crossroads, the region will undergo substantial changes. But, there are several key facts about these moves and their implication that leaders should continue to keep in mind.

1. The vast majority of the jobs being relocated to Fort Belvoir and Quantico are already held by workers living within a relatively easy commuting distance.

   Indeed, 26,000 new jobs is a large number to accommodate at the two installations, but the large majority of those workers will likely continue living in their current homes, and their children will likely continue going to the same schools. Certainly, their commute to work will change, and this issue must be considered carefully in planning for the moves.

2. The net impact of these relocations on the greater Washington area will be negative and will especially impact workers living in Maryland.

   The geography of the analysis is crucial in making statements about the net overall impact. Certainly, the individual facilities will be net gainers in terms of employment and related economic impacts. However, almost all of the units and their workers relocating to the facilities are coming from the Washington metropolitan area, many from across the river in Maryland. Only a few hundred employees are relocating from Fort Monmouth, NJ, and scattered other locations. At the same time, a relatively large contingent of workers (about 1,700) currently at Fort Belvoir and Bailey's Crossroads was reassigned to Huntsville and San Antonio. The net impact for the region is negative and many of the Maryland workers will have to make a choice of whether to commute very long distances in Washington traffic or relocate to northern Virginia.

3. The solutions to addressing worker transition needs must be undertaken in collaboration with other entities in the Greater Washington area.

   The truly regional impact of the jobs shifts coming from other parts of Northern Virginia, suburban Maryland, and DC mean that both gaining and receiving entities are in close proximity. A smooth transition will depend highly on the willingness and ability of the region's elected leaders and government officials to cooperate in defining transitional solutions for workers, identifying appropriate placement opportunities for those who choose to remain near their current residence as well as for those agencies seeking to fill jobs vacated due to attrition and agency growth.

4. The impact on commuting and housing will be greatest on Prince William and Stafford Counties.

   The analysis suggests that the moves will result in 1,700 new residents moving to Prince William and 700 new residents moving to Stafford

County. These are substantial gains, requiring attention to the availability of affordable housing in the I-95 corridor near the two installations. However, these impacts should be placed into a larger context because they actually pale in comparison to current growth trends. For instance, Prince William is currently attracting 12,280 new residents per year, and Stafford is adding 4,432 new residents per year. The housing and commuting issues facing these communities will be exacerbated by growth at the two installations, but the real hardship is resulting from the rapid exurbanization of the Washington population and economy.

5. The largest impact on area school enrollment will be in Prince William and Stafford Counties.

   Prince William will likely add about 358 new children and Stafford will gain about 150 by 2011. During that same period, Prince William can expect to add another 10,000 school-aged children (2,000 per year) and Stafford can expect to add about 3,000 (or 600 per year). Thus, the two counties can expect a 4 percent increase in school-aged kids over the next five years. Taken alone, this increase might be manageable. However, when placed into the context of such rapid growth and already inadequate public investments, the addition of so many children could place great strains on already overburdened area public schools.

6. The first impacts from the BRAC will be seen during the construction phase at Fort Belvoir and Quantico.

   During the period 2007-2011, construction at Fort Belvoir and Quantico will provide 50,000 jobs. The most substantial impact will likely be in 2008 and 2009 when several key construction projects will be well underway. Of the jobs created during this project about 31,000 will be in the construction trades involved directly in the litany of projects scheduled at the two installations. These jobs will be supported by 19,000 other workers providing retail, food services, local government, and administrative services. Many will be providing support activities to the projects, including project management and administrative help while others will provide goods and services to construction and other workers involved in building the facilities and infrastructure on both bases.

7. The great demand for construction trades workers is likely to exacerbate existing shortages in certain occupations.

   Among the occupations in greatest demand will be several that require technical skills, including carpenters, first line supervisors and equipment operators as well as construction laborers. The most skilled of these trades occupations require post-secondary education and training, apprenticeships, and extensive on-the-job experience. Many of these skilled occupations are already suffering from shortages. The large construction activity planned at Fort Belvoir and Quantico could demand as much as one-quarter to one-third of the Northern Virginia workers currently working in those professions, creating a tremendous strain on

project managers to keep current and future projects on schedule and within budget. Furthermore, many of the trades positions working on base will require at minimum proof of residency and frequently proof of US citizenship. Some of these occupations, already in great demand, will be further strained as non-US citizens represent as many as 50 to 75 percent of the ranks in several key skilled and unskilled trades occupations.

8. The number of outside-the-base contractors and workers is likely to be relatively small as compared with the number of embedded contractors.

   Certainly, contractors are an integral part of the support infrastructure helping to meet the needs of the DOD agencies moving to Fort Belvoir and Quantico. However, a brief data review suggests that the largest share of contractors of critical importance to these agencies may already be embedded within DOD. This means that the number of contractors locating near the base may be relatively small. Many of these off-base activities will be in technical fields, including information management and engineering, and some will be administrative support for the embedded contractors.

9. The amount of spin-off impacts in retail and consumer services is also expected to be relatively small.

   An initial examination found about $61 million in spin-off retail and consumer services supporting the base. Some portion of this will be near the two bases, but much of the day-time activity will be captured at on-base facilities while the remainder will likely be spent on retail near the residences of area workers. There may be some demand for off-base food services (e.g., delis and lunch-time cafes), but much of the durable and nondurable goods shopping dollars will likely be captured at nearby malls, including Potomac Mills and Springfield.

10. To replace workers lost due to attrition and find new hires for DOD positions moving to Fort Belvoir and Quantico, in-demand occupations will likely require two- and four-year degrees in science, technology, engineering, and math related fields.

    The data reveal that the most in-demand occupations will likely be in the health care, public administration, technical analysis, information management, and engineering fields. These jobs typically require two-year degrees at minimum. Frequently, they either require baccalaureate and post-baccalaureate education or certification. While Quantico is a training facility and the on-base Marine Corps University may offer much of the needed technical training, accessible higher education assets will be particularly critical in helping to retain the competitive strength of the Fort Belvoir workforce.

This study is intended to provide a snapshot of the economic impacts resulting from the BRAC recommendations pertaining to Fort Belvoir and Quantico. The consultant's recommendations are provided in a companion report to the Northern Virginia Workforce

Investment Board, however, this study clearly suggests than an efficient transition for the movement of so many military, civilian, and contractor workers will require direct engagement of state, regional, and local officials. Area leaders must participate actively in proactive planning to meet the considerable workforce challenges created as DOD prepares to move 100 command units.

The Workforce Investment Board's participation, in particular, would ensure that Northern Virginia stands ready to take full advantage of the opportunities created by the consolidation of specialized technical activities in southern Fairfax and Prince William Counties. The WIB's participation will also make the process of preparing the facilities easier because the construction firms involved in building new facilities, roadways, infrastructure, and related projects will have an available skilled workforce ready to complete the relocations by September 2011. The WIB can also be instrumental in helping to make the critical linkages between the military and a variety of workforce education and training providers through a structured, coordinated process. In short, the role of the WIB can, and should, be to provide critical workforce development services to two of Northern Virginia's largest employers.

Glossary of Acronym

BRAC	Base Realignment and Closure
CIFA	Counterintelligence Field Activity
DOD	U.S. Department of Defense
DSS	Defense Security Services
EIS	Environmental Impact Statement
EPG	Engineer Proving Ground
JHU	John Hopkins University
MCBQ	Marine Corps Base at Quantico
MDA	Missile Defense Agency
NGA	National Geospatial-Intelligence Agency
NVCC	Northern Virginia Community College
OSD	Office of the Secretary of Defense
PEO EIS	Program Executive Office for Enterprise Information Systems (at Ft. Monmouth, NJ)
SMHEC	Southern Maryland Higher Education Center
WHS	Washington Headquarter Services of U.S. Department of Defense
WIB	Workforce Investment Board

List of Interviewees

Joe Anderson,
Former St. Mary's County, MD Commissioner

Julie M. Augeri
Director, Office of Plans, Analysis and Integration
Fort Belvoir

Elizabeth Bax
Rolla (MO) Regional Economic Commission and former Director of Ft. Leonard Wood Regional Commerce and Growth Association

Robert Bauer
BRAC Program Manager
Washington Headquarters Services (WHS)
Defense Facilities Directorate
Arlington, Virginia

Joann Blanks
Deputy to the Garrison Commander
Fort Belvoir

John Bohannon
State Representative,
Chief of Staff, Office of Rep. Steny Hoyer

Chuck Boyd
Chief, Data and Property Support Branch
Washington Headquarters Services (WHS)
Defense Facilities Directorate
Arlington, Virginia

Maureen Caddigan
Vice Chairman & Dumfries District Supervisor
Board of County Supervisors (BOCS)
Prince William County
Woodbridge, Virginia

Meredith Carrington
BRAC Project Manager
Business Performance Office (BPO)
Booz-Allen Hamilton
Quantico, Virginia

Steve Crawford
former executive director of the MD Governor's Workforce Investment Board

J. Michael Davis
Office of Economic Adjustment
US Department of Defense

Gary Dickinson
Director of National Capital Region
Clark Nexsen Consulting Engineers
Alexandria, Virginia

Danielle Tigges Dinote
BRAC Project Manager
Business Performance Office (BPO)
Booz-Allen Hamilton
Quantico, Virginia

Cyrena Chiles Eitler
Project Manager
Office of Economic Adjustment (OEA)
Office of the Secretary of Defense
Arlington, Virginia

Commander J.R. Flather
Deputy Regional Business Manager
Headquarters, Naval District Washington
Washington Navy Yard, DC

Ellen Flowers-Fields
former director of the Southern Maryland Workforce Investment Board

Timothy Ford
Director
Association of Defense Communities
Washington, DC

William H. Gary, Sr.,
Dean of Workforce Development
Northern Virginia Community College
Annandale, Virginia

James F. Janecek
Program Manager
Federal Sector – Defense Group
Prince William Commons
Computer Sciences Corporation
Woodbridge, Virginia

John D. Jenkins
Neabsco District Supervisor
Board of County Supervisors
Prince William County
Prince William, Virginia

J. Michael Hayes
Director, Office of Military Affairs
Maryland Dept. of Business & Economic Development

Robert E. Kuhns
Director, Traffic and Transportation Planning
Clark Nexsen Consulting Engineers
Alexandria, Virginia

Leon "Lee" Marshall
BRAC Implementation Team Leader
U.S. Army Garrison
Fort Belvoir

Ian P. Mooers
Coordinator, Entrepreneurial, Business Development Programs
Office of Research and Economic Development
George Mason University
Fairfax, Virginia

Russell A. Morales
Operations Research Analyst
Office of Operations Research and Resource Analysis (DORRA)
Defense Logistics Agency
Richmond, Virginia

Eugene Newman
Technical Director
Joint Warfighting Center
United States Joint Forces Command
Suffolk, Virginia

Mel Powell
Executive Director
Southern Maryland Higher Education Center

David C. Ray
Chief, Systems Engineering Division
Command and Control Directorate
Air Force Pentagon Communications Agency
Washington, D.C.

John Rosewarne
Director
Business Performance Office
Booz-Allen Hamilton
Quantico, Virginia

Bill Sanders
Director of Public Works
Fort Belvoir

John Savitch
Economic Development Director,
St. Mary's County, MD

Ronald Selfors
Director, Ft. Leonard Wood Regional Commerce and Growth Assn.,
former Deputy Garrison Commander,
Ft. Leonard Wood, Missouri

Larry Sexton
Sellers-Sexton Mitsubishi
Local Business and Community Leader,
former Chair, Ft. Leonard Wood Regional Commerce & Growth Assn.
Fort Leonard Wood, Missouri

Thomas Shea
former Community Outreach Specialist
Office of Economic Adjustment
US Department of Defense

Janet Vaughn
Executive Director, Central Missouri Workforce Investment Board.

Jim Wachter
Director of Human Resources
Defense Security Service
Alexandria, Virginia

Thomas G. Xenakis
BRAC Program Manager
Defense Security Service
Linthicum, Maryland

Appendices

Appendix 1: Inbound BRAC Actions Affecting the Northern Virginia WIB Region

Affected Agency	Leased Building/Address	City/County	Close/Realign	New Installation
Inbound BRAC Actions --				
Fort Belvoir				
Recommendation #5: Close Fort Monmouth, NJ				
the elements of the Program Executive Office for Enterprise Information Systems		Fort Monmouth, NJ	Realign	Fort Belvoir - (the Program Executive Office, Enterprise Information Systems)
PM Acquisition, Logistics and Technology Enterprise Systems and Services (ALTESS) facility	2511 Jefferson Davis Hwy	Arlington	Realign	Fort Belvoir - (the Program Executive Office, Enterprise Information Systems)
Recommendation #132: Co-locate Miscellaneous Army Leased Locations				
the US Army Legal Agency	Ballston Metro Center	Arlington	Realign	Fort Belvoir
the US Army Audit Agency	Park Center Office 1	Alexandria	Realign	Fort Belvoir
the Administrative Assistance to the Secretary of the Army (SAAA)	Skyline VI (Leesburg Pike)	Falls Church	Realign	Fort Belvoir
the US Army G6/DISC4	Zachary Taylor Building	Arlington	Realign	Fort Belvoir
the G8/Force Development	Zachary Taylor Building	Arlington	Realign	Fort Belvoir
the G1/Army Research Institute	Zachary Taylor Building	Arlington	Realign	Fort Belvoir
the US Army Network Enterprise Technology Command	Zachary Taylor Building	Arlington	Realign	Fort Belvoir

Affected Agency	Leased Building/Address	City/County	Close/Realign	New Installation
the Administrative Assistance to the Secretary of the Army (SAAA)	Zachary Taylor Building	Arlington	Realign	Fort Belvoir
the US Army NISA-P	Crystal Square 2	Arlington	Realign	Fort Belvoir
the US Army Environmental Policy Institute	Crystal Square 2	Arlington	Realign	Fort Belvoir
Senior Executive Public Affairs Training	Crystal Square 2	Arlington	Realign	Fort Belvoir
the Deputy Under Secretary of the Army Operations Research	Crystal Gateway 2	Arlington	Realign	Fort Belvoir
the US Army G1/Civilian Personnel Office	Hoffman 1 & 2 Buildings (Stovall St.)	Alexandria	Realign	Fort Belvoir
the US Army G1/Personnel Transformation	Hoffman 1 & 2 Buildings	Alexandria	Realign	Fort Belvoir
the Admin Assistance to the Secretary of the Army (SAAA)	Hoffman 1 & 2 Buildings	Alexandria	Realign	Fort Belvoir
the Communication & Electronics Command	Hoffman 1 & 2 Buildings	Alexandria	Realign	Fort Belvoir
the Admin Assistance to the Secretary of the Army (SAAA)	Rosslyn Metro Center	Arlington	Realign	Fort Belvoir
the US Army Office of the Chief Army Reserve in Jefferson Plaza 1 & 2 - leased	Jefferson Plaza 1 & 2	Arlington	Realign	Fort Belvoir
Assistance Secretary of the Army Financial Management and Comptroller/CEAC	Jefferson Plaza 1 & 2	Arlington	Realign	Fort Belvoir
the Admin Assistance to the Secretary of the Army (SAAA)	Jefferson Plaza 1 & 2	Arlington	Realign	Fort Belvoir
Chief of Chaplains	Jefferson Plaza 1 & 2	Arlington	Realign	Fort Belvoir
the US Army G3/Army Simulation	Crystal Gateway North	Arlington	Realign	Fort Belvoir
the US Army Safety Office and OSAA	Crystal Plaza 5	Arlington	Realign	Fort Belvoir

Affected Agency	Leased Building/Address	City/County	Close/Realign	New Installation
the Assistance Secretary of the Army Manpower and Reserve Affairs/Army Review Board/Equal Opportunity Office	Crystal Mall 4	Arlington	Realign	Fort Belvoir
the US Army Office of Environmental Technology	Crystal Gateway 1	Arlington	Realign	Fort Belvoir
Recommendation #133: Co-locate Miscellaneous OSD, Defense Agency, and Field Activity Leased Locations (OSD)				
the Office of the Secretary of Defense	1010 N. Glebe Road	Arlington	Close	Fort Belvoir
the Office of the Secretary of Defense	1515 Wilson Blvd.	Arlington	Close	Fort Belvoir
the Office of the Secretary of Defense	4850 Mark Center Drive	Arlington	Close	Fort Belvoir
the Office of the Secretary of Defense	the Crown Ridge Building at 4035 Ridgetop	Arlington	Close	Fort Belvoir
the Office of the Secretary of Defense	1901 N. Beauregard	Alexandria	Close	Fort Belvoir
the DoD Inspector General	North Tower at 2800 Crystal Drive	Arlington	Close	Fort Belvoir
the Defense Human Resources Activity	1600 Wilson Blvd	Arlington	Close	Fort Belvoir
offices accommodating Pentagon Renovation temporary space	1500 Wilson Blvd and Presidential Towers	Arlington	Close	Fort Belvoir
the Defense Contract Management Agency HQs	Metro Park III & IV at 6350 and 6359 Walker Lane	Alexandria	Close	Fort Belvoir
the Office of the Secretary of Defense, Washington HQs Services, and the DoD Inspector General	400 Army Navy Drive	Arlington	Realign	Fort Belvoir
the DoD Education Activity and the Defense Human Resources Activity	Webb Building	Arlington	Realign	Fort Belvoir
offices accommodating Pentagon Renovation temporary space, Washington HQs Services and the Defense Human Resources Activity	Rosslyn Plaza North	Arlington	Realign	Fort Belvoir

Affected Agency	Leased Building/Address	City/County	Close/Realign	New Installation
the Office of the Secretary of Defense, Washington HQs Services, and the DoD Inspector General	Crystal Gateway North	Arlington	Realign	Fort Belvoir
the Office of the Secretary of Defense	2001 North Beauregard St.	Alexandria	Realign	Fort Belvoir
the Office of the Secretary of Defense	621 North Payne St.	Arlington	Realign	Fort Belvoir
the Office of the Secretary of Defense	Ballston Metro Center	Arlington	Realign	Fort Belvoir
the Office of the Secretary of Defense	Crystal Square 4	Arlington	Realign	Fort Belvoir
the Office of the Secretary of Defense	Crystal Plaza 6	Arlington	Realign	Fort Belvoir
the Office of the Secretary of Defense	4015 Wilson Blvd.	Arlington	Realign	Fort Belvoir
the Office of the Secretary of Defense	Skyline 5	Falls Church	Realign	Fort Belvoir
the Office of the Secretary of Defense	Skyline 6	Falls Church	Realign	Fort Belvoir
the Office of the Secretary of Defense and the Defense Finance and Accounting Service	Crystal Mall 3	Arlington	Realign	Fort Belvoir
the Office of the Secretary of Defense and Washington HQs Services	Hoffman 1	Alexandria	Realign	Fort Belvoir
the Office of the Secretary of Defense and Washington HQs Services	Crystal Gateway 1	Arlington	Realign	Fort Belvoir
the Office of the Secretary of Defense and Washington HQs Services	Crystal Gateway 2	Arlington	Realign	Fort Belvoir
the Office of the Secretary of Defense and Washington HQs Services	Crystal Gateway 3	Arlington	Realign	Fort Belvoir
the Office of the Secretary of Defense and Washington HQs Services	the James K. Polk Building	Alexandria	Realign	Fort Belvoir
the Defense Human Resources Activity	Nash Street Building	Arlington	Realign	Fort Belvoir

Affected Agency	Leased Building/Address	City/County	Close/Realign	New Installation
the Defense Technology Security Administration	Alexandria Tech Center IV	Alexandria	Realign	Fort Belvoir
the DoD Inspector General	1400-1450 South Eads Street	Arlington	Realign	Fort Belvoir
the Office of the Secretary of Defense, Washington HQs Services and Defense Human Resources Activity	1401 Wilson Blvd.	Arlington	Realign	Fort Belvoir
the Office of the Secretary of Defense and Defense Human Resources Activity	1555 Wilson Blvd.	Arlington	Realign	Fort Belvoir
Washington HQs Services	Crystal Mall 2-3-4	Arlington	Realign	Fort Belvoir
Washington HQs Services	Skyline 4	Falls Church	Realign	Fort Belvoir
Recommendation #134: Co-locate Missile and Space Defense Agencies (MDA)				
a HQs Command Center for the Missile Defense Agency	Federal Office Building 2	Arlington	Realign	Fort Belvoir
Recommendation #168: National Geospatial-Intelligence Agency Activities (NGA)				
National Geospatial-Intelligence Agency	Dalecarlia and Sumner sites	Bethesda	Close	Fort Belvoir
National Geospatial-Intelligence Agency	Reston 1, 2, 3	Reston	Close	Fort Belvoir
National Geospatial-Intelligence Agency	Newington buildings 8510, 8520, 8530	Newington, VA	Close	Fort Belvoir
National Geospatial-Intelligence Agency	Building 213 at South East Federal Center	Washington, DC	Close	Fort Belvoir
National Geospatial-Intelligence Agency	the National Reconnaissance Office facility	Westfields, VA	Realign	Fort Belvoir
Recommendation #169: Realign Water Reed National Military Medical Center, Bethesda, MD				
all non-tertiary (primary & specialty) patient care functions	Walter Reed Army Medical Center	Washington, DC	Realign	Fort Belvoir - (a new community hospital)

Affected Agency	Leased Building/Address	City/County	Close/Realign	New Installation
the Office of the Secretary of Defense supporting unit	Walter Reed Army Medical Center	Washington, DC	Realign	Fort Belvoir - (a new community hospital)
Recommendation #176: Depot Level Reparable Procurement Management Consolidation				
Various supportive functions - relocate the oversight of Budget/Funding, Contracting, Cataloging, Requisition Processing, Customer Services, Item Management, Stock Control, Weapon System Secondary Item Support, Requirements Determination, Integrated Materiel Management Technical Support Inventory Control Point functions for Consumable Items and the oversight of procurement management and related support functions for Depot Level Reparables	Naval Support Activity	Mechanicsburg, PA	Realign	Fort Belvoir - (the Defense Logistics Agency)
Various supportive functions (same as above)	Marine Corps Base	Albany, GA	Realign	Fort Belvoir - (the Defense Logistics Agency)
Various supportive functions (same as above)	Wright Patterson Air Force Base	Ohio	Realign	Fort Belvoir - (the Defense Logistics Agency)
Various supportive functions (same as above)		Fort Belvoir	Realign	Fort Belvoir - (the Defense Logistics Agency)

Marine Corps Base at Quantico

Recommendation #131: Co-locate Military Department Investigation Agencies with DoD Counterintelligence and Security Agency				
CIFA & DSS	1919 S. Eads St.	Arlington	Close	Marine Corps Base, Quantico
CIFA & DSS	1801 S. Bell St.	Arlington	Close	Marine Corps Base, Quantico
CIFA & DSS	1340 Braddock Place	Alexandria	Close	Marine Corps Base, Quantico
CIFA & DSS	938 Elbridge Landing	Linthicum, MD	Close	Marine Corps Base, Quantico

Affected Agency	Leased Building/Address	City/County	Close/Realign	New Installation
the Army Criminal Investigation Command (CID)		Fort Belvoir	Realign	Marine Corps Base, Quantico
CIFA & DSS	Crystal Square 2	Arlington	Realign	Marine Corps Base, Quantico
CIFA & DSS	Crystal Square 4	Arlington	Realign	Marine Corps Base, Quantico
CIFA & DSS	251 18th St. South	Arlington	Realign	Marine Corps Base, Quantico
CIFA & DSS	6845 & 6856 Deerpath Road	Elkridge, MD	Realign	Marine Corps Base, Quantico
CIFA & DSS	1 World Trade Center	Long Beach, CA	Realign	Marine Corps Base, Quantico
CIFA & DSS	2300 Lake Park Drive	Smyrna, GA	Realign	Marine Corps Base, Quantico
CIFA & DSS	2780 Airport Drive	Columbus, OH	Realign	Marine Corps Base, Quantico
the Naval Criminal Investigation Service	the Washington Navy Yard	Washington, DC	Realign	Marine Corps Base, Quantico
the Air Force Office of Special Investigations (AFOSI)	the Andrews Air Force Base	Andrews AFB, MD	Realign	Marine Corps Base, Quantico

Appendix 2: Outbound BRAC Actions Affecting the Northern Virginia WIB Region

Affected Agency	Leased Building/Address	City/County	Close/Realign	New Installation
Outbound BRAC Actions --				
Fort Belvoir				
Recommendation #5: Close Fort Monmouth, NJ				
Sensors, Electronics, and Electronic Warfare/Information Systems Research, Dev and Acquisition activities		Fort Belvoir	Realign	Aberdeen Proving Ground, MD
Recommendation #127: Relocate Prime Power to Fort Leonard Wood, MO				
Army Prime Power School training		Fort Belvoir	Realign	Fort Leonard Wood, MO
Recommendation #131: Co-locate Military Department Investigation Agencies with DoD Counterintelligence and Security Agency				
the Army Criminal Investigation Command (CID)		Fort Belvoir	Realign	Marine Corps Base, Quantico
the Army Criminal Investigation Command (CID)		Fort Belvoir	Realign	Marine Corps Base, Quantico
Recommendation #141: Consolidate Media Organizations into a New Agency for Media and Publications				
Solider Magazine		Fort Belvoir	Realign	Fort Meade, MD
Recommendation #148: Relocate Army HQs and Field Operating Agencies				
Army Material Command (AMC) and the Security Assistance Command (USASAC)		Fort Belvoir	Realign	Redstone Arsenal, AL

Affected Agency	Leased Building/Address	City/County	Close/Realign	New Installation
Recommendation #174: Realign Joint Centers of Excellence for Chemical, Biological, and Medical R&D and Acquisition				
Chemical Biological Defense Research component of the Defense Threat Reduction Agency		Fort Belvoir	Realign	Aberdeen Proving Ground, MD (Edgewood Chemical Biological Center)
Recommendation #178: Co-locate Extramural Research Program Managers				
The Army Research Office		Fort Belvoir	Realign	the National Naval Medical Center in Bethesda, MD
Defense Threat Reduction Agency National Command Region conventional armament Research		Fort Belvoir	Realign	Eglin Air Force Base, FL
Marine Corps Base at Quantico				
Recommendation #138: Consolidate Correctional Facilities into Joint Regional Correctional Facilities				
the correctional function	Marine Corps Base	Quantico	Realign	Level II Mid-Atlantic Joint Regional Correctional Facility in Chesapeake, VA
Bailey's Crossroads				
Recommendation # 132: Co-locate Miscellaneous Army Leased Locations				
the Administrative Assistance to the Secretary of the Army (SAAA)	Skyline VI	Falls Church	Realign	Fort Belvoir
Recommendation # 133: Co-locate Miscellaneous OSD, Defense Agency, and Field Activity Leased Locations				
the Office of the Secretary of Defense	Skyline 5	Falls Church	Realign	Fort Belvoir

Affected Agency	Leased Building/Address	City/County	Close/Realign	New Installation
the Office of the Secretary of Defense	Skyline 6	Falls Church	Realign	Fort Belvoir
Washington HQs Services	Skyline 4	Falls Church	Realign	Fort Belvoir
Recommendation # 134: Co-locate Missile and Space Defense Agencies				
Close or realign most of Missile Defense Agency (MDA) and the HQs component of the USA Space and Missile Defense Command	the Suffolk Building	Falls Church	Close	Redstone Arsenal, AL
all components of the DISA	5600 Columbia Pike	Falls Church	Close	Fort Meade, MD
all components of the DISA	Skyline VII	Falls Church	Close	Fort Meade, MD
all components of the DISA	Skyline IV & V	Falls Church	Realign	Fort Meade, MD
Recommendation #148: Relocate Army HQs and Field Operating Agencies				
the Army Community and Family Support Center	Seven Corners Corporate Centers	Falls Church	Realign	Fort Sam Houston, TX
the Army Contracting Agency HQs	Skyline 6	Falls Church	Realign	Fort Sam Houston, TX
Recommendation #174: Realign Joint Centers of Excellence for Chemical, Biological, and Medical R&D and Acquisition				
the Joint Program Executive Office for Chemical Biological Defense	Skyline 2 & 6	Falls Church	Realign	Aberdeen Proving Ground, MD (Edgewood Chemical Biological Center)