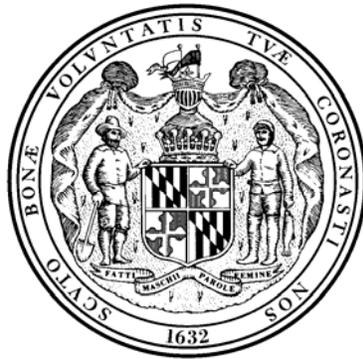


**2005 BRAC**  
**State of Maryland Impact Analysis: 2006-2020**  
**Executive Summary**

**2007**



Maryland Department of Business and Economic Development  
Office of Military and Federal Affairs  
217 East Redwood Street  
Baltimore, MD 21202

**A Report to the U.S. Department of Labor**

## Acknowledgements

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## **GOVERNMENT ACRONYMS**

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AAFB – Andrews Air Force Base  
APG – Aberdeen Proving Ground  
BGE – Baltimore Gas and Electric  
BMC – Baltimore Metropolitan Council  
BRAC – Base Realignment and Closure  
CIP – Capital Improvement Program  
COBRA – Cost of Base Realignment Actions  
DBED – Maryland Department Business and Economic Development  
DISA – Defense Information Systems Agency  
DOD – Department of Defense  
DOL – Department of Labor  
FY – Fiscal Year  
IAC – Interagency Committee  
LEA – Local Education Agency  
MDOT – Maryland Department of Transportation  
MDP – Maryland Department of Planning  
NGA – National Geospatial-Intelligence Agency  
NNMC – National Naval Medical Center at Bethesda  
OPM – Office of Personnel Management  
PFA – Priority Funding Areas  
SAIC – Science Applications International Corporation  
TMDL – Total Maximum Daily Load

## I. INTRODUCTION

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The final 2005 Base Realignment and Closure (BRAC) Commission report became law on November 9, 2005, and its recommendations are to be executed no later than September 2011. Maryland fared exceptionally well, gaining an estimated total of more than 45,000 federal and private sector jobs through time, most involving high technology and paying exceptionally well. The BRAC results represent the largest single employment growth activity in Maryland since World War II and will continue to underpin Maryland's movement toward a more stable and increasingly knowledge-based economy. The combined and coordinated efforts of local, state, and federal officials through the past several years are acknowledged as all contributing to Maryland's success. The critical role of Maryland's installations in our nation's defense will be enhanced considerably.

The two areas gaining the most BRAC jobs are Fort Meade (approximately 5,800 on the base) and the Aberdeen Proving Ground [(APG) a net of 8,000 to 9,000 plus on the base]. Contracted support of these jobs raises the total impact considerably, and in the case of Fort Meade additional non-BRAC on-base growth in excess of 7,000 is expected. The National Naval Medical Center at Bethesda (NNMC) is expected to grow by approximately 1,400 positions, and approximately 400 new jobs will be added to Andrews Air Force Base (AAFB). Non-BRAC related and multi-agency growth at Fort Detrick will be extensive, and the one Maryland installation closed by BRAC action, the National Geospatial-Intelligence Agency (NGA), is expected to be back-filled by an approximately equal number of federal employees.

The collective challenge at hand is to attempt to measure the impact this growth will have upon local planning, public facilities, the environment, schools, infrastructure (particularly transportation, water and sewer), workforce issues, housing, financial requirements and regulatory issues. Funds were sought and received from the U.S. Department of Labor (DOL) to begin an initial, macro-level review of BRAC impact. Four areas received most of the attention:

- Task 1: a compilation of the federal jobs coming and going
- Task 2: a macro-look at infrastructure impact as well as expected tax revenue generated by the new positions
- Task 3: a review of higher education requirements
- Task 4: a review of "best practices" associated with security clearance requirements

The results of the study must be reviewed in the context of the ever changing dynamics of national level defense decisions, particularly during a time of war. Additionally, because the majority of the on-base positions will require the completion of military construction resulting in most moves not beginning in earnest until the 2009/2010 timeframe, it is too early to do other than establish rough estimates of the actual numbers of employees who will be moving to Maryland. Initial surveying of the major components moving from New Jersey and Virginia has been completed, and the results (as well as history from previous BRAC rounds) indicate that at this point expectations of actual relocation of designated personnel should not exceed 35 - 40%. The jobs themselves must be filled, so the final mix and associated opportunities for current Maryland residents reflect a yet-to-be-determined combination of recruitment from within and beyond Maryland, as well as daily commuters into the state.

Given the unknowns associated with this early-stage analysis, the results of Task 2 of this study should be accepted as simply a preliminary baseline, one that is particularly conservative in its

measurement of indirect employment impact. Additional and ongoing analysis at the state and local level will be required for several years. The results of Tasks 1, 3, and 4 are less subject to change through time.

## II. DEPARTMENT OF LABOR STUDY RESULTS

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### A. TASK 1: ACTIVITIES AFFECTING APG, ANDREWS AFB, NNMC AT BETHESDA, AND FORT MEADE

DOD Cost of Base Realignment Actions (COBRA) position movement estimates provided initial estimates of job losses and gains for individual bases. Task 1 activities included updating these estimates with more recent information, such as business and manpower action plans that followed the COBRA reports. Some of this information has already changed substantially since the time of the study (March 2006). The ever-changing shift in numbers is a result of the nature of the world of defense decision making, which is always volatile with issues impacting employment numbers quite independent of the BRAC process.

Exhibit 1 summarizes potential moves affecting APG. As the exhibit shows, APG will likely experience a net gain of more than 9,000 positions. Exhibit 2 provides a summary of AAFB affected-job moves nearing 400 newly-created BRAC positions. Exhibit 3 provides a similar summary for Fort Meade reflecting a net BRAC job growth of more than 5,000. Note that in addition to the personnel movement related to BRAC actions, a 2004 press release indicates that Fort Meade's primary tenant -- the National Security Agency -- will grow at the rate of about 1,500 positions per year for the next five years. However, budget restraints and personnel assignments may limit Maryland impact.

#### Exhibit 1. BRAC Job Transfers and Potential Mission Contractor Moves Affecting APG<sup>1</sup>

Activity	Military	Civilian	Embedded Contractors <sup>2</sup>	Total
Total Moving In	385	7,379	2,662	10,426
Total Moving Out	-613	-365	no data	-978
Net Movement	-228	7,014	2,662	9,448

1. Does not include 2,817 Ordnance Center and School students leaving APG (Hall, 2006). Base officials (Hall, 2006) state that the students do not have an impact outside the base. COBRA data suggests most of the military positions moving out of APG are associated with the Ordnance Center and School, and most of the civilian positions are associated with the Army Environmental Center.

2. Embedded contractors are those who operate out of government-supplied on-base space. Does not include additional (non-embedded) contractor trail.

#### Exhibit 2. BRAC Job Transfers and Potential Mission Contractor Moves Affecting AAFB

Activity	Military	Civilian	Embedded Contractors <sup>1</sup>	Total
Total Moving In	675	529	271	1,475
Total Moving Out	-484	-229	-362	-1,075
Net Movement	191	300	-91	400

1. Embedded contractors are those who operate out of government-supplied on-base space. Does not include additional (non-embedded) contractor trail.

**Exhibit 3. BRAC Position Transfers and Potential Mission Contractor Moves Affecting Fort Meade**

<b>Activity</b>	<b>Military</b>	<b>Civilian</b>	<b>Embedded Contractors<sup>1</sup></b>	<b>Total</b>
Adjudication Activities <sup>2</sup>	22	816	113	951
Media Activities	218	314	137	669
Defense Information Systems (DISA) (including Joint Network Management System Program Office from Fort Monmouth, NJ) <sup>3</sup>	478	2,209	1,410	4,097
<b>Total</b>	<b>718</b>	<b>3,339</b>	<b>1,660</b>	<b>5,717</b>

1. Embedded contractors are those who operate out of government-supplied on-base space. Does not include additional (non-embedded) contractor trail.

2. Does not include personnel associated with the Army Central Clearance Facility currently at Fort Meade and relocating within the base.

3. Does not include 3,000-5,000 non-embedded contractors associated with DISA (Re, 2006; Hartman, 2006).

Finally, the NNMC at Bethesda will likely gain about 1,400 positions. Approximately 1,200 of these jobs will transfer from Walter Reed Hospital, with the remainder likely support services and personnel related to a possible doubling of patient load (557,837 outpatient visits per year) at the expanded center.

The NGA, an additional installation located in Bethesda, will be relocating to Fort Belvoir, Virginia. DOD indicated that it may replace the 2,800 mostly civilian employees at this site with an equal number of federal employees of another agency.

Below in Exhibit 4 is a summary of Maryland BRAC-created positions per installation.

**Exhibit 4. Total Maryland BRAC Jobs by Installation**

<b>Installation</b>	<b>Military</b>	<b>Civilian</b>	<b>Embedded Contractors<sup>1</sup></b>	<b>Total</b>
APG	-228	7,014	2,662	9,448
AAFB	191	300	-91	400
Fort Meade	718	3,339	1,660	5,717
NNMC	N/A	N/A	N/A	1,400 <sup>1</sup>
NGA	N/A	N/A	N/A	0
<b>TOTAL</b>	<b>681</b>	<b>10,653</b>	<b>4,231</b>	<b>16,965</b>

<sup>1</sup> Although the 1,400 BRAC positions to be created at NNMC are direct jobs, at this time it is unknown whether they will be military or civilian.

**B. TASK 2: HOUSING, INFRASTRUCTURE AND FISCAL IMPACTS**

Although the estimates of personnel moves into and out of APG, AAFB, Fort Meade, and the NNMC at Bethesda are continually changing, the purpose of this task was to provide an initial estimate of impacts on the installations and their surrounding areas. As official budget

constraints, personal decisions by each employee on relocation and retirement, commuting versus relocation, and other variables become more defined, these numbers will change and perhaps radically. In addition, the contractor trail associated with the base changes will evolve as firms either start up new operations or expand existing offices. Each of these issues will prolong uncertainty and make state and local planning more difficult.

In projecting the total job impact as far as 2020, reference is made to four job categories:

- 1) Military
- 2) Direct - to include civilian DOD employees and embedded contractors
- 3) Indirect - only non-embedded or outside-the-gate contractors
- 4) Induced - support service jobs triggered by the increase in BRAC-created households.

Nonetheless, this section summarizes the likely areas and sectors of impact based on necessary assumptions regarding:

- The timing of economic impacts
- The allocation of jobs and households across the jurisdictions
- The salary levels associated with both the direct and indirect jobs
- Tax revenues generated by employment growth.

For example, to be compliant with the BRAC statute, direct job movement would be complete by 2011 (both DOD jobs and embedded contractors). A plausible assumption is that approximately half of non-embedded contractor moves will also occur during this timeframe. Maryland's Department of Planning (MDP) assumed that the remaining non-embedded contractors would relocate from 2012 to 2015, and induced (support services) employment resulting from new household formation would also occur through the end of 2020 (with households contributing, in this sense, 67% of the number of indirect and induced jobs). MDP also estimated the precise location-related aspects of jobs and households with the concurrence of the localities involved.

The "Phases" referred to in some of the following charts delineate Phase I as relocations completed by the end of 2011. Phase II extends from 2012 to the end of 2015. Phase III extends from 2016 through the end of 2020. However, it is difficult to quantify jobs and households potentially added during the Phase III timeframe.

MDP assumed that direct job additions would add incomes reflective of salaries for GS-7 through GS-14 positions; contractor positions would involve baseline salaries for positions in the categories of "Professional, Scientific and Technical Services" (\$110,000) and "Management of Companies and Enterprises" (\$85,000). These assumptions reflect specifics developed from job descriptions and titles gleaned during Task 1, and provide inputs for predicting growth in state and local income taxes, state and local property taxes, other state and local taxes, and the revenue stream to support needs and challenges for each jurisdiction.

The remainder of this section provides estimates of the direct, indirect, and induced revenues and households that stem from these assumptions for the following eight impacted jurisdictions: Anne Arundel, Baltimore, Cecil, Harford, Howard, Montgomery, and Prince George's Counties, the City of Baltimore, and the remainder of Maryland. These estimates are the basis for guiding local planning efforts in concert with the state.

## ***1. Key Findings***

Overall, growth resulting from BRAC 2005 will increase development pressures in several jurisdictions in the context of what are already fairly high growth rates across much of the Baltimore-Washington, D.C. metropolitan area. These growth pressures will be strongest in Harford and Cecil Counties based on BRAC demand and anticipated supply of both new and existing housing units available to all in-migrants over the 2009 to 2015 time period, the seven-year period when BRAC housing demand is expected to be strongest.

In light of the BRAC-related growth, many jurisdictions will need to take significant steps now to enable their growth areas [i.e., priority funding areas (PFAs) and areas served by sewer and water, existing or soon to be served] to accommodate more development capacity (e.g., rezoning, providing infrastructure, and public services). In addition, some jurisdictions need to take actions now to better protect their rural areas, principally due to weak rural zoning, given the anticipated additional development pressures from BRAC-related growth. Otherwise, these areas could see faster build-out of their PFAs with increased development pressure spilling out to the remaining rural lands.

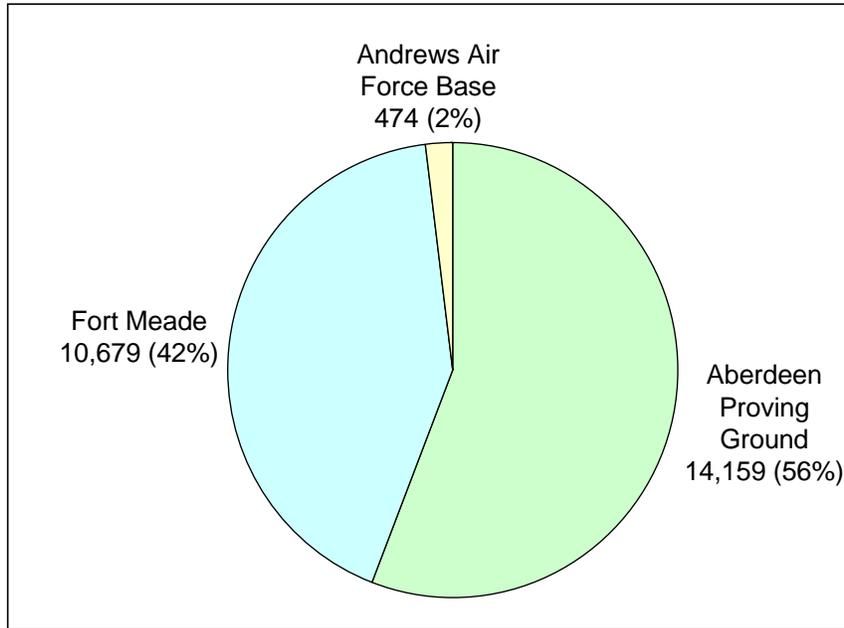
## ***2. Housing Demand and Supply – Jurisdiction Overview***

MDP expects a total of 28,176\* new households as a result of BRAC, 25,312 of which will locate in the eight-jurisdiction study area. The majority of new households are generated by expansion at APG (14,159, or 56%), with the bulk of the remaining households associated with expansion at Fort Meade (10,679, or 42%). Approximately 474 households (1.9%) are associated with new jobs at AAFB (Exhibit 4). Because of the relative closeness of Walter Reed and the NNMC, the impact on housing is minimal.

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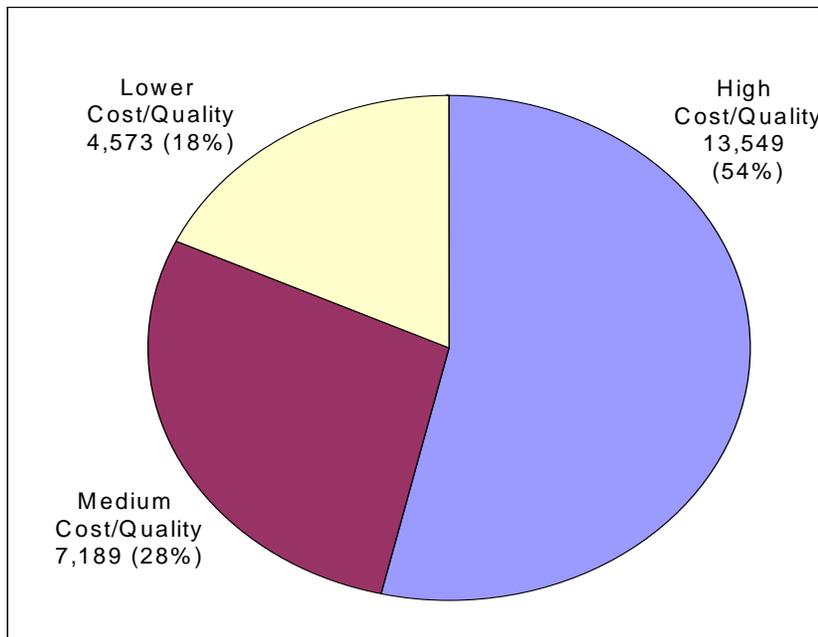
\* It should be noted that the ratio of jobs to households is assumed to be 2 households for every 3 jobs.

#### Exhibit 4. BRAC Household Demand by Base for Eight-Jurisdiction Study Area



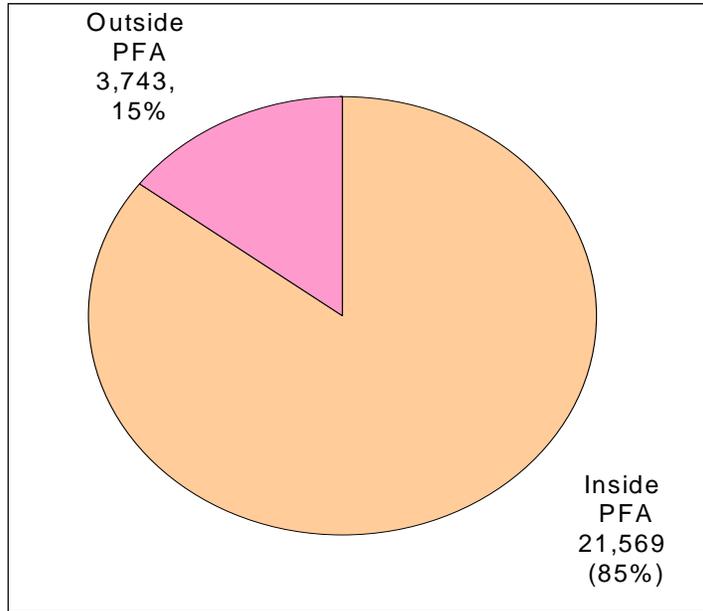
MDP expects that approximately 3,500 (14%) of the new households will be renters, with the remaining portion homeowners. Of the 25,312 new households, 13,549 (54%) will look for housing of higher cost/quality, 7,189 (28%) will look for housing of medium cost/quality, and 4,573 (18%) will look for housing of lower cost/quality (Exhibit 5).

#### Exhibit 5. BRAC Household Demand by Housing Cost/Quality



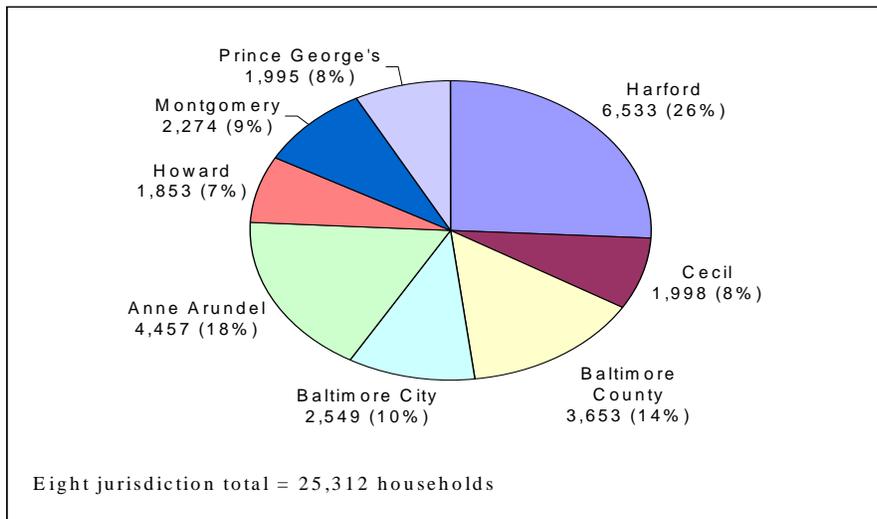
MDP expects that of the 25,312 households, 21,569 (85%) will locate within areas designated as PFAs or served by sewer, existing or shortly planned, and 3,743 (15%) will locate outside of a PFA/sewer area (Exhibit 6).

**Exhibit 6. BRAC Household Demand Inside and Outside of PFAs**



MDP expects household totals to be highest in Harford County (6,533, or 26%), and Anne Arundel County (4,457, or 18%), followed by Baltimore County (3,653, or 14%), Baltimore City (2,549, or 10%), Montgomery County (2,274, or 9%), Cecil County (1,998, or 8%), Prince George’s County (1,995, or 8%) and Howard County (1,853, or 7%) (Exhibit 7).

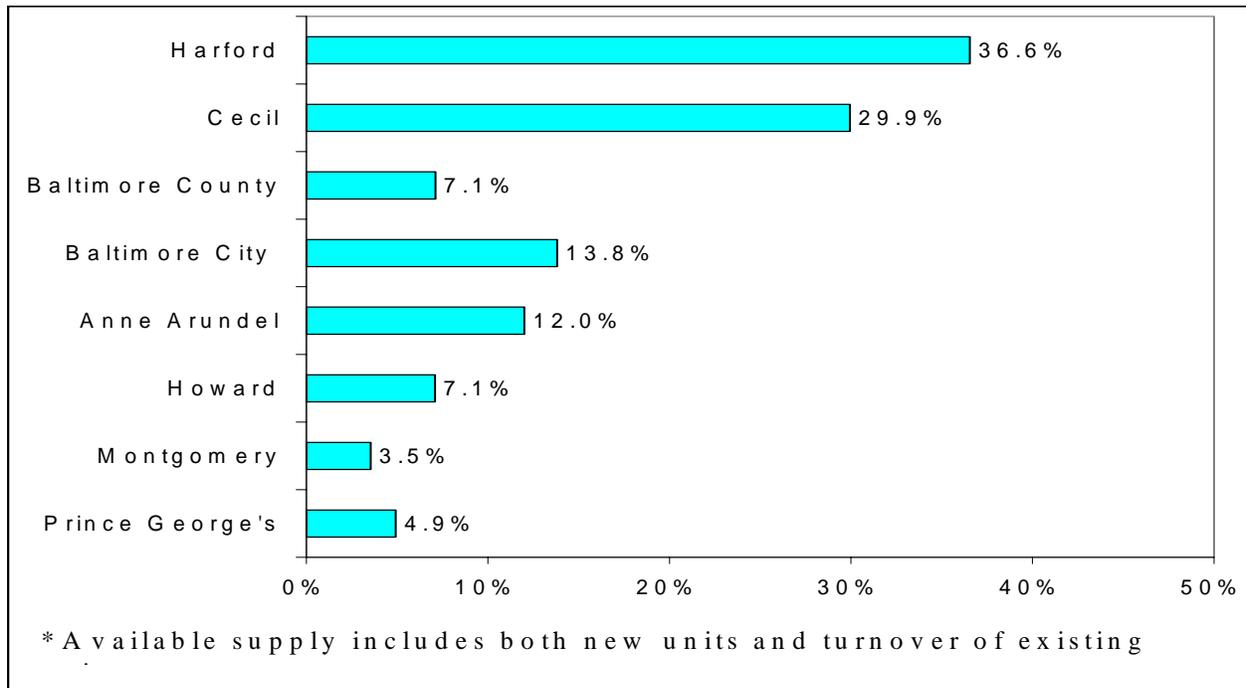
**Exhibit 7. BRAC Household Demand in Eight Jurisdiction Study Area**



### 3. *Housing Demand and Supply – Individual Jurisdictions*

Harford County appears to have the greatest development pressures from BRAC. BRAC households in Harford County (6,533) represent well over one-third (38%) of the county's supply of housing units (both new and turnover of existing units) that will be available to all in-migrants over the 2009 to 2015 time period. The pressure is higher outside of PFAs, where BRAC demand (1,501 households) is closer to one-half (45%) of available supply, while it is just over one-third (37%) of the expected supply within PFA/sewer areas (5,032 units) (Exhibits 8 and 9).

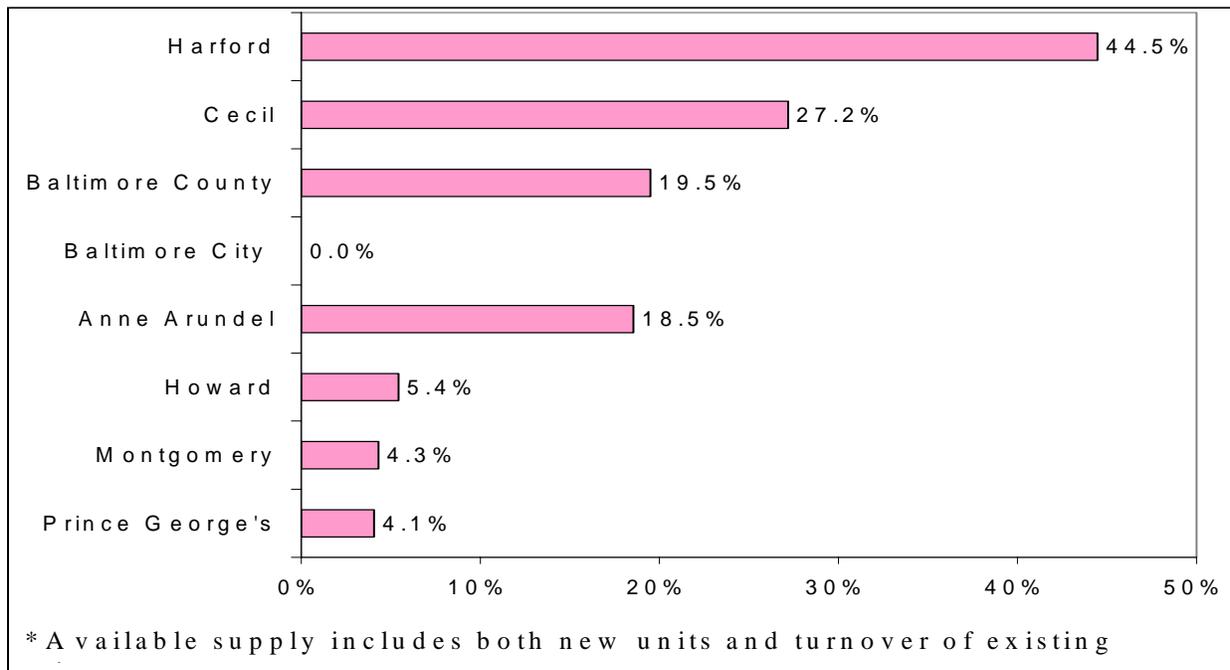
**Exhibit 8. BRAC Household Demand as a Percent of Available Housing Supply Inside PFAs, 2009 to 2015\***



With development pressure accelerating because of BRAC, there is an increased urgency for plans and actions now to address infrastructure and public services needs (especially water and sewer service, schools, and transportation). If BRAC development occurs without this investment, the likely consequences are further threats to rural land preservation in the county and/or further deflecting of growth outward to surrounding jurisdictions, specifically Cecil County or out of state (Pennsylvania and Delaware).

Most Harford County BRAC households are expected to locate within a 45-minute commute of APG. In this area, there is the possibility of substantial development pressure with respect to higher cost/quality housing both within and outside of PFA/sewer areas. Within PFA/sewer areas, BRAC demand (more than 2,200 households) is two-thirds (67%) of the available supply of higher cost/quality housing to in-migrants, while outside the PFA areas, BRAC demand of just under 1,300 households is well over one-half (58%) of the available higher cost/quality housing supply.

**Exhibit 9. BRAC Household Demand as Percent of Available Housing Supply Outside PFAs, 2009 to 2015\***



To a lesser extent, but still significant, pressures will also exist in the 45-minute commute shed to develop lower cost housing inside of PFAs. In this case, BRAC demand (1,150 households) makes up nearly one-third (31%) of the available housing supply in this cost/quality range.

If these potential development pressures, particularly from high-income households, are to not lead to accelerated loss of rural lands, then planning and support for infrastructure investments need to be made now to better match supply and demand.

MDP estimates that Cecil County will have the second strongest development pressure as a result of BRAC, even though it will have only the sixth-highest number of BRAC households in the study area. In Cecil County, the 1,998 BRAC households represent 29% of the expected supply of housing available to all in-migrants over the 2009 to 2015 time period. These development pressures are slightly higher inside of PFAs (30%) than outside of PFAs (27%).

The greatest potential development pressure between demand and supply in Cecil County will be for higher cost/quality housing both inside and outside of PFA/sewer areas. Within PFAs, the BRAC household demand of 336 units is more than one-half (57%) of the housing supply available to in-migrants over the 2009 to 2015 time period. Outside of the PFAs, the BRAC demand of 452 units just under one-half (48%) of the available supply.

In contrast, development pressure for the medium and lower cost/quality housing inside of PFAs will be much less, where BRAC demand will make up around one-fourth of available housing supply in each of these two categories.

In general, Cecil County has the land capacity to absorb the expected BRAC households, but must immediately take the steps and obtain the appropriate funding necessary for the investments to meet infrastructure requirements which will support a more compact development pattern

inside the PFA/sewer areas and reduce the more scattered pattern of development outside of PFA/sewer areas.

MDP estimates that Anne Arundel County, with the second largest total of BRAC households (4,457), will have the fourth strongest BRAC-related development pressure in the study area. BRAC households make up 13% of the estimated housing supply available to in-migrants over the 2009 to 2015 time period. This development pressure is stronger outside of PFAs (19%) than inside of PFAs (12%).

MDP expects that the overwhelming majority (97%) of BRAC households in Anne Arundel County will locate within a 45-minute commute of Fort Meade. Less significant differences are seen between BRAC household demand and available housing supply to in-migrants in this area. BRAC housing demand as a percent of available housing supply is highest for higher cost/quality households outside of PFA areas, where the BRAC demand (500 households) is about one-fifth (20%) of the available housing supply for in-migrants compared to 17% (or just over 1,800 units) for higher cost/quality households inside the PFA areas. BRAC demand associated with lower cost/quality housing inside of PFAs makes up about the same share of available supply (20%, or just over 800 units).

Baltimore County, unlike most other jurisdictions, will be impacted directly from expansions at both Fort Meade and APG. MDP estimates that just over 1,500 households out of 3,653 will locate within a 45-minute commute of APG, mostly on the east side of Baltimore County. The relationship between expected demand and available supply is tightest here in the higher cost/quality areas inside PFAs where demand (nearly 500 households) makes up over one-half (57%) of expected available supply through 2015.

MDP expects that the other major portion of BRAC households for Baltimore County will locate within a 45-minute commute time of Fort Meade, mostly on the southwest side of the county (just over 700 households). Here, too, the demand for high cost/quality housing (about 350 units) comprises nearly two-thirds (65%) of the supply of housing expected to be available to all in-migrants over the 2009 to 2015 time period.

Despite apparent potential growth pressures for areas of higher cost/quality housing, however, overall, BRAC household demand comprises only 8% of the housing supply available to all in-migrants over the 2009 to 2015 period. This pressure is less within PFAs (7%) than outside of PFAs (20%). MDP expects that Baltimore City, like Baltimore County, will receive BRAC households from the expansions at both APG and Fort Meade. Areas of the city that are within both of the 45-minute commute times around APG and Fort Meade will exhibit the most development pressure. Specifically, this pressure should be highest for higher cost/quality housing, where BRAC demand (just over 1,000 households) is just less than one-half (49%) of the estimated supply available to all in-migrants. For medium cost/quality housing, demand for about 250 units is about one-fifth (22%) of supply. For lower cost/quality housing, BRAC demand is less than 10% of supply in all affected areas of the City. Overall, BRAC household demand comprises 14% of the housing supply available to all in-migrants over the 2009 to 2015 period.

Montgomery County's nearly 2,300 BRAC households represent less than 4% of the estimated supply available to in-migrant households over the 2009 to 2015 time period. MDP did not identify any major demand versus available supply issues for this area.

Prince George's County's nearly 2,000 BRAC households are less than 5% of the estimated housing supply to be available to all in-migrants over the 2009 to 2015 time period. Here, too, MDP did not identify any major demand versus anticipated supply issues in this area.

Howard County's 1,853 BRAC households represent just 7% of the estimated supply available to all in-migrants in the 2009 to 2015 time period. One potential area of increased development pressure for the county is within the 45-minute commuting shed of Fort Meade, where the BRAC housing demand in the lower cost/quality category (just below 300 households) makes up one-quarter of the estimated available supply.

#### ***4. Water and Sewer Capacity***

The most challenging aspect of the impact of growth upon infrastructure involves the capacity analysis and improvements required for local water and sewer systems. Maryland's 2006 legislation (HB 1141) requires local comprehensive plans and county water and sewer plans to include such capacity analysis and also sets strict water quality standards.

All jurisdictions should review the impact of BRAC on the water resources in their communities and promptly review and update their local Comprehensive Plans and County Water and Sewerage Plans (per House Bill 1141). They should also initiate preparation of the newly required Water Resources Element. These plans must reflect and accommodate the BRAC growth and take into consideration the best water resources information available including any development limitations resulting from regulatory programs such as total maximum daily loads (TMDLs), Tributary Strategies, and the Chesapeake Bay Program. The Maryland Department of Environment is organized to assist localities with this.

Harford and Cecil Counties and their municipalities are facing challenges in providing adequate community water supply resources and water and sewage treatment capacity. In light of the BRAC growth, it is recommended to accelerate efforts to resolve inter-jurisdictional planning, regulatory, and other related issues.

All impacted local governments should seek federal and state financial and technical assistance to help expedite meeting the planning prerequisites necessary to support the BRAC in migration in a manner consistent with state and local Smart Growth policies.

In conjunction with providing adequate community water and sewerage facilities to accommodate growth in designated growth areas, all counties should review and make appropriate improvements to their rural preservation programs to assure that the added growth pressure from BRAC will not damage rural economies and other important values. In particular, Harford and Cecil Counties should review their programs in this regard.

#### ***5. Power and Fiber Optic Capacity***

Residential growth attributable to BRAC is not of concern to Baltimore Gas and Electricity (BGE), the predominant supplier of power in the area, because the influx of BRAC households does not impact the planned residential development. Capacity around each of the three military bases that BGE serves (APG, Fort Meade, and NNMC at Bethesda) is not an issue for the foreseeable future. However, because of the expected upsurge in high tech business needs, BGE is currently evaluating its existing capacities in and around each of the three bases.

All major cable and Internet companies indicate that they are fully prepared to provide or continue to provide service to all communities impacted by BRAC. No companies are changing their growth or expansion plans due to the influx of new employees to any of the Maryland military bases.

## ***6. Transportation***

Since BRAC does not bring new and different sources of funding with it, it will be necessary to work within Maryland's existing financial capabilities to address the most important transportation needs. It should be noted that the Maryland Department of Transportation (MDOT) does not currently have the financial resources to construct all of the investments indicated below. Identifying priorities and coordinating resources among all parties (state agencies, local jurisdictions and the military communities) will remain critical in realizing effective transportation project starts. Partnering with local governments, developers, and other innovative strategies will be required to implement most of the studies and projects that are described herein.

However, many of the recommended transportation studies and investments would most likely be needed without BRAC. The necessity and feasibility of individual projects should be determined through additional study. Also, it will be vitally important for Maryland to identify additional funding sources, such as Defense Access Funds, to assist in the planning and construction of BRAC-related transportation facilities. This does not supersede MDOT's own analyses of BRAC-related transportation impacts, as well as funding priorities and financial estimates for recommended facilities.

As the impacts of BRAC-related growth continue to be realized, MDOT intends to partner with local governments, transit providers, and regional agencies to identify changing priorities, and to explore creative new funding mechanisms that can bolster Maryland's Transportation Trust Fund.

The specific recommendations by base include:

### AAFB

- Address operational characteristics along MD 337 and MD 5/MD 337 interchange to accommodate increased peak period demand.
- Move forward with existing consolidated transportation program (CTP) highway projects at MD 4, MD 5 and I-95/I-495 in the vicinity of the installation.
- Explore transportation management demand techniques to reduce single occupant mode split and reduce vehicle congestion during peak periods.
- Encourage increased use of local Metrorail transit by base employees and contractors through shuttle service and existing transit.

### NNMC

- Initiate studies to address operational characteristics at MD 355 and Cedar Lane, MD 355 at South Drive/Wood Road, MD 195 at Jones Bridge Road, and MD 355 at Pooks Hill Road to address increased congestion.

- Explore increased transportation management demand including a “Vehicle Rate Reduction Cap” to reduce vehicle congestion during peak periods.
- Encourage increased use of existing Metrorail transit through intersection improvements including medians and timed pedestrian signal heads.
- Conduct feasibility study of bus transit in the vicinity of the NNMC with particular emphasis on expansion of the number of bus transit bays at the Medical Center Metrorail Station or at a nearby location.

### APG

- Continue the study of value pricing options and transportation demand management for I-95. Accommodate travel demand on crossing roadways in the interchange areas.
- Reexamine the Perryman Access Study to provide improved access from the Perryman Peninsula to the state road network and to APG.
- Initiate feasibility or planning studies of MD 7, MD 543, MD 22, MD 152, MD 715, and MD 155 as the need arises to alleviate forecasted congestion resulting from BRAC-related expansion at APG.
- Explore expansion of a variety of rail and transit services in the Aberdeen area to meet forecasted demand associated with BRAC employee growth.
- Further explore an Aberdeen multi-modal transit center.
- Explore a variety of transportation management demand techniques and base shuttle service to reduce single occupant vehicle use and reduce overall vehicle congestion including a “Vehicle Rate Reduction Cap” to manage vehicular congestion.
- Improve local thoroughfares in Aberdeen including accelerating including improvement studies at MD 22 and MD 715 to alleviate projected vehicular congestion.
- Incorporate sidewalk connections and bicycle access in local thoroughfare improvements.
- Explore the feasibility of regular shuttle bus service to/from the existing/relocated MARC Station to APG to encourage increased use of MARC and AMTRAK service by employees and contractors at APG.

### Fort Meade

- Complete current project planning and seek construction of MD 175, MD 198, and MD 3.
- Incorporate sidewalk and bicycle access from the Odenton MARC station.
- Initiate planning of segments of I-95, MD 170, MD 713, MD 32 and US 1 to address congestion.
- Explore a variety of transportation management demand techniques and base shuttle service to reduce single occupant vehicle use and reduce overall vehicle congestion including a “Vehicle Rate Reduction Cap” to manage vehicular congestion.
- Explore expansion of a variety of rail and transit services.
- Accelerate planning and construction of Central Maryland Transit Operations Facility to serve as a local transit hub.
- Initiate feasibility study of WMATA Green Line to Fort Meade as a long- term horizon project.

## **7. Public Schools**

The in-migration of households associated with the BRAC actions will result in what is currently an undetermined increase in the number of school-aged children in each of the affected jurisdictions. Affected local education agencies (LEAs) should review the household estimates to assist their development of school enrollment forecasts. These forecasts should be used in the development of BRAC-related public school construction requests for the upcoming fiscal year (FY) 2009 capital improvement program (CIP) cycle.

Any additional school capacity, including that potentially generated by BRAC, must be substantiated by a county's LEA and approved by the state through established mechanisms. The Interagency Committee (IAC) on School Construction determines whether requested building improvements are warranted, and considers them based on formulas for state construction assistance and guidelines for assessing facility needs that are established in state law and in regulation. Priority of need is a top consideration, and a constant factor during review is the equitable distribution of CIP funding throughout the state and fulfillment of state commitments for providing equal educational opportunities across the state. It is very important for LEAs to effectively analyze BRAC-related enrollment increments and to phase enrollment and capacity needs over several years in order to meet projected school needs in 2015.

The recently submitted FY 2008 CIP requests from the BRAC impacted jurisdictions do not appear to incorporate hard data to assess the projected BRAC school impact needs in the eight jurisdictions covered in this report. This situation should be corrected for the FY 2009 CIP cycle.

The finite amount of state funding allocated each year for school construction projects does not currently meet the total needs submitted by LEAs, and in future years it will not likely meet the additional funding needs resulting from BRAC. In order to meet BRAC-related school construction needs, it may become necessary to develop a supplemental procedure for out-of-cycle funding. It may also become necessary to seek supplemental funding from federal sources for those school districts that are most heavily impacted by BRAC-related population increases. Should the need arise, an additional round of funding could be considered if the initial BRAC-related school construction needs cannot be addressed through the FY 2009 CIP process which begins in the autumn of 2007.

Public school systems with BRAC-related school construction should prioritize needs based upon school location and PFA/sewer area status. School facilities located nearer to BRAC sites and in PFAs should receive higher local funding priorities."

## **8. Tax Revenues and Job and Household Allocations**

The Regional Economic Studies Institute (RESI) of Towson University undertook the task of relating anticipated jobs to households, incomes, and tax revenues generated. To do this, RESI assumed that the direct jobs (civilian DOD and embedded contractor) will be onsite at each installation, and thus located in the jurisdiction that houses each installation, and non-embedded contractor jobs will be proximate to the installation [distributed based upon a 45 minute commuter shed identified by the Baltimore Metropolitan Council (BMC)]. For the indirect jobs, RESI used the most recent county employment forecast from MDP and the existing Quarterly

Census of Employment and Wages distribution of jobs to allocate the jobs across counties. RESI also allocated the induced jobs according to this distribution.

Exhibit 10 summarizes the estimates of jobs for this effort.

**Exhibit 10: Summary of BRAC-related Job Impacts by Jurisdiction**

Jurisdiction	Direct	Indirect (non-embedded contractors)	Indirect (all others)	Induced	Total
Anne Arundel	5,718	922	1,903	1,506	10,049
Baltimore	-	1,678	1,676	544	3,898
Cecil	-	750	523	1,329	2,602
Harford	9,155	870	939	1,748	12,712
Howard	-	581	1,500	178	2,259
Montgomery	-	500	3,673	63	4,236
Prince George's	400	500	2,297	266	3,463
Baltimore City	-	1,932	823	390	3,145
Rest of MD	-	267	1,388	1,213	2,868
Total	15,273	8,000	14,722	7,237	45,232

RESI allocated the new households based on commutation patterns from the 2000 U.S. Census of Population, the commutation patterns for Fort Meade, and adjusted by BMC and MDP based upon housing availability. Furthermore, RESI assumed that in the first phase of BRAC, 71.2% of the new BRAC employees are homeowners, but that in the second phase, homeowner ship rates among BRAC households would be based upon household income (Exhibit 11).

**Exhibit 11: Homeownership Rates by Income**

Household Income	Percent Owning Home
\$0	45.54%
\$1-\$4,999	44.79%
\$5,000-\$9,999	42.31%
\$10,000-\$14,999	51.88%
\$15,000-\$19,999	53.41%
\$20,000-\$24,999	55.45%
\$25,000-\$29,999	56.03%
\$30,000-\$34,999	60.67%
\$35,000-\$39,999	62.59%
\$40,000-\$49,999	69.81%
\$50,000-\$59,999	74.44%
\$60,000-\$79,999	81.18%
\$80,000-\$99,999	85.36%
\$100,000-\$119,999	89.56%
\$120,000 or more	92.63%

Source: U.S. Housing and Urban Development

RESI assumed that every three BRAC jobs coming into Maryland would translate into two households living in Maryland. This assumption was made on the basis that some individuals who would be employed by APG or Ft. Meade would commute from Delaware, Pennsylvania or Virginia in higher numbers than what the Census commutation patterns would indicate for job-holders in Maryland who are out-of state residents. Some of the current job holders already reside in Maryland, and not every new BRAC household will have just one BRAC-related job holder.

To estimate the household income of the individuals likely to fill the BRAC jobs, RESI examined Maryland household income data from the U.S. Census of Population, IMPLAN and Office of Personnel Management (OPM) data. By using the ratio of the earnings of single income households to the earnings of dual income households, RESI then calculated a weighted average of household income. This average household income figure was the basis for the local and state income taxes. In addition, RESI used this estimate to determine the value of a home that could be purchased by this household. The resulting home value was used to estimate the local and state property tax revenue that would be generated by this household.

The local and state income taxes were derived from the published income tax rates and average household income.<sup>1</sup> The value of the homes purchased by these new households was based upon a set of assumptions regarding a down payment, other credit obligations, and average household income.<sup>2</sup> Using the household income data and assuming a 20% down payment, RESI estimated what each household could afford in terms of a house. Information provided by IMPLAN allowed estimation of additional state and local tax revenue. These tax revenues include but are not limited to sales tax, fines, forfeitures, and licensing fees, among others.

**Exhibit 12. Summary of BRAC-related Tax Revenue Impacts**

Jurisdiction	Local		State			Total
	Property Taxes	Income Taxes	Property taxes	Income taxes	Other State and Local taxes	
Anne Arundel	\$18,481,483	\$11,662,701	\$2,582,744	\$20,500,841	\$17,134,567	\$70,362,336
Baltimore	\$18,291,485	\$10,692,025	\$2,165,449	\$17,001,453	\$14,209,784	\$62,360,196
Cecil	\$8,193,425	\$4,947,376	\$977,161	\$7,951,139	\$6,645,548	\$28,714,648
Harford	\$36,877,473	\$22,563,000	\$4,229,171	\$33,180,882	\$27,732,523	\$124,583,048
Howard	\$8,368,150	\$5,976,412	\$1,058,042	\$8,404,330	\$7,024,324	\$30,831,257
Montgomery	\$5,384,138	\$5,752,785	\$980,151	\$8,089,854	\$6,761,486	\$26,968,414

<sup>1</sup> Past experience indicates that 83% of gross household income approximates taxable income.

<sup>2</sup> The BRAC jobs are coming to Maryland and there will some new household formation. However, whether it is individuals from New Jersey , Northern Virginia, or Maryland that fill these jobs, new households will likely be created.

**Exhibit 12. Summary of BRAC-related Tax Revenue Impacts**

Jurisdiction	Local		State			Total
	Property Taxes	Income Taxes	Property taxes	Income taxes	Other State and Local taxes	
Prince George's	\$7,868,875	\$5,605,140	\$972,469	\$7,882,227	\$6,587,952	\$28,916,663
Baltimore City	\$27,389,589	\$8,277,201	\$1,566,476	\$12,212,263	\$10,206,988	\$59,652,517
Rest of MD	\$10,170,873	\$6,283,477	\$1,214,958	\$9,966,387	\$8,329,889	\$35,965,584
<b>Total</b>	<b>\$141,025,48</b>	<b>\$81,760,11</b>	<b>\$15,746,62</b>	<b>\$125,189,37</b>	<b>\$104,633,06</b>	<b>\$468,354,66</b>

**Exhibit 13. Summary of BRAC Tax Revenue Impacts by Phases**

County	Local		State			Total
	Property Taxes	Income Taxes	Property taxes	Income taxes	Other State and Local taxes	
<b>Phase I: 2007 – 2011</b>						
Anne Arundel	\$3,265,964	\$2,416,330	\$456,411	\$4,247,454	\$3,550,015	\$13,936,174
Baltimore	\$2,320,527	\$1,607,661	\$274,717	\$2,556,351	\$2,136,594	\$8,895,850
Cecil	\$1,762,954	\$1,217,439	\$210,253	\$1,956,598	\$1,635,321	\$6,782,563
Harford	\$7,317,341	\$5,316,918	\$839,165	\$7,818,997	\$6,535,104	\$27,827,524
Howard	\$1,245,166	\$1,041,843	\$157,435	\$1,465,092	\$1,224,521	\$5,134,057
Montgomery	\$307,706	\$370,660	\$56,016	\$521,241	\$435,653	\$1,691,276
Prince George's	\$839,673	\$686,701	\$103,770	\$965,673	\$807,108	\$3,402,925
Baltimore City	\$3,148,671	\$1,142,091	\$180,080	\$1,685,052	\$1,408,363	\$7,564,257
Rest of MD	\$843,804	\$591,357	\$100,796	\$937,968	\$783,952	\$3,257,877
Phase I Total	\$21,051,805	\$14,390,999	\$2,378,643	\$22,154,426	\$18,516,630	\$78,492,503
<b>Phase II: 2012 – 2015</b>						
Anne Arundel	\$15,215,518	\$9,246,371	\$2,126,333	\$16,253,387	\$13,584,552	\$56,426,162
Baltimore	\$15,970,958	\$9,084,364	\$1,890,732	\$14,445,101	\$12,073,190	\$53,464,346
Cecil	\$6,430,471	\$3,729,937	\$766,908	\$5,994,542	\$5,010,227	\$21,932,085
Harford	\$29,560,132	\$17,246,082	\$3,390,006	\$25,361,885	\$21,197,419	\$96,755,524
Howard	\$7,122,984	\$4,934,569	\$900,607	\$6,939,238	\$5,799,803	\$25,697,201
Montgomery	\$5,076,432	\$5,382,125	\$924,135	\$7,568,613	\$6,325,833	\$25,277,138
Prince George's	\$7,029,202	\$4,918,439	\$868,699	\$6,916,554	\$5,780,844	\$25,513,738
Baltimore City	\$24,240,917	\$7,135,110	\$1,386,396	\$10,527,211	\$8,798,625	\$52,088,259
Rest of MD	\$9,327,068	\$5,692,119	\$1,114,161	\$9,028,420	\$7,545,937	\$32,707,707
Phase II Total	\$119,973,683	\$67,369,116	\$13,367,977	\$103,034,952	\$86,116,430	\$389,862,159

### C. TASK 3: EDUCATIONAL NEEDS ASSESSMENT

RESI assessed the supply and demand of higher educational programs necessary to support the BRAC 2005 actions. First, RESI identified the occupations slated to relocate to Maryland, primarily because the vast majority of the moves are to be civilian workers. Since a large percentage (perhaps as much as 65%) of the jobs would be moving without incumbents, RESI assumed that the education/skill requirements of these occupations would be essential in the recruitment process to follow.

RESI mapped the occupational series of the positions identified in the BRAC actions by examining the Office of Personnel Management (OPM) Qualification Standards for both the civilian positions and those associated with the contractors identified with the units relocating. Next, RESI identified Maryland universities, colleges, schools, and their programs that correspond to occupational series that require a specified field of study, resulting in an inventory of relevant initiatives and new programs being undertaken by local educational institutions both in response to and independent of BRAC.

The standard occupational series of positions moving from Fort Monmouth to APG are:

- Electronics engineering
- Logistics management
- Computer engineering
- Contracting
- Management and program analysis
- Miscellaneous administration
- Computer science engineering
- Secretary
- Inventory management
- General supply
- Supply program management
- Budget analysis
- Management and program clerical and assistance
- Technical writing and editing
- Telecommunications
- General engineering
- Information technology management.

These occupational series comprise 3,490 (89%) of the 3,935 identified positions slated to move from Fort Monmouth to APG. The estimate of educational attainment for these positions is shown in Exhibit 14.

**Exhibit 14. Estimate of Educational Attainment for New APG Positions**

<b>Level of Education</b>	<b>Percent of Total</b>
High school	3.0%
Some education beyond high school	14.3%
Bachelor's degree	10.6%

**Exhibit 14. Estimate of Educational Attainment for New APG Positions**

Level of Education	Percent of Total
Some education beyond bachelor's degree	30.9%
Master's degree	16.5%
Other graduate degree	11.1%
Doctorate degree	13.7%
Total	100.0%

Preliminary information indicates the following occupational series moving from DISA to Fort Meade:

- Computer science
- Operations research
- Electronics engineering
- Computer engineering
- General engineering
- Telecommunications
- Information technology management
- Contracting
- Logistics management
- Financial administration
- Financial management
- Management and program analysis
- Program management
- Miscellaneous administration
- Human resources management
- Human resources assistance
- Data transcriber
- Equipment operator
- Management and program clerical and assistance
- Secretary
- Mail and file.

The estimated educational attainment for the civilian positions being relocated to Fort Meade is summarized in Exhibit 15.

**Exhibit 15. Estimate of Educational Attainment for New Positions at Fort Meade**

Level of Education	Number	Percent of Total
High school	153	4.5%
Some education beyond high school	476	14.0%
Bachelor's degree	355	10.5%
Some education beyond bachelor's degree	1,032	30.4%
Master's degree	550	16.2%
Other graduate degree	370	10.9%
Doctorate degree	457	13.5%
Total	3,339	100%

The specifics of the positions relocating to both AAFB and the NNMC are not presently available. The vast majority of the civilian jobs moving to Maryland will be at APG and Fort Meade.

Currently, Fort Monmouth and DISA (the two major relocating units) both have instituted educational partnerships to better predict continuing educational needs associated with the occupations slated to move. At Fort Monmouth, these partnerships include: Brookdale Community College, Naval Postgraduate, Monmouth University, Florida Institute of Technology, and Stevens Institute of Technology. DISA's educational partnerships are with: Industrial College of the Armed Forces, Information Resources Management College, Carnegie Mellon, Syracuse University, Harvard University, University of Southern California, LOGTECH University, George Washington University, George Mason University, and National Louis University.

Maryland has programs in place comparable to those offered at Fort Monmouth via educational partnerships. The Higher Education and Applied Technology Center (HEAT), which is located just minutes away from APG, has programs linked to a number of institutions that can meet these needs. Similarly, the DISA partnerships can be replicated by Maryland institutions and distance learning programs.

Clearly, the many institutions of higher education in Maryland can meet the curricula and degree needs of the expanded workforces at both APG and Fort Meade (in addition to the needs resulting from the expansion at Andrews and Bethesda).

The major problem area in terms of meeting educational/training needs involves the multitude of construction projects (housing, office buildings and related new public facilities) that are secondary to the influx of BRAC-related personnel relocations. There will be a substantial demand for construction managers and workers, day care workers and hospitality workers among others. This is a need that community colleges in Harford and Anne Arundel counties are currently exploring, and is an area that must be considered for further study.

#### **D. TASK 4: SECURITY CLEARANCES ASSESSMENT**

The problem of meeting the need for required security clearances within an acceptable time frame could pose a substantial problem in meeting recruitment goals. Most transferring jobs and many contractor tail jobs will require at least a secret clearance. If only a small percentage (e.g., about 35%) of relocating jobs will be filled by incumbents holding existing security clearances, a very significant challenge must be met to conform to the BRAC movement schedules.

One way to address this problem would be to allow personnel at Bethesda's NGA facility to choose not to relocate to Fort Belvoir. These employees already have security clearances, and many now live in Maryland. Thus, an effort is being made to put them in contact with DISA. There may be other pools of available workers with clearances.

Another approach could be to work with private companies that have contracts with OPM, DOD and the Department of Homeland Security, as they may be part of the contractor tail that is already involved with BRAC relocations to Maryland to come up with viable solutions to the

problem. These companies include ManTech International, CACI International, OmniPlex World Services, Kroll Inc., and SAIC.

In addition, Maryland has the ability to adopt a process and plan for creating a pipeline of individuals that are educated, informed, and prescreened. Developing a strategy and implementation plan to address the corporate and government need for workers with security clearances through a centralized management of this pipeline could help alleviate the problem. Such a plan could require that state to work with local Workforce Investment Boards and secondary educational institutions, as well as government agencies, to incorporate and sponsor student intern programs to work with employers who would begin the interim clearance process. The plan could also focus on further developing and funding programs at the relocating units to increase the so-called “overhires,” whereby interns are hired for on-job training for relocation positions. This practice results in employees learning the job well before the actual job relocation takes place, taking advantage of the time gap between now and 2011 when the BRAC process must be completed.

### **III. Concluding Comments**

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Maryland's great success in the 2005 BRAC round was the result of a concerted effort over time of individuals and organizations throughout the state, and we can be justifiably proud that the BRAC decisions will allow our installations an ever-increasing role in safeguarding our nation. The more than 45,000 jobs being created will substantially contribute to sustaining economic vitality for at least a generation. The same concerted effort is now required to most efficiently and effectively determine how best to plan for and invest in the infrastructure improvements required.

Data presented must be understood to be very preliminary in nature. Thousands of Defense Department employees are at least two years removed from being required to make their move decision. The State and applicable counties are actively engaged with the major impacted organizations, and the organizations themselves have begun both repetitive survey analysis, as well as active recruiting. Additionally, the State and several counties are in the process of receiving additional federal support as a continuing adjunct to ongoing analysis.

Additional support will be necessary for immediate planning, preliminary engineering, and estimating the cost of construction and operations of needed facilities. Among the areas requiring more analysis involve but are not limited to spousal employment, encroachment, workforce housing, and construction requirements including additional office space needs.

This early stage study demonstrates that the required investment will be substantial, but that proper implementation will prove of lasting value.

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