

# Capital Facilities Inventory and Gap Analysis Due to Aberdeen Proving Ground BRAC Expansion

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## Chapter 1: Executive Summary

### OVERVIEW

Base Realignment and Closure (BRAC) 2005 decisions will result in significant growth impacts at Aberdeen Proving Ground, Maryland and its surrounding communities. Thirteen DoD missions, directorates or elements from eight states are relocating to the Aberdeen installation; the largest gain is the Communications-Electronics Life Cycle and Management Command from Ft. Monmouth, New Jersey. The Chesapeake Science and Security Corridor (CSSC) representing eight jurisdictions in Maryland, Delaware, and Pennsylvania, all within a forty-mile radius of Aberdeen Proving Ground, will experience the greatest impacts related to the installation growth. All told, the region could anticipate nearly 28,000 direct, indirect, and induced jobs to the region, around 17,000 households and a population gain of approximately 45,000. Projected capital facility impacts are most significant in the Maryland jurisdictions.

To document the projected demand on capital facilities, the APG-CSSC Regional BRAC Office contracted with TischlerBise, Inc. and its subcontractor AKRF to prepare this report. The report includes the following:

- Inventory of public and private facilities,
- Levels of service for public and private capital facilities,
- Capital facility gap analysis, and
- Parcels for future capital facility expansion.

The results for each of the above are presented in detail in this report and its Appendices, and are summarized in this Executive Summary.

### METHODOLOGY

This report follows on the *Aberdeen Proving Ground BRAC Impacts on Seven Jurisdictions* study conducted by Sage Policy Group (September 2007).<sup>1</sup> The Sage study projected employment, household and population growth in the jurisdictions expected to be impacted by BRAC, including four Maryland jurisdictions (Harford County, Baltimore County, Cecil County and

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<sup>1</sup> Data for an 8<sup>th</sup> county, Chester County, PA, was added following publication of the Sage report.

Baltimore City), three Pennsylvania counties (Chester, Lancaster and York) and New Castle County in Delaware.

To gather the facility inventory data, TischlerBise, Inc. and its subcontractor, AKRF, worked with each jurisdiction to identify public facility information for the following categories of public buildings:

- Law Enforcement (Sheriff/Police)
- Fire and Emergency Medical Services
- Correctional Facilities
- Libraries
- Judicial and Legal Service Facilities
- Administrative Facilities (General Administration and Human Services)
- Parks
- Recreational Facilities
- Public Schools
- Community College

Additionally, AKRF also obtained data for the following private facilities/service providers:

- Hotels
- Hospitals
- Doctors
- Convention Centers and Meeting Facilities
- Senior Homes
- Day Care

For the public facilities, jurisdictions were asked to provide each facility's address. The Maryland jurisdictions were asked to also provide the applicable demand measurement factor (square feet, acres, beds, etc.). For private facilities, these two items – address and demand measurement factor – were obtained from a variety of public and private data sources. These facilities are shown in regional maps presented in Chapter 3. Detailed maps by jurisdiction are shown in Appendix A.

Using current demographic factors (see Chapter 2), a level of service (LOS) was established for each public and private facility category (sheriff, library, parks, hospitals, etc.) for each Maryland jurisdiction. The detailed LOS calculations are shown in Appendix B. The LOS documents the *existing* relationship between the jurisdiction's inventory of capital facilities and the relationship to existing countywide population and/or population and jobs. Some examples include sheriff station square feet per person/ job, park acres per capita and fire apparatus per person/job.

A capital facility gap analysis was conducted for each of the Maryland jurisdictions, and is presented in Chapters 4 (Public Facilities) and Chapter 5 (Private Facilities/Service Providers) of

this report. The focus is on Harford, Baltimore and Cecil counties and to a smaller extent Baltimore City because the most significant capital facility impacts are expected to be in Maryland. The capital facility gap is calculated by applying the jurisdiction's existing LOS to the projected BRAC-related increase in population and/or employment from APG. For public facilities, the capital facility gap is calculated for building space square footage, land (parkland and office building), correctional beds, fire apparatus and public school student seats. For private facilities/service providers, the gap is calculated for meeting space square footage, hotel rooms, hospital beds, doctors, senior home beds and day care seats.

For most facilities, demand is considered on a countywide basis. For example, the need for additional judicial and legal facility space (such as a courthouse expansion) is generated by growth throughout a jurisdiction. Demand for two facility categories in Harford County – Fire/EMS and public schools – is considered on a sub-county level. To do this, Harford County provided sub-county demographic projections (discussed in Chapter 2 and in Appendix D). A countywide analysis was conducted for all other Maryland jurisdictions as sub-county demographic projections were not available.

## COMPILING FACILITY INVENTORY

First, TischlerBise and its subcontractor AKRF worked with the CSSC jurisdictions to obtain addresses and demand measurement data for the jurisdiction's public facilities. The data collection phase for the CSSC Facilities Inventory was initiated on September 26, 2007. A matrix of selected public and private facilities was presented to the Executive Director of CSSC and the eight representatives of the jurisdictions who are members of CSSC. Based on discussions and recommendations by the consulting team, the number of facilities to be inventoried was reduced to the 10 public and 6 private facility categories inventoried in this report. A point of contact was provided by CSSC in each of the eight jurisdictions responsible for ensuring that the data requested by the consultants would be collected and delivered to the consulting team for compilation and mapping. With some non-Maryland jurisdictions, information was incomplete or not provided. These cases are documented in the Facility Inventory in Appendix A.

Using the facility inventory information provided, the facilities were mapped for each jurisdiction (see Facility Inventory in Appendix A) and for the greater 8-county CSSC region (see Chapter 3). Demand measurement factors (square feet, acres, etc.) for facilities in the Maryland jurisdictions were used to calculate level of service (LOS). The LOS documents the *existing* relationship between the jurisdiction's inventory of capital facilities and the relationship to existing countywide population and/or population and jobs. The following section describes the demographic factors used to calculate LOS.

## DEMOGRAPHICS OVERVIEW

Table 1 summarizes BRAC projections for population, households, employment, and public school students submitted by Sage Policy Group, Inc. in the *Aberdeen Proving Ground BRAC Impacts on Severn Jurisdictions* study completed in September 2007. Existing demographics and projected growth as a result of BRAC is discussed in more detail in Chapter 2. Currently there are approximately 3.24 million people in the seven CSSC jurisdictions identified by Sage. Adding Chester County population brings the total for the eight CSSC counties to 3.72 million.

The Sage study shows that the CSSC region will increase by 45,500 people from 2007 to 2017. This is an increase in population of approximately 1.2 percent just due to growth at APG. Employment is also expected to increase in the region with 70 percent of all BRAC employment located in Harford County followed by Baltimore County at 17 percent, Cecil County at five percent and Baltimore City at three percent. The non-Maryland jurisdictions make up the remaining five percent. Households are distributed more proportionally in the CSSC region compared to employment. While the four Maryland jurisdictions will experience most of the impact, the Pennsylvania and Delaware jurisdictions will also be affected with ten percent of the BRAC growth projected in these counties.

**Table 1. Impacts by Jurisdiction from APG BRAC Growth**

<b>Jurisdiction</b>	<b>Population</b>	<b>Households</b>	<b>Employment</b>	<b>Public School Students</b>
Harford County, MD	19,059	7,059	19,237	4,624
Baltimore County, MD	13,954	5,168	4,849	3,385
Cecil County, MD	5,357	1,984	1,460	1,300
Baltimore City, MD	2,368	877	941	575
York County, PA	2,254	835	586	547
Lancaster County, PA	1,025	379	266	247
New Castle County, DE	1,025	380	281	249
Chester, PA and Other Counties <sup>1</sup>	525	228	160	149
<b>Total</b>	<b>45,567</b>	<b>16,910</b>	<b>27,780</b>	<b>11,076</b>

Source: Sage Police Group, Inc. - Aberdeen Proving Ground BRAC Impacts on Seven Jurisdictions. (Exhibit E1, Exhibit II-5, and Exhibit II-6)

<sup>1</sup> The other counties listed with Chester County are Howard and Anne Arundel Counties in Maryland.

## LEVEL OF SERVICE (LOS) OVERVIEW

The LOS for each capital facility category is shown in Appendix B, and is summarized in Table 2 (public facilities) and Table 3 (private facilities) for the Maryland jurisdictions. LOS is calculated based on the jurisdiction's *existing* inventory of capital facilities by category such as

sheriff station space, library collection space, etc. and the relationship to its appropriate demand (population and/or jobs). The capital facility measurement is typically square feet for public facilities, but other units such as beds and acres are used as applicable. The general formula for calculating the LOS is the facility inventory (such as square feet) divided by the applicable demand unit (population and/or jobs).

## Public Facility Levels of Service

Table 2 summarizes the LOS factors for all public facility categories for the Maryland jurisdictions. The table shows the public facility category, demand unit (population, population and jobs, or utilization rate for schools), the measurement unit (square feet, fire apparatus, beds, square feet, acres or student seats), followed by the level of service calculation for each jurisdiction. Detailed LOS calculations are shown in Appendix B.

**Table 2. Level of Service Factors for Public Facility Categories – Maryland Jurisdictions**

Public Facility Category	Demand Unit	Measurement Unit	Level of Service by Jurisdiction			
			Harford County	Baltimore County	Cecil County	Baltimore City <sup>5</sup>
Sheriff	Population and Jobs	Square Feet	0.2006	0.0063	0.1191	n/a
Police <sup>1</sup>	Population and Jobs	Square Feet	n/a	0.2582	n/a	n/a
Fire and EMS	Population and Jobs	Square Feet	n/a <sup>2</sup>	n/a <sup>3</sup>	1.0236	n/a
Fire and EMS	Population and Jobs	Apparatus	n/a <sup>2</sup>	0.0001	0.0005	n/a
Correctional	Population	Beds	0.0020	0.0020	0.0020	n/a
Library	Population	Square Feet	0.8315	0.3678	0.5911	0.8790
Judicial and Legal	Population and Jobs	Square Feet	0.3828	0.2085	0.5688	n/a
Admin-General Gov.	Population and Jobs	Square Feet	0.4793	0.3449	0.4420	n/a
Admin-Human Svcs.	Population	Square Feet	0.6384	0.7043	0.2386	n/a
Parks	Population	Acres	0.0184	0.0089	0.0043	n/a
Recreation	Population	Square Feet	0.9236	0.1787	n/a <sup>4</sup>	0.9171
Public Schools-Elementary	Utilization Rate	Student Seats	95.8%	93.8%	86.8%	n/a <sup>6</sup>
Public School-Middle	Utilization Rate	Student Seats	83.1%	82.4%	91.2%	n/a <sup>6</sup>
Public School-High	Utilization Rate	Student Seats	91.4%	100.8%	114.8%	n/a <sup>6</sup>
Community College	Population	Square Feet	1.34	1.36	1.53	n/a

<sup>1</sup> Police level of service is only applicable to Baltimore County.

<sup>2</sup> Fire and EMS square footage and apparatus level of service is reported separately for Harford County in Table B-6 because the LOS was conducted on a sub county level by fire company boundaries.

<sup>3</sup> Fire and EMS square footage was not provided for volunteer stations in Baltimore County. An accurate level-of-service standard of square footage per capita and job could not be calculated and is therefore unknown.

<sup>4</sup> Cecil County indicated that the County does not own any recreation buildings.

<sup>5</sup> Only three capital facilities were analyzed (library, recreation, and schools) as the City indicated there is sufficient capacity in the other facilities that serve Citywide residents.

<sup>6</sup> A citywide utilization rate is not shown as the analysis was not conducted on a Citywide level. The northeast portion of the City will be affected by APG BRAC and is the location for future school expansion.

n/a = not applicable

The LOS results shown in the table above can vary from State standards because it is a snapshot

of the current ratio of capital facility to demand. The *existing* LOS for the various public facility categories reflects what the jurisdiction is currently funding. This analysis assumes that the jurisdiction will continue to plan its capital facility improvements to maintain the existing LOS. The jurisdiction may at a later point in time decide to increase its levels of service, though the burden for the increase should be borne by both existing and new residents. As this report examines new growth’s impact on capital facilities, existing LOS is used to make the capital facility gap calculation.

### Private Facility/Service Provider Levels of Service

Table 3 summarizes the LOS factors for all private facility/service provider categories for the Maryland jurisdictions. The table shows the private facility/service provider category, demand unit (population or jobs), the measurement unit (square feet, rooms, beds, doctors or child seats), followed by the level of service calculation for each jurisdiction. The higher LOS in Baltimore City for meeting space, hotels and hospitals is because the City serves as a regional center for those activities. Detailed LOS calculations are shown in Appendix B.

**Table 3. Level of Service Factors for Private Facility Categories – Maryland Jurisdictions**

Private Facility/ Service Provider Category	Demand Unit	Measurement Unit	Level of Service by Jurisdiction			
			Harford County	Baltimore County	Cecil County	Baltimore City
Meeting Space	Jobs	Square Feet	0.1704	0.2571	0.7048	0.7813
Hotels	Jobs	Rooms	0.0187	0.0113	0.0243	0.0255
Hospitals	Population	Beds	0.0011	0.0015	0.0010	0.0066
Doctors	Population	Doctors	0.0015	0.0035	0.0009	0.0033
Senior Homes	Population	Beds	0.0056	0.0117	0.0070	0.0093
Day Care	Population	Child Seats	0.0383	0.0373	0.0280	0.0352

The capital facility gap is calculated by applying the jurisdiction’s existing LOS (shown above in Tables 2 and 3) to the projected BRAC-related increase in population and/or employment from APG. The results of the public and private facility gap analyses are presented in the next section.

## PUBLIC AND PRIVATE GAP ANALYSIS RESULTS

The transfer of employment (and corresponding households and population) from Ft. Monmouth, New Jersey to the Aberdeen Proving Ground in Harford County, MD is expected to have significant impacts on the capital infrastructure of public facilities near the base and surrounding communities. In addition, it is expected to generate increase demand for private facilities and services. So that jurisdictions can begin to plan for necessary expansion to capital facilities, this report documents the projected demand for new/expanded facilities due to the Aberdeen BRAC expansion.

As discussed above, the capital facility gap is calculated by applying the jurisdiction’s existing

LOS to the projected BRAC-related increase in population and employment from APG. Detailed LOS calculations are shown in Appendix B. For detail on the public and private gap analyses, see Chapters 4 (public facilities) and Chapter 5 (private facilities).

Within each gap analysis chapter, jurisdictions are addressed in the following order based on the projected BRAC growth in each jurisdiction: Harford County, Baltimore County, Cecil County and Baltimore City. In Baltimore City, a smaller number of public facility categories are considered given that the City has excess capacity for most facility categories.

## Public Facility Gap Analysis Results

Table 4 shows a summary of the public capital facility gap as a result of Aberdeen BRAC for all Maryland jurisdictions in the CSSC region, excluding land. Demand for additional land is shown in Table 5. The summary table is broken down by public facility category and by jurisdiction. Based on TischlerBise's analysis of existing levels of service, Maryland jurisdictions will need to add 225,772 square feet of additional building space, 15 pieces of major Fire/EMS apparatus and 75 correctional beds as a result of Aberdeen's BRAC growth. Its public schools will need to accommodate a projected 9,884 additional students as a result of BRAC at Aberdeen.

**Table 4. Public Capital Facility Gap in Maryland Jurisdictions: Buildings and Apparatus**

Public Facility Category	Total Public Facility Demand	Demand Measurement	Detail by Jurisdiction			
			Harford County	Baltimore County	Cecil County	Baltimore City <sup>3</sup>
Sheriff/Police	13,469	Square Feet	7,684	4,973	812	n/a
Fire and EMS-Bldg.	37,629	Square Feet	30,651	0 <sup>1</sup>	6,978	n/a
Fire and EMS-Apparatus	15	Apparatus	10	2	3	n/a
Correctional	75	Beds	37	27	11	n/a
Library	26,227	Square Feet	15,847	5,133	3,166	2,081
Judicial and Legal	22,458	Square Feet	14,661	3,920	3,877	n/a
Administrative	51,006	Square Feet	30,524	16,190	4,292	n/a
Recreation	22,268	Square Feet	17,602	2,494	0 <sup>2</sup>	2,172
Public Schools	9,884	Student Seats	4,624	3,385	1,300	575
Community College	52,715	Square Feet	25,591	18,934	8,190	n/a

<sup>1</sup> The gap for Fire and EMS station space or Baltimore County is not included. Fire and EMS square footage was not provided for the County's volunteer stations, therefore a level of service standard and subsequent capital facility gap could not be determined.

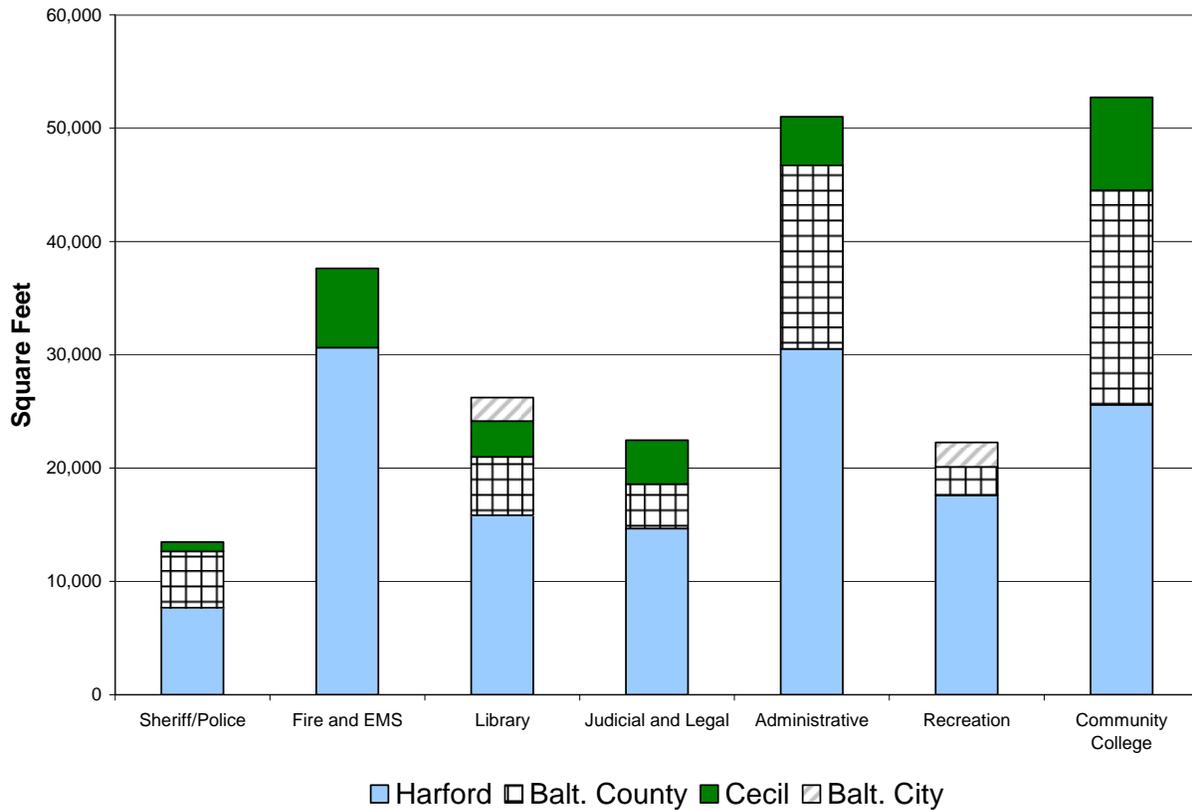
<sup>2</sup> A gap for recreational facilities in Cecil County was not calculated as the County does not have an existing inventory for these facilities.

<sup>3</sup> In Baltimore City, a smaller number of public facility categories are considered than in other Maryland jurisdictions given that the City has excess capacity for most facility categories. Discussions with Baltimore City staff indicated that three facility categories will need increased capacity in the NE portion of Baltimore: library, recreation and schools.

n/a = not applicable

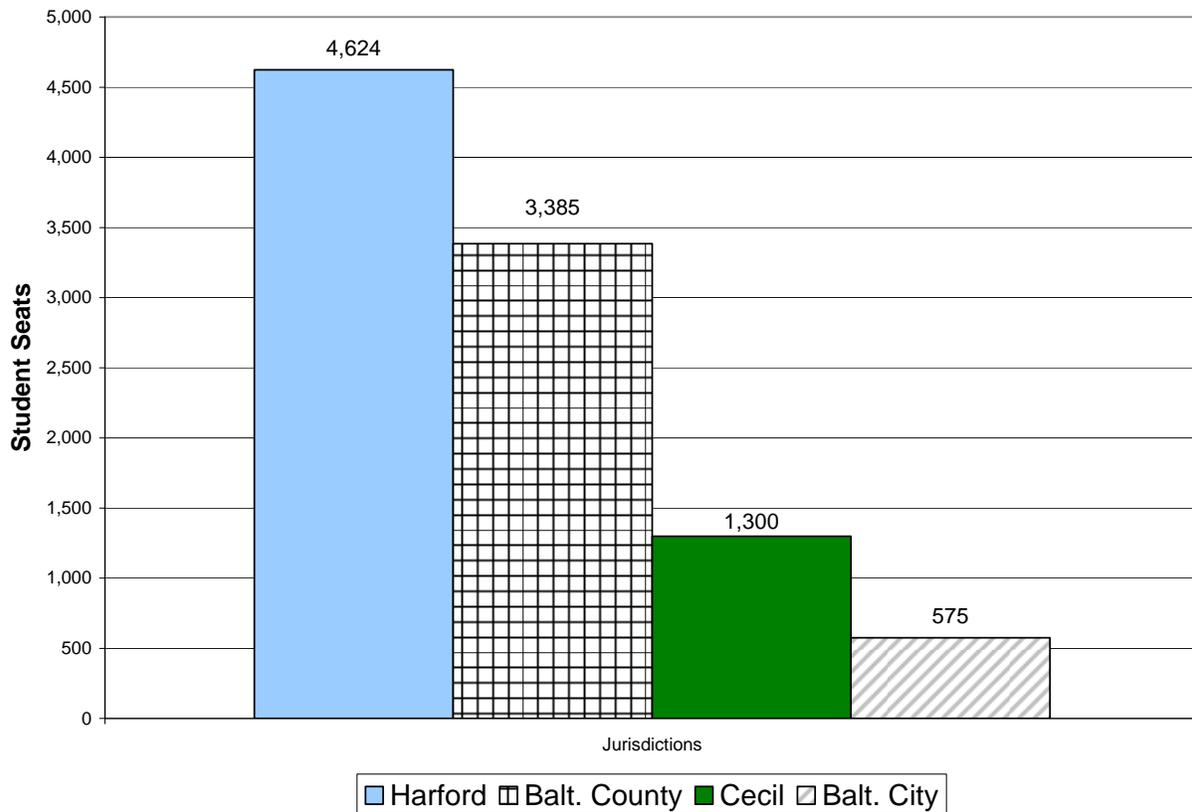
Figure 1 shows the public capital facility gap for building square footage by category and by Maryland jurisdiction. The largest impacts are on administrative facilities, community college facilities, and Fire/EMS stations. Administrative facilities include general administration functions such as finance, county administration and planning and human service functions such as health, aging and social services. The Fire/EMS gap is understated because it includes only Harford and Cecil counties. Level of service and the resulting capital facility gap could not be calculated for Baltimore County Fire/EMS due to a lack of data on volunteer operated stations.

**Figure 1. Public Capital Facility Gap in Maryland Jurisdictions by Category: Sq. Ft.**



Sage Policy Group’s *Aberdeen Proving Ground BRAC Impacts on Seven Jurisdictions* study projects an additional 9,885 public school students in Maryland as a result of BRAC at APG in its mid-case scenario. Figure 2 shows this breakdown by Maryland jurisdiction. To the extent that capacity is available, some of these students will be accommodated within existing schools. The mid-case student growth scenario is being used based on direction from the CSSC, which considers it the most reasonable assumption of new BRAC-related growth.

**Figure 2. Public Capital Facility Gap in Maryland Jurisdictions: Student Seats**



Source: Sage Policy Group.

Table 5 shows a summary of the demand for additional land as a result of Aberdeen BRAC for all Maryland jurisdictions. Harford County is most significantly impacted, with a need for an additional 537 acres, followed by Baltimore County (275 acres), Cecil County (64 acres) and Baltimore City (< 1 acre).

Demand for parkland was calculated based on the applicable level of service for each jurisdiction (acres per person). Demand for school sites was calculated based on prototype school site sizes as provided by the jurisdictions or the average school site size. Demand for future land acquisition for other facilities was calculated on the basis of a .25 Floor Area Ratio.

The summary table is broken down by public facility category and by jurisdiction. Maryland jurisdictions will need to add 876 acres to serve new growth as a result of BRAC at APG.

**Table 5. Public Capital Facility Gap in Maryland Jurisdictions: Land (Acres)**

Public Facility Category	Total Demand for Land <sup>1</sup>	Demand Measurement	Detail by Jurisdiction			
			Harford County	Baltimore County <sup>2</sup>	Cecil County <sup>3</sup>	Baltimore City <sup>4</sup>
Sheriff/Police	1 Acres		0.71	0.46	0.07	n/a
Fire and EMS	3 Acres		2.81	0	0.64	n/a
Correctional	3 Acres		1.59	0.67	0.55	n/a
Library	2 Acres		1.46	0.47	0.29	0.19
Judicial and Legal	2 Acres		1.35	0.36	0.36	n/a
Administrative	5 Acres		2.80	1.49	0.39	n/a
Parks	497 Acres		350.81	123.87	22.81	n/a
Recreation	0 Acres		0	0	0	0.20
Public Schools	357 Acres		173.55	145.61	37.92	0
Community College	5 Acres		2.35	1.74	0.75	n/a
<b>TOTAL</b>	<b>876</b>		<b>537</b>	<b>275</b>	<b>64</b>	<b>0.39</b>

<sup>1</sup> The gap for parkland is calculated based on the applicable level of service for each jurisdiction (acres per person). Demand for school sites is calculated based on prototype school site sizes as provided by the jurisdictions (Harford and Cecil) or the average school site size (Baltimore County). Demand for future land acquisition for other facilities was calculated on the basis of .25 Floor Area Ratio.

<sup>2</sup> The gap for Fire and EMS land for Baltimore County is not included. Fire and EMS square footage was not provided for the County's volunteer stations, therefore a level of service standard for land and subsequent capital facility gap could not be determined.

<sup>3</sup> The gap for land for recreational facilities in Cecil County was not calculated as the County does not have an existing inventory of recreational facilities.

<sup>4</sup> In Baltimore City, a smaller number of public facility categories are considered than in other Maryland jurisdictions given that the City has excess capacity for most facility categories. Discussions with Baltimore City staff indicated that three facility categories will need increased capacity in the NE portion of Baltimore: library, recreation and schools. It is not anticipated that schools will need additional land as the planned expansion is to an existing school.

n/a = not applicable

Figure 3 shows the public capital facility gap for land for parks, public schools and other categories by Maryland jurisdiction. The largest impacts are parks and public schools. Demand for *parks* totals 497 acres, with the most significant impact on Harford (350 acres), followed by Baltimore County (124 acres), and Cecil County (64 acres). Baltimore City is not shown because of the small amount of land required (< 1 acre). Demand for *public schools* totals 357 acres, with the most significant impact on Harford (174 acres), followed by Baltimore County (146 acres), and Cecil County (38 acres). Demand for “other” categories totals 22 acres. The “other” category includes sheriff/police, fire/EMS, library, judicial and legal, administrative, recreation and community college. Baltimore City is not shown because of the small amount of land required (< 1 acre).

**Figure 3. Cumulative Public Capital Facility Gap in Maryland Jurisdictions: Land (Acres)**

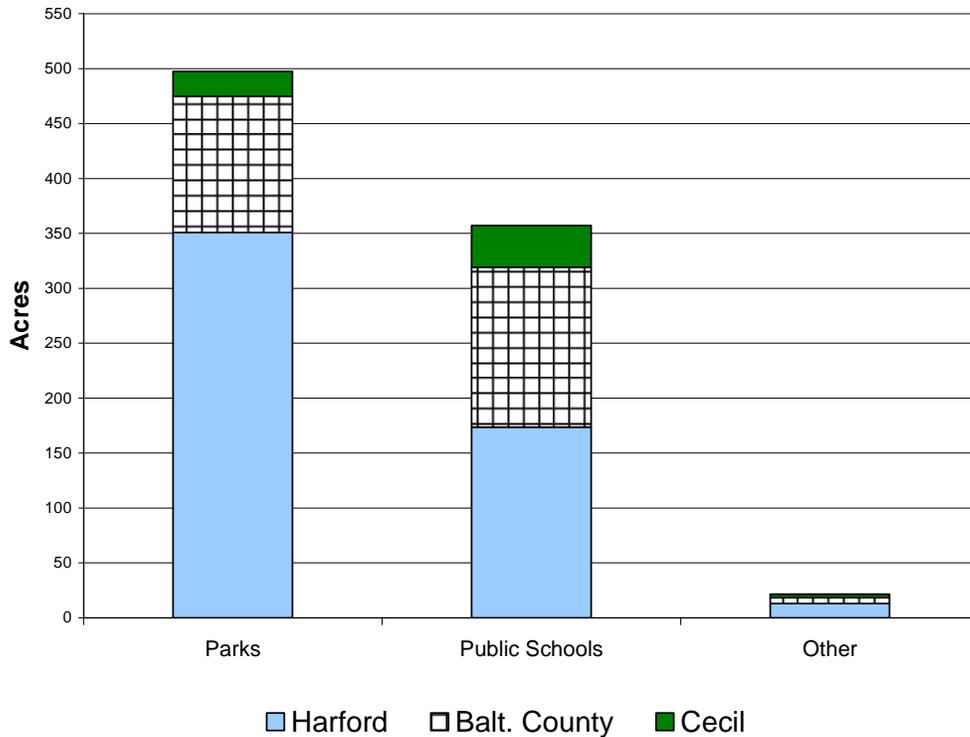


Table 6 below shows a summary of the public capital facility gap by jurisdiction for building square footage, acres, student seats, correctional beds, and fire/EMS major apparatus.

**Table 6. Public Capital Facility Gap Summary by Jurisdiction**

Demand Measurement	Detail by Jurisdiction				Total Public Facility Gap
	Harford County	Baltimore County <sup>1</sup>	Cecil County <sup>2</sup>	Baltimore City <sup>3</sup>	
Building Square Feet	142,560	51,644	27,315	4,253	225,772
Acres	537	275	64	0.39	876
Student Seats	4,624	3,385	1,300	575	9,884
Correctional Beds	37	27	11	n/a	75
Fire/EMS Apparatus	10	2	3	n/a	15

<sup>1</sup>The gap for Fire and EMS station space could not be determined for Baltimore County. Fire and EMS square footage was not provided for the County's volunteer stations, therefore a level of service standard and subsequent capital facility gap could not be determined.

<sup>2</sup>A facility gap for recreational facilities in Cecil County was not calculated as the County does not have an existing inventory for these facilities.

<sup>3</sup>In Baltimore City, a smaller number of public facility categories are considered than in other Maryland jurisdictions given that the City has excess capacity for most facility categories. Discussions with Baltimore City staff indicated that three facility categories will need increased capacity in the NE portion of Baltimore: library, recreation and schools.

n/a = not applicable

## Private Facility Gap Analysis Results

The private facility/service provider gap is calculated by applying the jurisdiction’s existing LOS to the projected BRAC-related increase in population and/or employment from APG. The private facility/service provider gap is calculated for meeting space square footage, hotel rooms, hospital beds, doctors, senior home beds and day care child seats.

Table 7 shows a summary of the private facility/service provider gap as a result of Aberdeen BRAC for all Maryland jurisdictions in the CSSC region. The summary table is broken down by private facility/service provider category and by jurisdiction. Based on TischlerBise’s analysis of existing levels of service, Maryland jurisdictions will need an additional 5,704 square feet of meeting space, 450 additional hotel rooms, 64 hospital beds, 91 doctors, 329 senior home beds and 1,482 day care child seats.

**Table 7. Private Facility/Service Provider Gap in Maryland Jurisdictions**

Private Facility Category	Total Private Facility Demand	Demand Measurement	Detail by Jurisdiction			
			Harford County	Baltimore County	Cecil County	Baltimore City
Meeting Space	5,704	Square Feet	3,278	1,246	1,029	151
Hotels	450	Rooms	357	55	35	3
Hospitals	64	Beds	20	22	6	16
Doctors	91	Doctors	29	49	5	8
Senior Homes	329	Beds	107	163	37	22
Day Care	1,482	Child Seats	729	520	150	83

Based on maintaining the existing inventory, Figure 4 shows the demand for meeting space broken down by Maryland CSSC jurisdiction. The gap for meeting space totals 5,704 square feet, and is largely in Harford County. A typical ratio is approximately 10 to 15 square feet of meeting space per person. This gap is driven by the relatively high level of service as a result of the existing inventory of hotel meeting space near the Aberdeen Proving Ground combined with the significant employment growth expected in the County.

**Figure 4. Cumulative Private Capital Facility Gap in Maryland Jurisdictions by Category: Meeting Space**

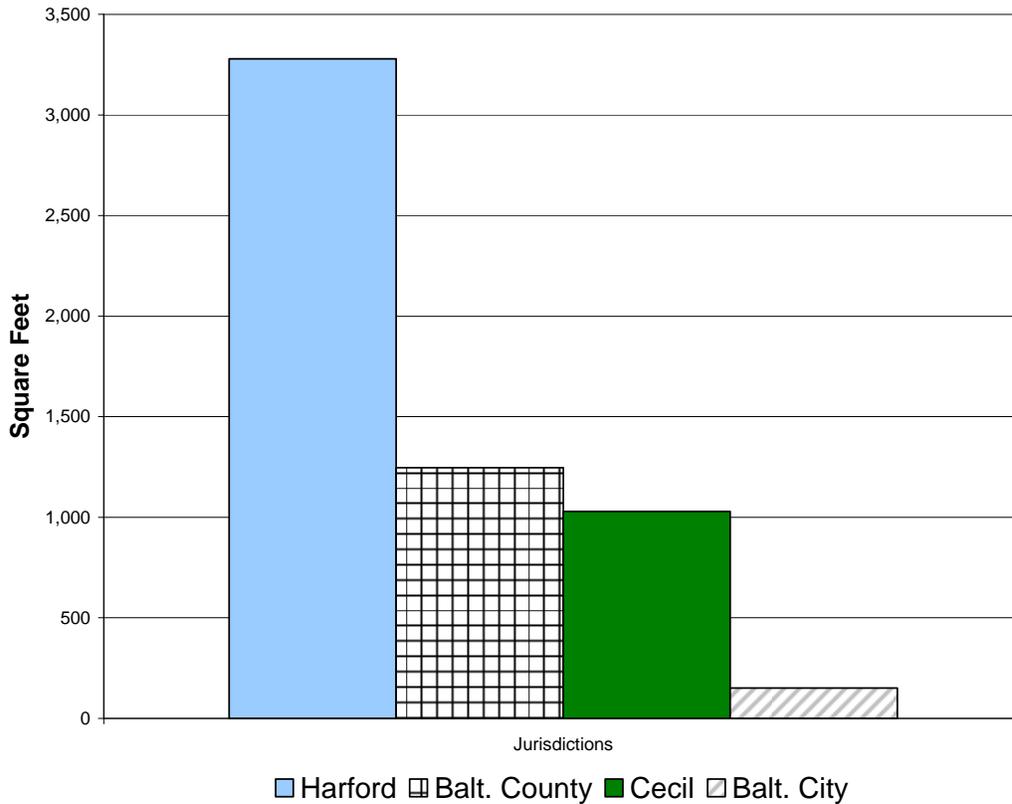
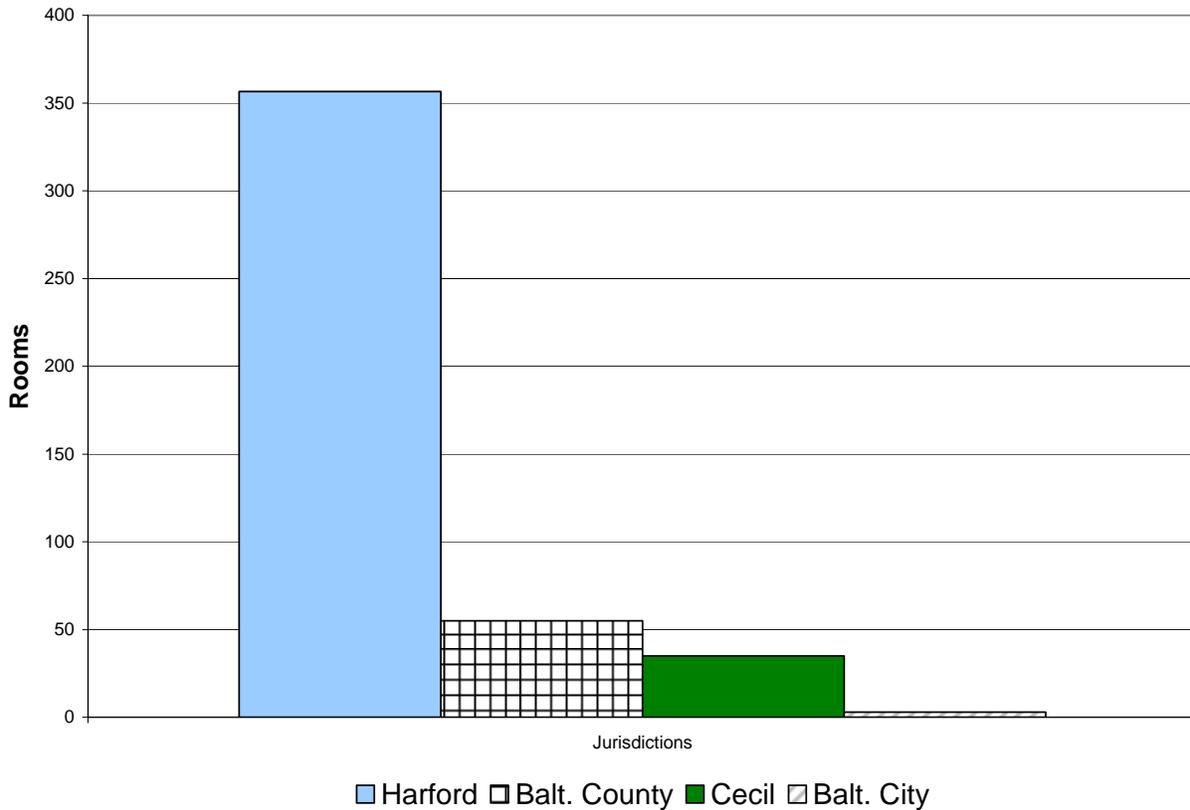


Figure 5 shows the gap for hotels broken down by Maryland CSSC jurisdiction. The analysis projects a need for 450 new beds as a result of Aberdeen BRAC within the 4-county region. Based on the level of service analysis and given employment projections, this growth is expected to be found largely in Harford. Given the significant employment expected at APG, it follows that additional hotel rooms will be needed to serve contractors and visitors to the base.

**Figure 5. Cumulative Private Capital Facility Gap in Maryland Jurisdictions by Category: Hotels**



The remaining private facilities are a function of population. Figure 6 shows the gap for hospital and senior home beds in the four Maryland jurisdictions. The demand projections show a need for an additional 64 hospital beds and 329 senior homes based on current level of service standards. Demand for hospital beds is projected be dispersed throughout the region, with 22 beds in Baltimore County, 20 beds in Harford County, 16 in Baltimore City and 6 in Cecil. The gap for senior beds is found primarily in Harford County (729 beds) and Baltimore County (520 beds), followed by Cecil County (150 beds) and Baltimore City (83 beds).

**Figure 6. Cumulative Private Capital Facility Gap in Maryland Jurisdictions by Category: Hospital and Senior Home Beds**

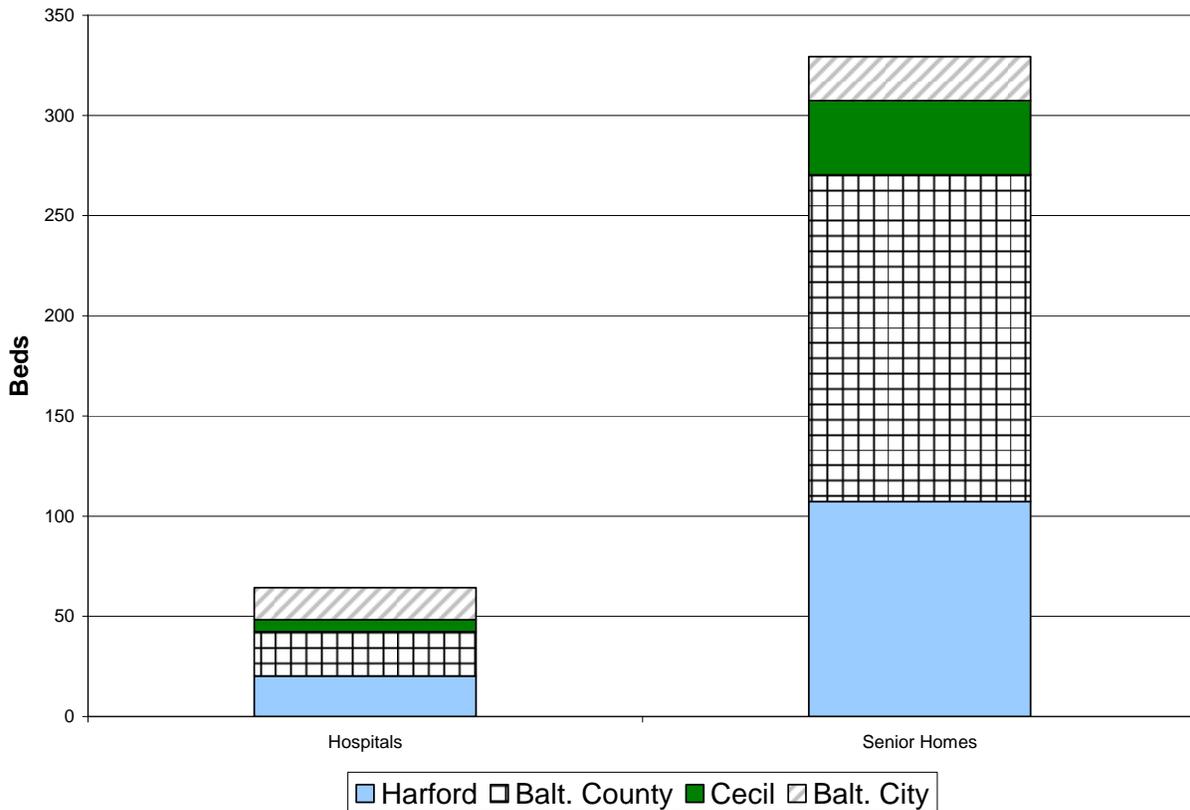


Figure 7 shows the demand for doctors in the four Maryland jurisdictions. The majority (54%) of demand is found in Baltimore County. This is largely explained by the relatively high number of doctors in the County (3.5 per 1,000 persons) and the significant population growth expected there as a result of Aberdeen BRAC. Baltimore County is followed by Harford County (29 doctors), Baltimore City (8 doctors) and Cecil County (5 doctors).

**Figure 7. Cumulative Private Capital Facility Gap in Maryland Jurisdictions by Category: Doctors**

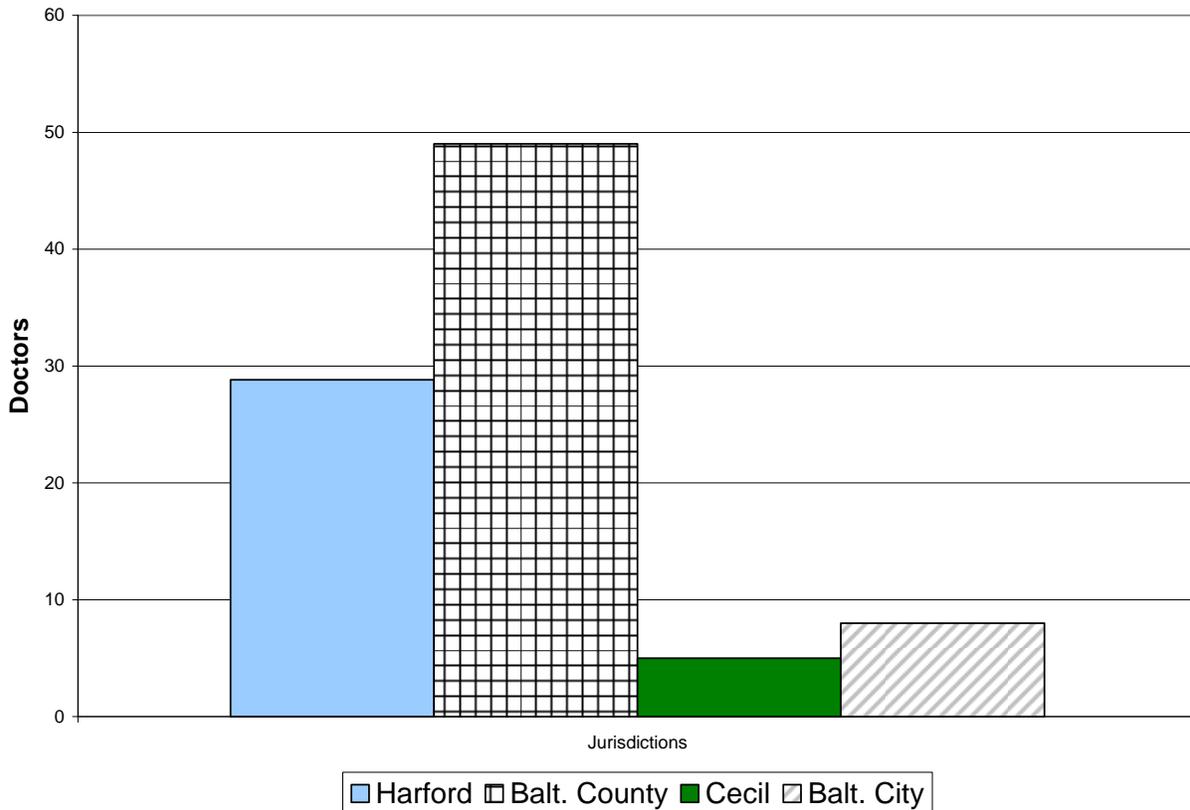
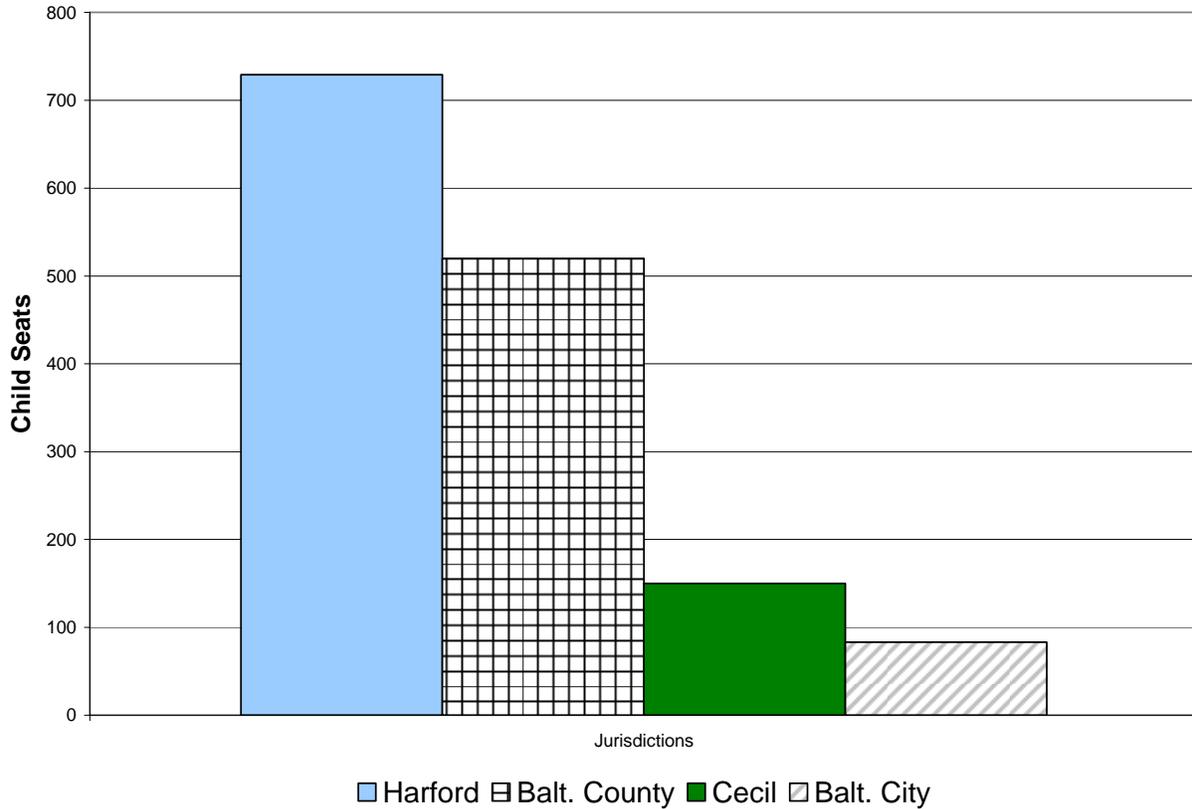


Figure 8 shows the demand for day care facilities by child seats in the four Maryland jurisdictions. In total, the area is projected to need an additional 1,482 child seats. About half of the seats, 729, are projected for Harford County. Second is Baltimore County with 520 seats. The remainder are projected for Cecil County (150 seats) and Baltimore City (83 seats).

**Figure 8. Cumulative Private Capital Facility Gap in Maryland Jurisdictions by Category: Day Care**



## PARCEL IDENTIFICATION RESULTS

TischlerBise's subcontractor, AKRF, used data on vacant parcels in Harford County to identify parcels suitable for capital facility expansion. The parcel identification results are shown in Appendix C. Parcel identification was limited to two public facility categories in Harford County: Fire/EMS and Public Schools. Fire/EMS and Public Schools have distinct service areas that define where service is provided. Additionally, Harford County provided sub-county demographic projections that allowed TischlerBise to determine facility demand by volunteer fire company (for Fire/EMS stations) and by attendance zone (for Public Schools). All other facility categories in Harford County were considered on a countywide basis. A countywide analysis was conducted for all other Maryland jurisdictions as sub-county demographic projections were not available. Therefore, parcel identification is limited to Harford County for those facilities analyzed on a sub-county level.

### Parcel Identification for Future Harford County Fire/EMS Stations

Based on the gap analysis results as determined by TischlerBise, AKRF identified suitable parcels (over 1 acre and within .25 mile of a major road) for the following volunteer fire companies:

- Aberdeen Fire Department,
- Abingdon Fire Company,
- Level Volunteer Fire Company, and
- Susquehanna Hose Company.

### Parcel Identification for Future Harford County Public Schools

Harford County Public Schools has distinct attendance areas for elementary schools and middle/high schools. As the County has in the past and expects in the future to adjust school attendance boundaries as needed, parcels for future schools sites were identified within the County's development envelope. Based on the gap analysis results as determined by TischlerBise, AKRF identified suitable parcels for school sites within one mile of a major road (15-25 acres for elementary schools and 75 acres for middle/high schools).

The parcel identification results for Fire/EMS and Schools are shown in Appendix C.

## RECOMMENDATIONS AND NEXT STEPS

The results of the capital facility gap analysis show that jurisdictions will face significant demands on capital infrastructure. In order to maintain current levels of service, Maryland jurisdictions will have to add over 225,000 square feet in building space for government functions, acquire and develop over 875 acres of land for parks, schools and other buildings, add 75 correctional beds, accommodate an additional 10,000 more public school students and purchase 15 pieces of major fire apparatus. If not properly planned for with each jurisdiction's capital improvement planning program, the APG BRAC growth can lead to diminishing levels of service for all residents – existing and new.

We recommend that the Maryland jurisdictions take the analysis to the next step in order to determine the capital costs associated with these anticipated facility demands. A fiscal impact analysis would provide jurisdictions with a more complete picture of demand on General and other funds. The fiscal impact analysis would reflect all public sector revenues as well as all relevant capital costs and operating expenditures due to the BRAC development. The analysis would reflect the fiscal results from both residential and nonresidential development. The annual operating costs usually constitute 80-95% of a jurisdiction's General Fund. The results are likely to be quite interesting given the tax-exempt status of the Aberdeen Proving Ground.



## Chapter 2: Demographics

This report, *Capital Facilities Inventory and Gap Analysis Due to APG BRAC Expansion*, was conducted using demographic information from the Sage Policy Group's *Aberdeen Proving Ground BRAC Impacts on Seven Jurisdictions* study. The Sage study presents increases in population, households, employment, and public school student as a result of the BRAC impact at Aberdeen Proving Ground (APG). This TischlerBise report determines a level of service standard for capital facilities using existing demographics and a gap analysis of the same facilities using Sage BRAC demographic projections. The TischlerBise gap analysis was conducted on the four Maryland jurisdictions as they are expected to be most impacted by BRAC growth at APG. In the existing demographics presented below, information is shown for all eight jurisdictions in the Chesapeake Science and Security Corridor to present the overall impact of APG BRAC growth.

### EXISTING DEMOGRAPHICS

Current population, households, and employment are used to determine the existing level of service (LOS) for each facility type within the Maryland jurisdictions. While LOS was only documented for the four Maryland jurisdictions that will be the most impacted by growth at APG, population and households are shown for the other counties to better understand the full impact of BRAC growth. Table 8 summarizes the current demographics for the eight jurisdictions included in the Chesapeake Science and Security Corridor (CSSC). Of the 3.72 million people in the CSSC region, the jurisdiction with the highest amount of population is Baltimore County followed by Baltimore City and New Castle County. Current employment for the four Maryland jurisdictions shows that 85 percent of the total Maryland employment is located in Baltimore County and Baltimore City.

**Table 8. 2007 Demographics by Jurisdictions in the CSSC Region**

<b>Jurisdiction</b>	<b>Population</b>	<b>Households</b>	<b>Employment <sup>1</sup></b>
Harford County, MD	242,700	90,940	117,886
Baltimore County, MD	802,300	322,180	513,278
Cecil County, MD	102,000	37,240	39,915
Baltimore City, MD	651,080	260,520	410,277
York County, PA	423,816	164,270	226,881
Lancaster County, PA	497,875	186,605	307,271
New Castle County, DE	520,000	200,000	361,743
Chester County, PA <sup>2</sup>	482,112	173,033	324,835
<b>Total</b>	<b>3,721,883</b>	<b>1,434,788</b>	<b>2,302,086</b>

Source: Sage Police Group, Inc. - Aberdeen Proving Ground BRAC Impacts on Seven Jurisdictions (Exhibit III-1, Exhibit III-3)

<sup>1</sup> Source: Woods and Poole, 2007

<sup>2</sup> Source: Population and Households 2006 American Community Survey U.S. Census.

## PROJECTED GROWTH DUE TO APG BRAC

As shown in Table 8, Harford County ranks seventh among the eight jurisdictions analyzed in terms of population and households. Harford County contains 6.5 percent of the total population and 13 percent of the total Maryland population. This is important to note because Harford County is the most impacted by projected growth due to Aberdeen Proving Ground (APG) BRAC expansion, as shown in Table 9. The jurisdiction with the next biggest impact from BRAC growth at APG is Baltimore County followed by Cecil County. The remaining five jurisdictions will be impacted by BRAC growth in smaller amounts. BRAC projections were conducted by Sage and reported for seven of the eight CSSC jurisdictions. Sage’s study examined four types of jobs, which are on-base, contractor-tail, indirect, and induced. On-base jobs are the estimated number of net new jobs anticipated to be located at APG. From these jobs it was estimated that there would be 0.8 contractor-tail jobs for every job on base. The on-base jobs and contractor-tail jobs require goods and services, which are provided by the indirect jobs. The induced jobs, the final component, are created as a result of on-base, contractor-tail, and indirect jobs consuming goods and services provided by this job type. The total number of jobs created as a result of the impact of BRAC was then used to calculate households and population. Sage estimated there would be 1.64 jobs for households participating in the labor force. Then based on average household size in Monmouth County (location of Ft. Monmouth where the on-base Aberdeen Proving Ground jobs moved from), Sage used an estimate of 2.7 persons per household.

In order to estimate public school students, Sage used a student yield factor (number of public school students per household) of 0.66 in its mid case scenario, which is described in more detail in the *Aberdeen Proving Ground BRAC Impacts on Seven Jurisdictions* study on pages 74-76.

This is an average of Harford County’s students per household factor of .43 and Sage’s estimate of .79 public school students per household. Sage’s high-end figure is based on a number of assumptions regarding BRAC households reflecting a survey of families at Ft. Monmouth in New Jersey and Census data for Monmouth County. These are described in more detail in the Sage study (pages 74-76).

**Table 9. Aberdeen Proving Ground BRAC Impacts by Jurisdiction from 2007-2017**

<b>Jurisdiction</b>	<b>Population</b>	<b>Households</b>	<b>Employment</b>	<b>Public School Students</b>
Harford County, MD	19,059	7,059	19,237	4,624
Baltimore County, MD	13,954	5,168	4,849	3,385
Cecil County, MD	5,357	1,984	1,460	1,300
Baltimore City, MD	2,368	877	941	575
York County, PA	2,254	835	586	547
Lancaster County, PA	1,025	379	266	247
New Castle County, DE	1,025	380	281	249
Chester, PA and Other Counties <sup>1</sup>	525	228	160	149
<b>Total</b>	<b>45,567</b>	<b>16,910</b>	<b>27,780</b>	<b>11,076</b>

Source: Sage Police Group, Inc. - Aberdeen Proving Ground BRAC Impacts on Seven Jurisdictions. (Exhibit E1, Exhibit II-5, and Exhibit II-6)

<sup>1</sup> The other counties listed with Chester County are Howard and Anne Arundel Counties in Maryland.

Sub area (below County level) demographic projections were used to conduct the level of service and gap analysis for Harford County Fire and EMS facilities and schools by type (elementary, middle, and high). The County made its own estimates of BRAC growth in its Round 7 projections for population, household, and employment, though BRAC and non-BRAC growth are not distinguished in the final results. The Round 7 projections are reported by traffic analysis zone (TAZ). Sage BRAC projections were not available on a sub area level, therefore based on direction from Harford County, Sage’s BRAC projections were allocated to each TAZ on a proportionate basis using distribution in Harford County’s Round 7 TAZ projections, which is described in more detail in Appendix D. Round 7 projections were developed by the County based on permit data and vacancy rates, population based on household size, and employment using Bureau of Economic Analysis and Dun and Bradstreet data. Only Harford County uses the sub area analysis because of the magnitude BRAC impacts.



## Chapter 3: CSSC Regional Capital Facility Inventory Maps

The Chesapeake Science and Security Corridor (CSSC) and the Aberdeen BRAC Office contracted with TischlerBise, Inc. and its subcontractor AKRF to prepare an inventory of public and private facilities in the 8-county CSSC region. The CSSC region includes four Maryland jurisdictions (Harford County, Baltimore County, Cecil County and Baltimore City), three Pennsylvania counties (Chester, Lancaster and York) and New Castle County in Delaware.

To gather the facility inventory data, TischlerBise, Inc. and its subcontractor, AKRF, worked with each jurisdiction to identify public facility information for the following categories of public buildings:

- Law Enforcement (Sheriff/Police)
- Fire and Emergency Medical Services
- Correctional Facilities
- Libraries
- Judicial and Legal Service Facilities
- Administrative Facilities (General Administration and Human Services)
- Parks
- Recreational Facilities
- Public Schools
- Community College

Additionally, AKRF also obtained data for the following private facilities/service providers:

- Hotels
- Hospitals
- Convention Centers and Meeting Facilities
- Doctors
- Senior Homes
- Day Care

AKRF prepared a series of maps to illustrate these facilities on a regional basis. The maps follow the order presented above. Detailed maps by jurisdiction are shown in Appendix A.

## Chapter 4: Public Capital Facility Gap Analysis

### METHODOLOGY

TischlerBise, Inc. is under contract with the Chesapeake Science and Security Corridor and the Aberdeen BRAC (Base Realignment and Closure) Office to determine the additional demands for public and private facilities that will be generated by the increase in BRAC-related population and employment growth associated with Aberdeen Proving Ground (APG). Presented in this chapter is the public facility gap analysis. The private facility gap analysis is presented in the next chapter.

The process began with a study conducted by Sage Policy Group projecting growth in the various jurisdictions expected to be impacted by BRAC, including four Maryland jurisdictions (Harford County, Baltimore County, Cecil County and Baltimore City), three Pennsylvania counties (Chester, Lancaster and York) and New Castle County in Delaware. The demographic projections from the Sage Policy Group study are summarized in Chapter 2 of this report.

TischlerBise, Inc. and the CSSC agreed that gap analysis should focus on the Maryland jurisdictions. To begin, TischlerBise, Inc. and its subcontractor, AKRF, worked with each jurisdiction to identify public facility information for the following categories of public buildings:

- Law Enforcement (Sheriff/Police)
- Fire and Emergency Medical Services
- Correctional Facilities
- Libraries
- Judicial and Legal Service Facilities
- Administrative Facilities (General Administration and Human Services)
- Parks
- Recreational Facilities
- Public Schools
- Community College

Jurisdictions provided two pieces of information for its public facilities: addresses and demand measurement factors. A facility's address was used to place it geographically on a map. The inventory of facilities by jurisdiction, including maps, is shown in Appendix A. The second data element, the demand measurement factor, is used to establish an existing level of service (LOS) for each facility category.

For most facilities, demand is measured by square feet. For other facilities, a capacity measurement is available such as school seats or correctional facility beds. Using current demographic factors (see Chapter 2), LOS is established for each facility for each jurisdiction. Some examples include sheriff station square feet per person/ job, park acres per capita and fire

apparatus per person/job. Level-of-service calculations are shown in detail in Appendix B.

This analysis was conducted for each of the Maryland jurisdictions, and are presented here in the following order based on the projected BRAC growth in each jurisdiction: Harford County, Baltimore County, Cecil County and Baltimore City. In Baltimore City, a smaller number of facility categories are considered given that the City has excess capacity for most facility categories. Discussions with Baltimore City staff indicated that three categories are expected to be impacted in the northeast portion of Baltimore, an area where Aberdeen BRAC growth is projected. For Baltimore City, the three facility categories considered are: libraries, recreation facilities and schools. In Baltimore County, demands on Fire/EMS facilities are not considered because data on volunteer fire stations was not available. Due to this, a level-of-service (LOS) for fire station space (square feet per person and per job) in Baltimore County could not be established. Without a LOS, the capital facility gap could not be calculated.

The existing LOS for the various facility categories reflects what the jurisdiction is currently committed to funding. The analysis assumes that the jurisdiction would continue to plan its capital facility improvements to maintain the existing LOS. The jurisdiction may at a later point in time decide to increase its levels of service, though the burden for the increase should be borne by both existing and new residents. As this analysis examines new growth's impact on capital facilities, existing LOS is used to make the capital facility demand calculation.

For most facilities, demand is considered on a countywide basis. For example, the need for additional administrative judicial space is generated by growth throughout the jurisdiction. Demand for two facility categories in Harford County – Fire/EMS and public schools – is considered on a sub-county level. To do this, Harford County provided sub-county demographic projections. Each of these facility categories has distinct service areas that define where service is provided. For Fire/EMS, service is provided by volunteer fire companies, each with its own service area. Harford County Public Schools has distinct attendance areas for elementary schools and middle/high schools. All other facility categories in Harford County are considered to be countywide. A countywide analysis was conducted for all other Maryland jurisdictions as sub-county demographic projections were not available.

The capital facility gap is calculated by applying the jurisdiction's existing LOS to the projected BRAC-related increase in population and employment from APG. The capital facility gap is calculated for building space square footage, land (parkland, schools and other facilities), correctional beds, fire apparatus and school seats. A summary of capital facility demand for all jurisdictions is presented in the next section. Following that is the detailed methodology for each jurisdiction.

## SUMMARY OF PUBLIC CAPITAL FACILITY GAP IN MARYLAND JURISDICTIONS IN CSSC REGION

Table 10 shows a summary of the public capital facility gap, excluding land, as a result of Aberdeen BRAC for all Maryland jurisdictions in the CSSC region. Demand for additional land is shown in Table 11. The summary table is broken down by public facility category and by jurisdiction. Based on TischlerBise’s analysis of existing levels of service, Maryland jurisdictions will need to add about 225,000 square feet of additional building space, 15 pieces of major Fire/EMS apparatus and 75 correctional beds as a result of Aberdeen’s BRAC growth. Its public schools will need to accommodate a projected 9,884 additional students as a result of BRAC at Aberdeen.

**Table 10. Public Capital Facility Gap in Maryland Jurisdictions: Buildings and Apparatus**

Public Facility Category	Total Public Facility Demand	Demand Measurement	Detail by Jurisdiction			
			Harford County	Baltimore County	Cecil County	Baltimore City <sup>3</sup>
Sheriff/Police	13,469	Square Feet	7,684	4,973	812	n/a
Fire and EMS-Bldg.	37,629	Square Feet	30,651	0 <sup>1</sup>	6,978	n/a
Fire and EMS-Apparatus	15	Apparatus	10	2	3	n/a
Correctional	75	Beds	37	27	11	n/a
Library	26,227	Square Feet	15,847	5,133	3,166	2,081
Judicial and Legal	22,458	Square Feet	14,661	3,920	3,877	n/a
Administrative	51,006	Square Feet	30,524	16,190	4,292	n/a
Recreation	22,268	Square Feet	17,602	2,494	0 <sup>2</sup>	2,172
Public Schools	9,884	Student Seats	4,624	3,385	1,300	575
Community College	52,715	Square Feet	25,591	18,934	8,190	n/a

<sup>1</sup> The gap for Fire and EMS station space or Baltimore County is not included. Fire and EMS square footage was not provided for the County's volunteer stations, therefore a level of service standard and subsequent capital facility gap could not be determined.

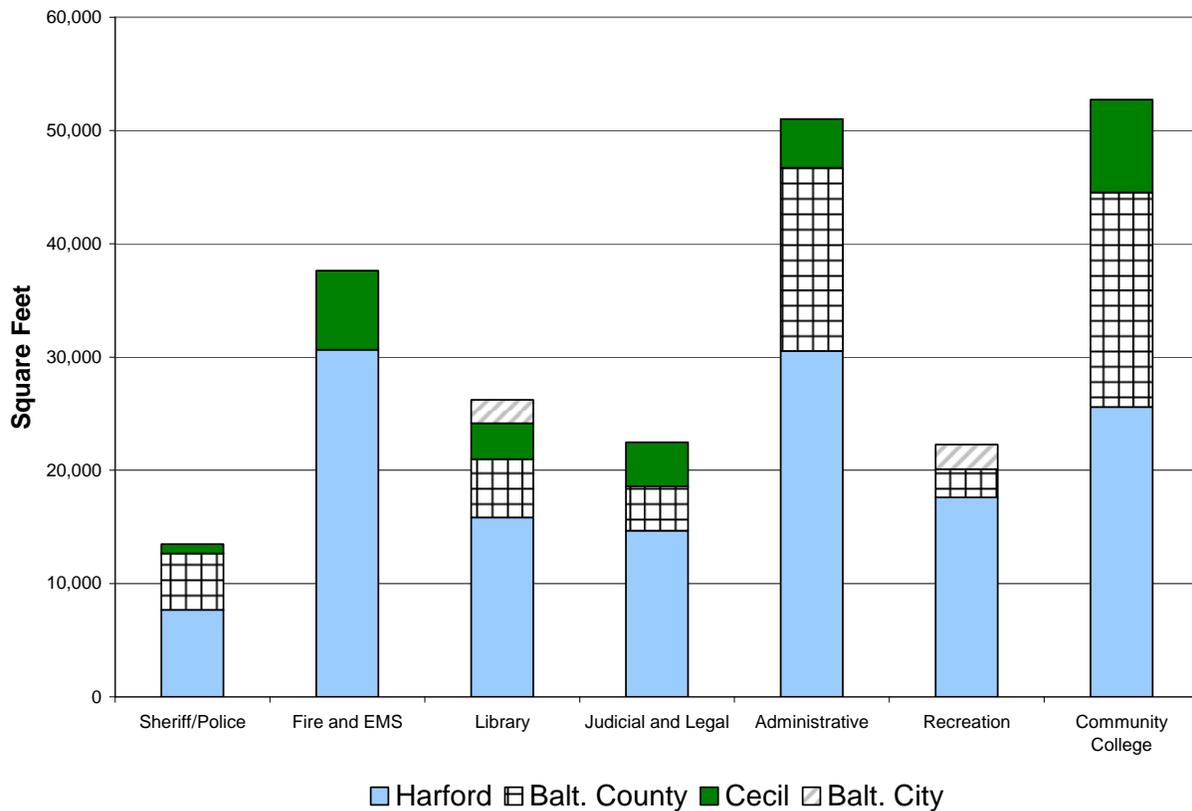
<sup>2</sup> A gap for recreational facilities in Cecil County was not calculated as the County does not have an existing inventory for these facilities.

<sup>3</sup> In Baltimore City, a smaller number of public facility categories are considered than in other Maryland jurisdictions given that the City has excess capacity for most facility categories. Discussions with Baltimore City staff indicated that three facility categories will need increased capacity in the NE portion of Baltimore: library, recreation and schools.

n/a = not applicable

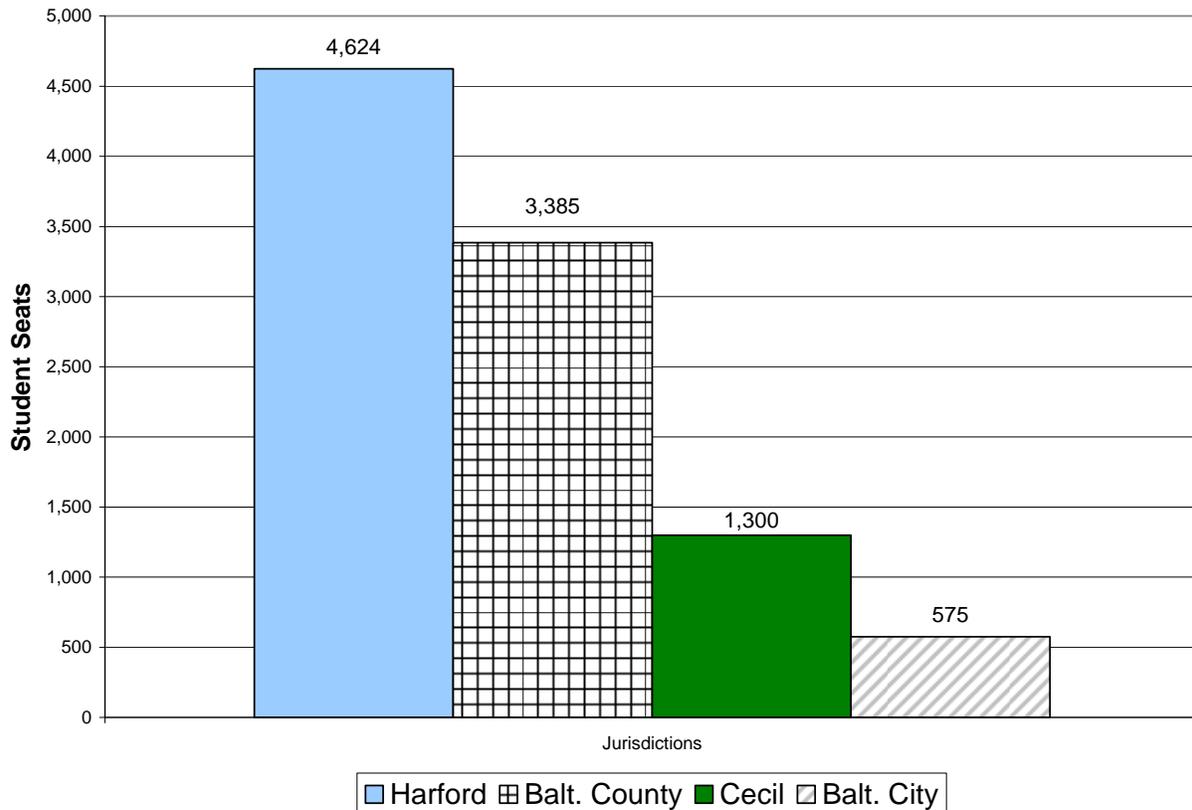
Figure 25 shows the public capital facility gap for building square footage by category and by Maryland jurisdiction. The largest impacts are on administrative facilities, community college facilities, and Fire/EMS stations. Administrative facilities include general administration functions such as finance, county administration and planning and human service functions such as health, aging and social services. The Fire/EMS gap is understated because it includes only Harford and Cecil counties. Level of service and the resulting capital facility gap could not be calculated for Baltimore County Fire/EMS due to a lack of data on volunteer operated stations.

**Figure 25. Cumulative Public Capital Facility Gap in Maryland Jurisdictions by Category: Sq. Ft.**



Sage Policy Group’s *Aberdeen Proving Ground BRAC Impacts on Seven Jurisdictions* study projects an additional 9,885 public school students in Maryland as a result of BRAC at APG in its mid-case scenario. Figure 26 shows this breakdown by Maryland jurisdiction. To the extent that capacity is available, some of these students will be accommodated within existing schools. The mid-case student growth scenario is being used based on direction from the Chesapeake Science and Security Corridor, which considers it the most reasonable assumption of new BRAC-related growth.

**Figure 26. Cumulative Public Capital Facility Gap in Maryland Jurisdictions: Student Seats**



Source: Sage Policy Group.

Table 11 shows a summary of the demand for additional land as a result of Aberdeen BRAC for all Maryland jurisdictions. Harford County is most significantly impacted, with a need for an additional 537 acres, followed by Baltimore County (275 acres), Cecil County (64 acres) and Baltimore City (< 1 acre).

Demand for parkland was calculated based on the applicable level of service for each jurisdiction (acres per person). Demand for school sites was calculated based on prototype school site sizes as provided by the jurisdictions or the average school site size. Demand for future land acquisition for other facilities was calculated on the basis of a .25 Floor Area Ratio.

The summary table is broken down by public facility category and by jurisdiction. Maryland jurisdictions will need to add 876 acres to serve new growth as a result of BRAC at APG.

**Table 11. Capital Facility Gap in Maryland Jurisdictions: Land (Acres)**

Public Facility Category	Total Demand for Land <sup>1</sup>	Demand Measurement	Detail by Jurisdiction			
			Harford County	Baltimore County <sup>2</sup>	Cecil County <sup>3</sup>	Baltimore City <sup>4</sup>
Sheriff/Police	1 Acres		0.71	0.46	0.07	n/a
Fire and EMS	3 Acres		2.81	0	0.64	n/a
Correctional	3 Acres		1.59	0.67	0.55	n/a
Library	2 Acres		1.46	0.47	0.29	0.19
Judicial and Legal	2 Acres		1.35	0.36	0.36	n/a
Administrative	5 Acres		2.80	1.49	0.39	n/a
Parks	497 Acres		350.81	123.87	22.81	n/a
Recreation	0 Acres		0	0	0	0.20
Public Schools	357 Acres		173.55	145.61	37.92	0
Community College	5 Acres		2.35	1.74	0.75	n/a
<b>TOTAL</b>	<b>876</b>		<b>537</b>	<b>275</b>	<b>64</b>	<b>0.39</b>

<sup>1</sup> The gap for parkland is calculated based on the applicable level of service for each jurisdiction (acres per person). Demand for school sites is calculated based on prototype school site sizes as provided by the jurisdictions (Harford and Cecil) or the average school site size (Baltimore County). Demand for future land acquisition for other facilities was calculated on the basis of .25 Floor Area Ratio.

<sup>2</sup> The gap for Fire and EMS land for Baltimore County is not included. Fire and EMS square footage was not provided for the County's volunteer stations, therefore a level of service standard for land and subsequent capital facility gap could not be determined.

<sup>3</sup> The gap for land for recreational facilities in Cecil County was not calculated as the County does not have an existing inventory of recreational facilities.

<sup>4</sup> In Baltimore City, a smaller number of public facility categories are considered than in other Maryland jurisdictions given that the City has excess capacity for most facility categories. Discussions with Baltimore City staff indicated that three facility categories will need increased capacity in the NE portion of Baltimore: library, recreation and schools. It is not anticipated that schools will need additional land as the planned expansion is to an existing school.

n/a = not applicable

Figure 27 shows the public capital facility gap for land for parks, public schools and other categories by Maryland jurisdiction. The largest impacts are parks and public schools. Demand for *parks* totals 497 acres, with the most significant impact on Harford (350 acres), followed by Baltimore County (124 acres), and Cecil County (64 acres). Baltimore City is not shown because of the small amount of land required (< 1 acre). Demand for *public schools* totals 357 acres, with the most significant impact on Harford (174 acres), followed by Baltimore County (146 acres), and Cecil County (38 acres). Demand for “other” categories totals 22 acres. The “other” category includes sheriff/police, fire/EMS, library, judicial and legal, administrative, recreation and community college. Baltimore City is not shown because of the small amount of land required (< 1 acre).

**Figure 27. Cumulative Public Capital Facility Gap in Maryland Jurisdictions: Land**

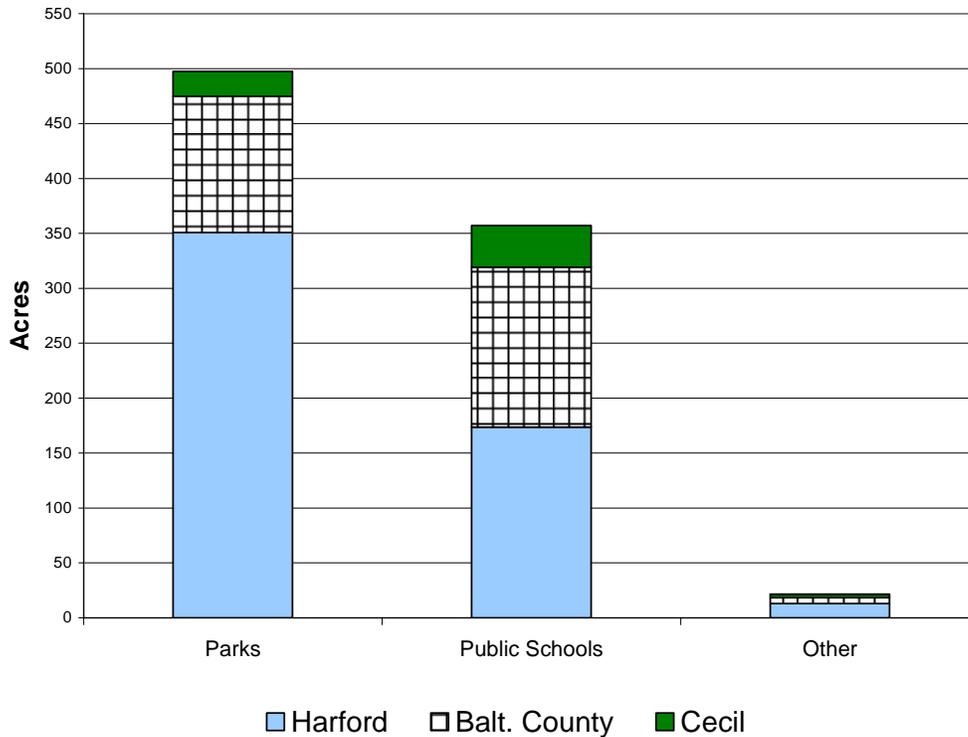


Table 12 below shows a summary of the public capital facility gap by jurisdiction for building square footage, acres, student seats, correctional beds and fire/EMS major apparatus.

**Table 12. Public Capital Facility Gap Summary by Jurisdiction**

Demand Measurement	Detail by Jurisdiction				Total Public Facility Gap
	Harford County	Baltimore County <sup>1</sup>	Cecil County <sup>2</sup>	Baltimore City <sup>3</sup>	
Building Square Feet	142,560	51,644	27,315	4,253	225,772
Acres	537	275	64	0.39	876
Student Seats	4,624	3,385	1,300	575	9,884
Correctional Beds	37	27	11	n/a	75
Fire/EMS Apparatus	10	2	3	n/a	15

<sup>1</sup>The gap for Fire and EMS station space could not be determined for Baltimore County. Fire and EMS square footage was not provided for the County's volunteer stations, therefore a level of service standard and subsequent capital facility gap could not be determined.

<sup>2</sup>A facility gap for recreational facilities in Cecil County was not calculated as the County does not have an existing inventory for these facilities.

<sup>3</sup>In Baltimore City, a smaller number of public facility categories are considered than in other Maryland jurisdictions given that the City has excess capacity for most facility categories. Discussions with Baltimore City staff indicated that three facility categories will need increased capacity in the NE portion of Baltimore: library, recreation and schools.

n/a = not applicable

## HARFORD COUNTY SUMMARY OF PUBLIC CAPITAL FACILITY GAP

Per the Sage Policy Group study, Harford County is expected to receive 69% of projected employment growth from APG BRAC expansion (19,237 jobs) and 42% of the population growth (19,059 persons). Table 13 presents the projected public capital facility gap in Harford County as a result of APG BRAC growth (population and employment). The table shows that based on the County's existing LOS standards (see Appendix B), and projected BRAC-related growth in Harford County (see Chapter 2), growth at APG will have a significant impact on public facilities in the County.

BRAC growth results in the need for an additional 142,560 square feet of building space. Of this, the largest impacts are to Fire and EMS (30,651 square feet) and Administrative facilities (30,524 square feet). Fire and EMS includes needed expansions to the County's various volunteer fire stations. Additionally, there is a need for additional fire apparatus (9.92 pieces of major apparatus such as engines, pumpers, ambulances, etc.). Administrative facilities include the County's administrative space for finance, planning, budgeting, etc. along with its administrative offices for the health department, aging, parks, libraries, etc.

The table also shows a demand for land acquisition resulting from BRAC growth. This totals 537 acres. Of this, the great majority is for parkland (350.81 acres) and school sites (173.55 acres). The remainder is for expansion of the County's public facilities. The analysis for public facilities assumes that additional land will need to be acquired based on a Floor Area Ratio of .25.

The analysis showed a need for 37 additional detention beds as a result of BRAC growth. Expansion at Aberdeen will also place increased demand on the Harford County Public Schools. BRAC is expected to increase enrollment in the County by 4,624 students. The County will be able to accommodate some students within its existing schools, but will also need to either expand schools or build new schools to meet the new demand.

**Table 13. Public Capital Facility Gap in Harford County by Category**

Public Facility Category	Building <i>Square Feet</i>	Land <i>Acres</i>	Correction <i>Beds</i>	Apparatus <i>Units</i>	Student <i>Seats</i>
Sheriff	7,684	0.71	n/a	n/a	n/a
Volunteer Fire and EMS	30,651	2.81	n/a	9.92	n/a
Correctional	n/a	1.59	37	n/a	n/a
Library	15,847	1.46	n/a	n/a	n/a
Judicial and Legal	14,661	1.35	n/a	n/a	n/a
Administrative	30,524	2.80	n/a	n/a	n/a
Parks	n/a	350.81	n/a	n/a	n/a
Recreation <sup>1</sup>	17,602	0	n/a	n/a	n/a
Public Schools	n/a	173.55	n/a	n/a	4,624
Community College	25,591	2.35	n/a	n/a	n/a
<b>TOTAL</b>	<b>142,560</b>	<b>537</b>	<b>37</b>	<b>10</b>	<b>4,624</b>

<sup>1</sup>Land Projection not included for recreation as facilities are located on parkland, and those projections are made under "parks."

n/a = not applicable

## GAP BY PUBLIC FACILITY CATEGORY - HARFORD COUNTY

This section presents the public capital facility gap in Harford County as a result of APG BRAC growth (population and employment) by facility category. Facilities are presented in the order shown in Table 13. Demand for most facility categories is considered to be countywide, except for volunteer Fire/EMS and public schools. Demand for these facilities is shown on a smaller geographic area. Demand for Fire/EMS facilities is shown by volunteer fire company and by attendance zone for public schools.

## Harford County Sheriff Facilities

The top of Table 14 summarizes the existing capital facility level of service (LOS) for Harford County’s sheriff station space. Both population and employment drives demand for sheriff services, so the capital facility LOS is calculated based on the County’s existing inventory of sheriff facilities and the relationship to existing countywide population and jobs. The LOS for sheriff station space in Harford County is .20 square feet per person and per job (see the LOS report in Appendix B for more detail, including the complete inventory of Sheriff facilities).

The middle of the table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 19,059 persons and 19,237 jobs in Harford County as a result of BRAC growth at APG, for a total of 38,296 persons and jobs.

The bottom portion of the table shows the capital facility demand from BRAC growth for Harford County sheriff station space. Based on the existing LOS standard of .20 square feet per person and per job, this amount of growth will require 7,684 sq. ft. in additional sheriff station space (.20 sq. ft. per person and job multiplied by 38,296 persons and jobs = 7,684 sq. ft.).

**Table 14. Capital Facility Demand in Harford County: Sheriff**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		72,350 Square Feet
Existing Demand Units <sup>2</sup>	÷	360,586 Population and Jobs
Existing Level of Service	=	0.20 SF per Demand Unit

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>		19,059 Population
Additional BRAC Jobs <sup>3</sup>	+	19,237 Jobs
Additional BRAC Demand Units	=	38,296 Population and Jobs

**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.20 SF per Demand Unit
Additional BRAC Demand Units	x	38,296 Population and Jobs
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>7,684 Square Feet</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Harford County Volunteer Fire/EMS

### OVERVIEW

Fire service in Harford County is provided by volunteers, who are organized by company to serve defined areas of the County (for a map of the fire company boundaries, refer to the Inventory in Appendix B). Emergency Medical Service is provided by the companies in cooperation with the Harford County Volunteer Fire and EMS Foundation.

The stations are owned by the respective fire companies with one exception. The facility housing the Havre de Grace Ambulance Corp is leased. The fire companies also own their own apparatus. Fire/EMS facilities and apparatus are included in this analysis as it is expected that with new growth, the volunteer fire companies will expand and/or build new capital facilities and acquire additional equipment in order to maintain their current level of service (LOS). The County supports the efforts of the volunteer companies by providing funding for fire station construction, apparatus acquisition and personnel costs related to EMS services.

As discussed in the LOS report in Appendix B, Fire/EMS LOS standards were determined for each fire company for three categories of capital facilities: station space, land and major apparatus. A number of stations include banquet halls, which are used by the volunteer companies to hold fundraising and other community events. The banquet portion of the fire stations is included in the next chapter of this report covering meeting facilities in the County. Station space less the space associated with the banquet halls is considered for this public facility demand analysis. The amount of additional land needed for new station space is calculated based on a floor area ratio (FAR) of .25. The third category of capital considered in this analysis is major apparatus. This includes pumpers, ladder trucks, rescue trucks, tankers, brush units and ambulances.

As mentioned, LOS was determined for each fire company to reflect the relationship between existing Fire/EMS capital facilities within each company's boundary and the corresponding population and employment within those same boundaries. Next, the level-of-service was applied to the projected BRAC growth (population and employment) by company boundary. The distribution of BRAC growth to fire company boundaries is based on Harford County's geographic distribution of its Round 7 demographic projections and is discussed in detail in Appendix D. Table 15 provides a summary of the BRAC capital facility demand for Fire/EMS in Harford County by company.

The most significant station impacts are on the Susquehanna Hose Company (6,556 sq. ft. and .40 acres), Aberdeen Fire Department (4,340 sq. ft. and .34 acres), Abingdon Fire Company (3,699 sq. ft.) and .34 acres) and the Level Volunteer Fire Company (2,904 sq. ft. and .27 acres). For these facilities, suitable parcels for future station space were identified and are presented in Appendix C. Following Table 15 is detail on the capital facility demand calculation by company for station space, land and major apparatus.

**Table 15. Fire/EMS Capital Facility Demand in Harford County by Company**

Fire Company	Station <i>Square Feet</i>	Land <i>Acres</i>	Apparatus <i>Units</i>
Aberdeen Fire Department	4,340	0.40	1.69
Abingdon Fire Company	3,699	0.34	1.09
Bel Air Volunteer Fire Company	2,159	0.20	1.00
Darlington Volunteer Fire Company	1,203	0.11	0.44
Fallston Volunteer Fire and Ambulance	1,285	0.12	0.50
Havre de Grace Ambulance Corps	2,537	0.23	0.34
Jarrettsville Volunteer Fire Company	1,898	0.17	0.66
Joppa-Magnolia Volunteer Fire Company	2,143	0.20	0.70
Level Volunteer Fire Company	2,904	0.27	0.93
Norrisville Volunteer Fire	616	0.06	0.55
Susquehanna Hose Company	6,556	0.60	1.35
Whiteford Volunteer Fire Company	1,310	0.12	0.67
<b>TOTAL</b>	<b>30,651</b>	<b>2.81</b>	<b>9.92</b>

**DEMAND FOR FIRE/EMS FACILITIES, LAND AND APPARATUS DUE TO BRAC GROWTH**

Table 16 shows a summary of capital facility demand for Fire/EMS station space by fire company. LOS is calculated based on the company’s existing inventory of station space and the relationship to existing population and employment with the company’s boundaries. Population and employment are considered the demand drivers for Fire/EMS station space. The second column lists the station space LOS for each company, which is square feet per demand unit. For Fire/EMS, this is measured by per person and per job (see LOS report in Appendix A for more detail, including the complete inventory of Fire/EMS facilities by company).

The next column presents projected BRAC population growth by fire company, followed by projected BRAC employment. These two columns are totaled to show total BRAC demand units. The distribution of BRAC growth to fire company boundaries is discussed in detail in Appendix D. The LOS standards per demand unit (per person and per job) shown in column 2 is then multiplied by the total BRAC demand units (persons and jobs) to determine the amount of additional station space required as a result of BRAC. This results in a total of 30,651 additional station space square feet on a countywide basis. The last column shows the amount of additional land needed to accommodate new station space, based on a floor area ratio (FAR) of .25.

**Table 16. Capital Facility Demand in Harford County: Fire/EMS Station Space and Land**

Fire Company	LOS SF/Demand Unit	BRAC Population	BRAC Jobs	Total BRAC Demand Units	Additional Sq. Ft.	Additional Acres
Aberdeen Fire Department	0.50	2,322	6,418	8,740	4,340	0.40
Abingdon Fire Company	0.44	5,218	3,140	8,358	3,699	0.34
Bel Air Volunteer Fire Company	0.26	3,543	4,682	8,225	2,159	0.20
Darlington Volunteer Fire Company	1.76	406	277	683	1,203	0.11
Fallston Volunteer Fire and Ambulance	1.40	545	370	915	1,285	0.12
Havre de Grace Ambulance Corp	0.65	2,773	1,137	3,910	2,537	0.23
Jarrettsville Volunteer Fire Company	1.19	913	683	1,596	1,898	0.17
Joppa-Magnolia Volunteer Fire Company	0.60	1,743	1,822	3,565	2,143	0.20
Level Volunteer Fire Company	2.21	903	411	1,314	2,904	0.27
Norrisville Volunteer Fire	1.83	233	104	337	616	0.06
Susquehanna Hose Company	1.68	2,773	1,137	3,910	6,556	0.60
Whiteford Volunteer Fire Company	2.00	463	193	656	1,310	0.12
<b>TOTAL</b>					<b>30,651</b>	<b>2.81</b>

Table 17 shows a summary of capital facility demand for major Fire/EMS apparatus by fire company. Major apparatus includes pumpers, ladder trucks, rescue trucks, tankers, brush units and ambulances. LOS is calculated based on the company’s existing inventory of major apparatus and the relationship to existing population and employment with the company’s boundaries. Population and employment are considered the demand drivers for fire/EMS apparatus. The second column lists the apparatus LOS for each company, which is apparatus per demand unit. For Fire/EMS, this is measured per person and per job (see Appendix A for more detail, including the complete inventory of Fire/EMS major apparatus by company).

The next column presents projected BRAC population growth by fire company, followed by projected BRAC employment. These two columns are totaled to show total BRAC demand units. The distribution of BRAC growth to fire company boundaries is discussed in detail in Appendix D. The LOS standards per demand unit (per person and per job) shown in column 2 is then multiplied by the total BRAC demand units (persons and jobs) to determine the amount of additional major apparatus required as a result of BRAC. This results in a total of almost 10 pieces of apparatus on a countywide basis.

**Table 17. Capital Facility Demand in Harford County: Major Apparatus**

<b>Fire Company</b>	<b>LOS Units/Demand Unit</b>	<b>BRAC Population</b>	<b>BRAC Jobs</b>	<b>Total BRAC Demand Units</b>	<b>Additional Units</b>
Aberdeen Fire Department	0.0002	2,322	6,418	8,740	1.69
Abingdon Fire Company	0.0001	5,218	3,140	8,358	1.09
Bel Air Volunteer Fire Company	0.0001	3,543	4,682	8,225	1.00
Darlington Volunteer Fire Company	0.0006	406	277	683	0.44
Fallston Volunteer Fire and Ambulance	0.0005	545	370	915	0.50
Havre de Grace Ambulance Corp	0.0001	2,773	1,137	3,910	0.34
Jarrettsville Volunteer Fire Company	0.0004	913	683	1,596	0.66
Joppa-Magnolia Volunteer Fire Company	0.0002	1,743	1,822	3,565	0.70
Level Volunteer Fire Company	0.0007	903	411	1,314	0.93
Norrisville Volunteer Fire	0.0016	233	104	337	0.55
Susquehanna Hose Company	0.0003	2,773	1,137	3,910	1.35
Whiteford Volunteer Fire Company	0.0010	463	193	656	0.67
<b>TOTAL</b>					<b>9.92</b>

## Harford County Correctional Facilities

The top of Table 18 shows the existing capital facility level of service (LOS) for Harford County’s correctional beds. LOS is calculated based on the County’s existing inventory of detention beds and the relationship to existing countywide population. Population is the demand driver for detention beds. The LOS for detention beds in Harford County is .002 beds per person (or 2 beds per 1,000 people).

The middle of the table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 19,059 persons in Harford County as a result of BRAC growth at APG.

The bottom portion of the table shows the capital facility demand for Harford County detention beds. Based on the existing LOS standard of .002 beds per person, this amount of growth will require 37 additional detention beds (.002 beds per person multiplied by 19,059 persons = 37 beds).

**Table 18. Capital Facility Demand in Harford County: Correctional**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		474 Beds
Existing Demand Units <sup>2</sup>	÷	242,700 Population
Existing Level of Service	=	0.002 Beds per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	19,059 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.002 Beds per Person
Additional BRAC Demand Units	x	19,059 Population
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>37 Beds</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Harford County Libraries

The top of Table 19 shows existing capital facility level of service (LOS) for Harford County libraries. LOS is calculated based on the County’s existing inventory of libraries and the relationship to existing countywide population. Population is the demand driver for library space. The LOS for library facilities in Harford County is .83 square feet per person (see the LOS report in the Appendix for more detail, including the complete inventory of library facilities).

The middle of the table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 19,059 persons in Harford County as a result of BRAC growth at APG.

The bottom portion of the table shows the capital facility demand for Harford County libraries. Based on the existing LOS standard of .83 sq. ft. per person, this amount of growth will require 15,847 sq. ft. of additional library space (.83 sq. ft. per person multiplied by 19,059 persons = 15,847 sq. ft.).

**Table 19. Capital Facility Demand in Harford County: Libraries**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		201,796 Square Feet
Existing Demand Units <sup>2</sup>	÷	242,700 Population
Existing Level of Service	=	0.83 SF per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	19,059 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.83 SF per Person
Additional BRAC Demand Units	x	19,059 Population
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>15,847 Square Feet</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Harford County Judicial and Legal Facilities

The top of Table 20 shows the capital facility level of service (LOS) for Harford County judicial and legal facilities. This includes the courthouse, attorney’s offices and other court functions. LOS is calculated based on the County’s existing inventory of judicial and legal facility space and the relationship to existing countywide population and employment. Population and employment are considered the demand drivers for judicial and legal space. The LOS for judicial and legal facilities in Harford County is .38 square feet per person and per job (see the LOS report in the Appendix for more detail, including the complete inventory of judicial and legal facilities).

The middle of the table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 19,059 persons and 19,237 jobs in Harford County as a result of BRAC growth at APG, for a total of 38,296 persons and jobs.

The bottom portion of the table shows the capital facility gap calculation for Harford County judicial and legal facilities. Based on the existing LOS standard of .38 sq. ft. per person and per job, this amount of growth will require 14,661 sq. ft. of additional judicial and legal space (.38 sq. ft. per person multiplied by 38,296 persons and jobs = 14,661 sq. ft.).

**Table 20. Capital Facility Demand in Harford County: Judicial and Legal Facilities**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		138,044 Square Feet
Existing Demand Units <sup>2</sup>	÷	360,586 Population and Jobs
Existing Level of Service	=	0.38 SF per Demand Unit

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>		19,059 Population
Additional BRAC Jobs <sup>3</sup>	+	19,237 Jobs
Additional BRAC Demand Units	=	38,296 Population and Jobs

**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.38 SF per Demand Unit
Additional BRAC Demand Units	x	38,296 Population and Jobs
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>14,661 Square Feet</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Harford County Administrative Facilities

Harford County's administrative facilities are used by a number of functions within County government, including general administration such as finance, county administration and planning and human service functions such as health, aging and social services. Demand for general administration space is driven by both population and employment, while demand for human services is population-driven. As discussed in the LOS report in the Appendix, two level-of-service standards are established for each category of administrative space.

### GENERAL ADMINISTRATIVE FACILITIES

The top of Table 21 shows the capital facility level of service (LOS) for Harford County general administrative facilities. LOS is calculated based on the County's existing inventory of general administrative space and the relationship to existing countywide population and employment. Population and employment are considered the demand drivers for general administrative space. The LOS for general administrative space in Harford County is .48 square feet per person and per job (see the LOS report in the Appendix for more detail, including the complete inventory of general administrative facilities).

The middle of the table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 19,059 persons and 19,237 jobs in Harford County as a result of BRAC growth at APG, for a total of 38,296 persons and jobs.

The bottom portion of the table shows the capital facility demand for Harford County general administrative facilities. Based on the existing LOS standard of .48 sq. ft. per person and per job, this amount of growth will require 18,356 sq. ft. of additional general administrative space (.48 sq. ft. per person multiplied by 38,296 persons and jobs = 18,356 sq. ft.).

**Table 21. Capital Facility Demand in Harford County: General Administration**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory		172,835 Square Feet
Existing Demand Units	÷	360,586 Population and Jobs
Existing Level of Service	=	0.48 SF per Demand Unit

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>		19,059 Population
Additional BRAC Jobs <sup>3</sup>	+	19,237 Jobs
Additional BRAC Demand Units	=	38,296 Population and Jobs

**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.48 SF per Demand Unit
Additional BRAC Demand Units	x	38,296 Population and Jobs
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>18,356 Square Feet</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

**HUMAN SERVICES ADMINISTRATIVE SPACE**

The balance of Harford County administrative space is used by functions that serve the residential base of the County. This includes the Health Department, Office of Aging, and administrative space for libraries for parks.

The top of Table 22 shows the capital facility level of service (LOS) for Harford County human services administrative facilities. LOS is calculated based on the County’s existing inventory of human services administrative space and the relationship to existing countywide population. Population is considered the demand driver for human services administrative space. The LOS for human services administrative space in Harford County is .64 square feet per person (see the LOS report in the Appendix for more detail, including the complete inventory of human services administrative facilities).

The middle of the table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 19,059 persons in Harford County as a result of BRAC growth at APG.

The bottom portion of the table shows the capital facility demand for Harford County human services administration facilities. Based on the existing LOS standard of .64 sq. ft. per person, this amount of growth will require 12,168 sq. ft. of additional human services administrative space (.64 sq. ft. per person multiplied by 19,059 persons = 12,168 sq. ft.).

**Table 22. Capital Facility Demand in Harford County: Human Services Administration**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory		154,944 Square Feet
Existing Demand Units	÷	242,700 Population
Existing Level of Service	=	0.64 SF per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>		19,059 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.64 SF per Person
Additional BRAC Demand Units	x	19,059 Population
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>12,168 Square Feet</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Harford County Parks

The top of Table 23 shows the capital facility level of service (LOS) for Harford County parks. LOS is calculated based on the County’s existing inventory of County-owned parkland and the relationship to existing countywide population. Population is the demand driver for parks. The LOS for County-owned parkland in Harford County is .0184 acres per person or 18.4 acres per 1,000 persons (see the LOS report in the Appendix for more detail, including the complete inventory of County-owned parkland).

The middle of the table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 19,059 persons in Harford County as a result of BRAC growth at APG.

The bottom portion of the table shows the capital facility demand for Harford County parks. Based on the existing LOS standard of .0184 acres per person, this amount of growth will require 351 additional park acres (.0184 acres per person multiplied by 19,059 persons = 351 acres).

**Table 23. Capital Facility Demand in Harford County: Parks**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		4,467 Acres
Existing Demand Units <sup>2</sup>	÷	242,700 Population
<hr/>		
Existing Level of Service	=	0.0184 Acres per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	19,059 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.0184 Acres per Person
Additional BRAC Demand Units	x	19,059 Population
<hr/>		
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>351 Acres</b>
<hr/>		

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing parkland.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Harford County Recreation Facilities

The top of Table 24 shows the capital facility level of service (LOS) for Harford County recreational facilities. LOS is calculated based on the County’s existing inventory of recreational facilities and the relationship to existing countywide population. Population is the demand driver for recreational facilities. The LOS for recreational facilities in Harford County is .92 sq. ft. per person (see the LOS report in the Appendix for more detail, including the complete inventory of recreational facilities).

The middle of the table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 19,059 persons in Harford County as a result of BRAC growth at APG.

The bottom portion of the table shows the capital facility demand for Harford County recreational facilities. Based on the existing LOS standard of .92 sq. ft. per person, this amount of growth will require 17,602 additional square feet (.92 sq. ft. per person multiplied by 19,059 persons = 17,602 sq. ft.).

**Table 24. Capital Facility Demand in Harford County: Recreation Facilities**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		224,152 Square Feet
Existing Demand Units <sup>2</sup>	÷	242,700 Population
Existing Level of Service	=	0.92 SF per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	19,059 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.92 SF per Person
Additional BRAC Demand Units	x	19,059 Population
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>17,602 Square Feet</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Harford County Public Schools

### OVERVIEW

With anticipated population growth in Harford County due to BRAC expansions at Aberdeen Proving Ground (APG), it is expected that the County's schools will experience increased enrollment. In its mid-case scenario, the Sage Policy Group's *Aberdeen Proving Ground BRAC Impacts on Seven Jurisdictions* study projects an additional 4,624 public school students in Harford County as a result of BRAC at APG. The mid-case scenario is being used based on direction from the Chesapeake Science and Security Corridor, which considers it the most reasonable assumption of new BRAC-related growth. This TischlerBise report examines the public capital facility gap resulting from BRAC, including Harford County schools.

This section first shows the expected enrollment increase from BRAC by school type (elementary, middle and high) given current enrollment by school type. This is shown in Table 25. The analysis shows that the County would need approximately 3 elementary schools and 1 ½ middle/high schools, without consideration of existing capacity. This BRAC impact on Harford County Public Schools is shown in Table 26.

Next, TischlerBise conducted a capacity analysis to consider to what extent the County may be able to accommodate these new students in existing schools. In this analysis, a number of factors were considered. The County will need additional school capacity to accommodate BRAC students. At the same time, the County is expected to experience population growth unrelated to BRAC. In the capacity analysis, TischlerBise projected the demand on Harford County's Public Schools given each school's current capacity, current enrollment and projected future enrollment growth (BRAC and non-BRAC related). The source for the BRAC-related growth projections is the Sage Policy Group study. The source for the non-BRAC related growth is the Round 7 demographic projections prepared by Harford County. The results of the capacity analysis (shown in Tables 29 and 30) indicate that the County will need approximately 4 elementary schools and 1 middle/high school. These figures vary from the BRAC impacts presented in Table 26 because they consider existing capacity and non-BRAC related growth.

### ESTIMATED HARFORD COUNTY BRAC STUDENTS

As mentioned above, Sage Policy Group's *Aberdeen Proving Ground BRAC Impacts on Seven Jurisdictions* study projects an additional 4,624 public school students in Harford County as a result of BRAC at APG in its mid-case scenario. The mid-case scenario assumes .66 public school students per household. This is an average of the County's students per household factor of .43 and Sage's estimate of .79 public school students per household. Sage's high-end figure is based on a number of assumptions regarding BRAC households reflecting a survey of families at Ft. Monmouth in New Jersey and Census data for Monmouth County. These assumptions are described in more detail on Page 75 of the Sage study. Harford County's .43 public school students per household accounts for all households, including households without children. Sage's mid-case assumption of .66 is used to estimate future BRAC students, while Harford

County’s .43 students per household is used to project future students from non-BRAC households (shown in Table 27).

Sage projected 7,059 new households in Harford County as a result of BRAC, generating 4,624 BRAC public school students in the mid-case scenario (based on .66 public school students per household). To estimate the breakdown by school type (elementary, middle/high, and other), TischlerBise examined Harford County Public School enrollment as of September 30, 2007 and applied the current percentage by school type to the total Sage mid-case projection of 4,624 students. As shown in Table 25, this resulted in 2,094 elementary students, 2,511 middle/high students and 19 other students. Middle and high schools are grouped together as the County plans that all future secondary schools will include grades 6-12.

**Table 25: Harford County Projected BRAC Students by School Type**

School Type	2007 Enrollment	% of Enrollment	Estimated BRAC Students
Elementary Schools	17,748	45.3%	2,094
Middle/High Schools	21,276	54.3%	2,511
Other	159	0.4%	19
<b>TOTAL</b>	<b>39,183</b>	<b>100%</b>	<b>4,624</b>

**DEMAND FOR SCHOOL FACILITIES DUE TO BRAC STUDENTS IN HARFORD COUNTY**

Using the estimated BRAC students shown in Table 25, future new schools as a result of BRAC are shown in Table 26. For the purposes of determining future capital facility needs, elementary and middle/high students are considered. Harford County Public Schools indicated that future elementary schools will be planned to a capacity of 750 students and future middle/high schools will have a capacity of 1,600 students. This results in approximately 3 new elementary schools (2,094 BRAC elementary students / 750 elementary school capacity = 2.79 elementary schools) and 1.57 new middle/high schools (2,511 BRAC middle/high students / 1,600 middle/high school capacity = 1.57 middle/high schools). Projections are not made for the “other” category, given its small number.

For each new school, the County will need to acquire approximately 20 acres of land for elementary and 75 acres for a middle/high school. This results in a need for an additional 56 acres for elementary (2.79 elementary school sites x 20 acres = 56 acres for elementary schools) and 188 acres for middle/high (1.57 middle/high school sites x 75 acres = 118 acres for elementary schools), for a total of 174 acres.

**Table 26: Harford County New School Demand Due to BRAC**

School Type	Estimated BRAC Students	New School Capacity	New Schools	Acres Needed
Elementary Schools	2,094	750	2.79	56
Middle/High Schools	2,511	1,600	1.57	118
Other	19	0	0.00	0
<b>TOTAL</b>	<b>4,624</b>			<b>174</b>

In Table 26, only BRAC demand is considered. Non-BRAC related growth is not considered, nor is the County’s current capacity to serve non-BRAC and/or BRAC growth. This is shown later in this section in the capacity analysis. To conduct the capacity analysis, we first consider the non-BRAC students that will also have an impact on future school construction.

**TOTAL GROWTH (NON-BRAC AND BRAC) IN HARFORD COUNTY**

In order to better understand the full picture of demand on the County’s school facilities, TischlerBise also considered growth that is unrelated to BRAC. As part of its Round 7 projections, Harford County Planning anticipated an increase of 17,104 households between 2005-2015. For purposes of this analysis, this was extrapolated to the 2007-2017 period (the period considered in the Sage study), totaling 14,633 households. This is discussed in more detail in Appendix D.

Sage projects 7,059 households as a result of BRAC during the 2007-2017 period. Harford County made its own estimates of BRAC growth in its Round 7 projections, though BRAC and non-BRAC growth are not distinguished in the final results. For purposes of this analysis, the Sage results are used to document BRAC-related growth, and the balance of the Round 7 projections (7,574 households) is considered as non-BRAC growth. To estimate new students from non-BRAC households, the Harford County public school student per household figure of .43 is used. This generates 3,257 new students in Harford County as a result of non-BRAC growth (7,574 non-BRAC households x .43 public school students per household = 3,257 students).

**Table 27: Harford County Non-BRAC and BRAC Students**

	New Households 2007-2017	Public School Students/Household	Projected Students
<b>BRAC</b>	7,059	0.66	4,624
<b>Non-BRAC</b>	7,574	0.43	3,257
<b>TOTAL</b>	<b>14,633</b>		<b>7,880</b>

As with BRAC growth, to estimate the breakdown by school type (elementary, middle/high, and other), TischlerBise examined current enrollment (September 30, 2007) and applied the current percentage by school type to the total non-BRAC student projection of 3,257. As shown in Table 28, this resulted in 1,475 non-BRAC elementary students, 1,768 middle/high students and 13 other students. Middle and high schools are grouped together as the County plans that all future secondary schools will include grades 6-12.

**Table 28: Harford County Projected Non-BRAC Students by School Type**

School Type	2007 Enrollment	% of Enrollment	Estimated Non-BRAC Students
Elementary Schools	17,748	45.3%	1,475
Middle/High Schools	21,276	54.3%	1,768
Other	159	0.4%	13
<b>TOTAL</b>	<b>39,183</b>	<b>100%</b>	<b>3,257</b>

For purposes of the capacity analysis, non-BRAC and BRAC student projections are distributed geographically based on the percentage allocation of growth to Traffic Analysis Zones (TAZ) in the County’s Round 7 demographic projections. Growth by TAZ was then aligned to school attendance boundaries. The methodology for this allocation is discussed in more detail in Appendix D. This allocation provides a picture of future growth and the resulting capacity surpluses/deficits by school attendance area.

**HARFORD COUNTY SCHOOL CAPACITY ANALYSIS (NON-BRAC AND BRAC GROWTH)**

To prepare the capacity analysis, TischlerBise used a “snapshot” approach examining current enrollment and capacity and comparing that with projected student growth. The breakdown of projected future students is based on the current breakdown of students by school type.

To conduct the analysis, TischlerBise first obtained capacity as of September 30, 2007 by school from Harford County Public Schools. This is compared with the County’s enrollment as of September 30, 2007 to show the existing surplus/deficit of student seats by school. This analysis is shown for elementary schools in Table 29. Next, new non-BRAC students (totals shown in Table 28) and BRAC students (shown in Table 25) are added by attendance zone to present a revised enrollment figure. Total BRAC and non-BRAC student vary slightly from the totals presented previously as “other” students are not considered in the capacity analysis. The

revised enrollment figure is then compared with today's existing capacity to reflect a revised seat surplus/deficit by school. For elementary schools, the County is projected to face a deficit of 2,801 student seats when considering existing capacity along with both non-BRAC and BRAC growth. As the County has in the past and expects in the future to adjust school attendance boundaries as needed, future capital facility needs for schools are considered on a countywide basis.

Harford County Public Schools plans to build new elementary schools at a capacity of 750 students. As shown at the bottom of Table 29, this results in a need for almost 4 additional elementary schools ( $2,801 \text{ school seat deficit} / 750 \text{ elementary school capacity} = 3.73 \text{ new elementary schools}$ ). For each new elementary school, the County will need to acquire approximately 20 acres of land. This results in a need for an additional 75 acres ( $3.73 \text{ school sites} \times 20 \text{ acres} = 75 \text{ acres for elementary schools}$ ).

**Table 29: Harford County Elementary School Capacity Analysis**

Elementary School	2007		existing seat surplus/deficit	new students		revised enrollment	revised seat surplus/deficit
	Capacity <sup>1</sup>	Enrollment <sup>1</sup>		nonbrac <sup>2</sup>	brac <sup>3</sup>		
Abingdon	821	754	67	50	71	874	-53
Bakerfield	455	445	10	108	153	706	-251
Bel Air	500	469	31	28	40	538	-38
Church Creek	789	713	76	108	154	975	-186
Churchville	388	359	29	49	70	478	-90
Darlington	192	130	62	16	23	169	23
Deerfield	555	540	15	40	57	638	-83
Dublin	295	226	69	15	21	262	33
Edgewood	511	385	126	6	8	399	112
Emmorton	549	666	-117	82	117	865	-316
Fountain Green	571	662	-91	15	21	698	-127
Forest Hill	581	576	5	28	40	644	-63
Forest Lakes	548	696	-148	33	46	775	-227
Hall's Cross Roads	632	402	230	27	39	468	164
Havre de Grace	574	359	215	65	93	517	57
Hickory	693	691	2	40	57	788	-95
George S Libby at Hillsdale	432	296	136	25	35	356	76
Homestead/Wakefield	907	894	13	51	72	1,017	-110
William S. James	476	480	-4	10	14	504	-28
Jarrettsville	520	440	80	22	32	494	26
Joppatowne	484	502	-18	35	50	587	-103
Magnolia	499	521	-22	25	35	581	-82
Meadowvale	568	529	39	121	172	823	-255
North Bend	513	399	114	44	62	505	8
North Harford	487	478	9	43	62	583	-96
Norrisville	252	206	46	13	19	238	14
William Paca Old Post	940	983	-43	140	198	1,321	-381
Prospect Mill	680	961	-281	50	71	1,083	-403
Ring Factory	549	527	22	24	34	586	-37
Riverside	522	531	-9	52	74	657	-135
Roye Williams	752	472	280	32	46	550	202
Youth's Benefit	890	1,065	-175	76	108	1,249	-359
<b>Total</b>	<b>18,125</b>	<b>17,357</b>	<b>768</b>	<b>1,475</b>	<b>2,094</b>	<b>20,926</b>	<b>-2,801</b>

96%

**Capacity Analysis Capital Facility Demand**

Additional Elementary Schools (750 student capacity) <sup>4</sup>	3.73
Additional Land (20 acres per school) <sup>4</sup>	75

<sup>1</sup>Source: School capacity and enrollment provided by Harford County Public Schools for September 30, 2007.

<sup>2</sup>Source: Derived from Harford County Round 7 Demographic Projections. Sage Policy Group household projections removed from total, leaving the remainder as non-BRAC households. Student projection based on .43 public school students per household. Allocation by school type based on current student enrollment.

<sup>3</sup>Source: Sage Policy Group mid-case public student projection, allocated geographically based on Round 7 distribution. Allocation by school type based on current student enrollment.

<sup>4</sup>Source: School prototype size (students per school) and acreage requirements provided by Harford County Public Schools.

This same analysis is conducted for middle/high schools. Middle and high schools are grouped together as the County plans that all future secondary schools will include grades 6-12.

As shown at the bottom of Table 30, this results in a need for approximately one additional middle/high school (1,411 school seat deficit / 1,600 middle/high school capacity = .88 new middle/high schools). For each new middle/high school, the County will need to acquire approximately 75 acres of land. This results in a need for an additional 66 acres (.88 school sites x 75 acres = 66 acres for middle/high schools).

**Table 30: Harford County Middle/High School Capacity Analysis**

School Type	2007		existing surplus/deficit	new students		revised enrollment	seat surplus/deficit
	Capacity	Enrollment		nonbrac	brac		
Aberdeen	1,709	1,095	614	164	232	1,491	218
Bel Air	1,318	1,244	74	75	106	1,425	-107
Edgewood	1,370	1,142	228	123	174	1,439	-69
Fallston	1,105	926	179	57	80	1,063	42
Havre de Grace	775	610	165	106	150	866	-91
Magnolia	1,073	872	201	54	77	1,003	70
North Harford	1,243	1,153	90	78	110	1,341	-98
Patterson Mill	733	736	-3	35	50	820	-87
Southampton	1,540	1,252	288	64	91	1,408	132
<b>High School<sup>5</sup></b>							
Aberdeen	1,370	1,573	-203	220	312	2,105	-735
Bel Air	1,423	1,398	25	101	143	1,641	-218
Edgewood	1,380	1,167	213	165	234	1,566	-186
Fallston	1,529	1,453	76	76	108	1,637	-108
Havre de Grace	850	770	80	142	202	1,114	-264
Joppatown	1,105	1,005	100	73	103	1,181	-76
North Harford	1,603	1,382	221	104	148	1,635	-32
Patterson Mill	1,030	438	592	47	67	551	479
C. Milton Wright	1,678	1,750	-72	86	123	1,959	-281
<b>Total</b>	<b>22,834</b>	<b>19,966</b>	<b>2,868</b>	<b>1,768</b>	<b>2,511</b>	<b>24,245</b>	<b>-1,411</b>

<sup>1</sup>Source: School capacity and enrollment provided by Harford County Public Schools for September 30, 2007.

<sup>2</sup>Source: Derived from Harford County Round 7 Demographic Projections. Sage Policy Group household projections removed from total, leaving the remainder as non-BRAC households. Student projection based on .43 public school students per household.

<sup>3</sup>Source: Sage Policy Group mid-case public student projection, allocated geographically based on Round 7 distribution. Allocation by school type based on current student enrollment.

<sup>4</sup>Source: School prototype size (students per school) and acreage requirements provided by Harford County Public Schools.

<sup>5</sup>Does not include Harford Tech, which has countywide attendance boundaries.

**Capacity Analysis Capital Facility Demand**

Additional Middle/High Schools (1600 student capacity)	0.88
Additional Land (75 acres per school)	66

## CONCLUSIONS

This portion of the report considered the capital facility demand on Harford County Public Schools as a result of BRAC expansion at Aberdeen Proving Ground. In its mid-case scenario, the Sage Policy Group's *Aberdeen Proving Ground BRAC Impacts on Seven Jurisdictions* study projects an additional 4,624 public school students in Harford County as a result of BRAC at APG. The report shows that if the County were to build new schools to serve BRAC students (without consideration of existing capacity), the County would need approximately 3 elementary schools and 1 ½ middle/high schools.

TischlerBise also considered to what extent the County may be able to accommodate these new students in existing schools. In the capacity analysis, TischlerBise projected the demand on Harford County's Public Schools given each school's current capacity, current enrollment and projected future enrollment growth (BRAC and non-BRAC related). The results of the capacity analysis indicate that the County will need approximately 4 elementary schools and 1 middle/high school to meet demand from BRAC and non-BRAC growth.

## Harford County Community College

The top of Table 31 shows the capital facility level of service (LOS) for Harford County Community College. LOS is calculated based on the County’s existing inventory of community college facilities and the relationship to existing countywide population. Population is the demand driver for community college facilities. The LOS for the Harford County Community College is 1.34 net assignable sq. ft. per person (see the LOS report in the Appendix for a description of net assignable square feet).

The middle of the table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 19,059 persons in Harford County as a result of BRAC growth at APG.

The bottom portion of the table shows the capital facility demand calculation for Harford County Community College. Based on the existing LOS standard of 1.34 net assignable sq. ft. per person, this amount of growth will require 25,591 additional net assignable square feet (1.34 net assignable sq. ft. per person multiplied by 19,059 persons = 25,591 net assignable sq. ft.).

**Table 31. Capital Facility Demand in Harford County: Community College**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		325,881 Net Assignable Square Feet
Existing Demand Units <sup>2</sup>	÷	242,700 Population
Existing Level of Service	=	1.34 SF per Demand Unit

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	19,059 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		1.34 SF per Demand Unit
Additional BRAC Demand Units	x	19,059 Population
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>25,591 Net Assignable Square Feet</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## BALTIMORE COUNTY SUMMARY OF PUBLIC CAPITAL FACILITY GAP

Per the Sage Policy Group study, Baltimore County is expected to receive 18% of projected employment growth from APG BRAC expansion (4,849 jobs) and 31% of the population growth (13,954 persons). Table 32 presents the projected public capital facility gap in Baltimore County as a result of APG BRAC growth (population and employment). The table shows that based on the County's existing LOS standards (see Appendix B), and projected BRAC-related growth in Baltimore County (see Chapter 2), growth at APG will have a measurable impact on public facilities in the County.

BRAC growth results in the need for an additional 51,643 square feet of building space in Baltimore County. Of this, the largest impacts are to Community College (18,934 square feet) and Administrative facilities (16,190 square feet). Administrative facilities include the County's administrative space for general government uses such as finance, planning, budgeting, etc. along with its program offices for the health department, aging, parks and recreation, etc. There will be BRAC demand on Fire and EMS facilities, however the demand could not be determined because volunteer fire data was not provided.

The Table also shows a demand for land acquisition resulting from BRAC growth. This totals 275 acres. Of this, the majority is for schools, 145.61 acres and parkland, 123.87 acres. The remainder is for expansion of the County's public facilities. The analysis for public facilities assumes a Floor Area Ratio of .25.

The analysis showed a need for 27 additional correctional beds as a result of BRAC growth. The number of school seats needed is 3,385, which was provided by Sage and projected in the analysis. The following section provides detailed calculations of the BRAC capital facility gap in Baltimore County by category.

**Table 32. Public Capital Facility Gap in Baltimore County by Category**

Public Facility Category	Building <i>Square Feet</i>	Land <i>Acres</i>	Detention <i>Beds</i>	Apparatus <i>Units</i>	Student <i>Seats</i>
Sheriff	118	0.01	n/a	n/a	n/a
Police	4,855	0.45	n/a	n/a	n/a
Fire and EMS <sup>1</sup>	n/a	0.00	n/a	2.23	n/a
Correctional <sup>2</sup>	n/a	0.67	27	n/a	n/a
Library	5,133	0.47	n/a	n/a	n/a
Judicial and Legal	3,920	0.36	n/a	n/a	n/a
Administrative	16,190	1.49	n/a	n/a	n/a
Parks	n/a	123.87	n/a	n/a	n/a
Recreation	2,494	0.00	n/a	n/a	n/a
Public Schools	n/a	145.61	n/a	n/a	3,385
Community College	18,934	1.74	n/a	n/a	n/a
<b>TOTAL</b>	<b>51,643</b>	<b>275</b>	<b>27</b>	<b>2.23</b>	<b>3,385</b>

1) Fire and EMS square footage was not provided for volunteer stations. An accurate standard of square footage per capita and job could not be calculated and is therefore unknown.

2) Acreage was unknown for the Baltimore County correctional facility. The Harford County correctional facility ratio of acre per bed (.0247) was used to estimate acreage needed due to BRAC growth.

n/a = not applicable

## GAP BY PUBLIC FACILITY CATEGORY – BALTIMORE COUNTY

This section presents the public capital facility gap in Baltimore County as a result of APG BRAC growth (population and employment) by facility category. All facilities impacted are examined on a countywide basis.

## Baltimore County Sheriff Facilities

The top of Table 33 shows the existing capital facility level of service (LOS) for Baltimore County’s sheriff facilities. LOS is calculated based on the County’s existing countywide population and employment. Population and employment are considered the demand drivers for sheriff space. The LOS for sheriff space in Baltimore County is .01 square feet per person and per job (see the LOS report in the Appendix for more detail, including the complete inventory of sheriff facilities).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 13,954 persons and 4,849 jobs in Baltimore County as a result of BRAC growth at APG, for a total of 18,803 persons and jobs.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Baltimore County sheriff facilities. Based on the existing LOS standard of .01 square feet per person and per job, this amount of growth will require 118 sq. ft. in additional sheriff space (.01 sq. ft. per person and job multiplied by 18,803 persons and jobs = 118 sq. ft.).

**Table 33. Capital Facility Demand in Baltimore County: Sheriff**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		8,238 Square Feet
Existing Demand Units <sup>2</sup>	÷	1,315,578 Population and Jobs
Existing Level of Service	=	0.01 SF per Demand Unit

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>		13,954 Population
Additional BRAC Jobs <sup>3</sup>	+	4,849 Jobs
Additional BRAC Demand Units	=	18,803 Population and Jobs

**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.01 SF per Demand Unit
Additional BRAC Demand Units	×	18,803 Population and Jobs
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>118 Square Feet</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Baltimore County Police Facilities

The top of Table 34 shows the existing capital facility level of service (LOS) for Baltimore County’s police facilities. LOS is calculated based on the County’s existing countywide population and employment. Population and employment are considered the demand drivers for police space. The LOS for police space in Baltimore County is .26 square feet per person and per job (see the LOS report in the Appendix for more detail, including the complete inventory of police facilities).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 13,954 persons and 4,849 jobs in Baltimore County as a result of BRAC growth at APG, for a total of 18,803 persons and jobs.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Baltimore County police facilities. Based on the existing LOS standard of .26 square feet per person and per job, this amount of growth will require 4,855 sq. ft. in additional police space (.26 sq. ft. per person and job multiplied by 18,803 persons and jobs = 4,855 sq. ft.).

**Table 34. Capital Facility Demand in Baltimore County: Police**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		339,664 Square Feet
Existing Demand Units <sup>2</sup>	÷	1,315,578 Population and Jobs
Existing Level of Service	=	0.26 SF per Demand Unit

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>		13,954 Population
Additional BRAC Jobs <sup>3</sup>	+	4,849 Jobs
Additional BRAC Demand Units	=	18,803 Population and Jobs

**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.26 SF per Demand Unit
Additional BRAC Demand Units	x	18,803 Population and Jobs
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>4,855 Square Feet</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Baltimore County Fire and EMS Facilities

A level of service (LOS) for Baltimore County Fire and EMS stations is not shown in top of Table 35 as volunteer station square footage was not provided. Absent this information on the volunteer fire stations, a level-of-service could not be calculated because the LOS would underestimate BRAC demand on Fire and EMS facilities. Both population and employment drives demand for fire and EMS facilities.

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 13,954 persons and 4,849 jobs in Baltimore County as a result of BRAC growth at APG, for a total of 18,803 persons and jobs.

**Table 35. Capital Facility Demand in Baltimore County: Fire and EMS**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		0 Square Feet
Existing Demand Units <sup>2</sup>	÷	1,315,578 Population and Jobs
Existing Level of Service	=	0.00 SF per Demand Unit

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>		13,954 Population
Additional BRAC Jobs <sup>3</sup>	+	4,849 Jobs
Additional BRAC Demand Units	=	18,803 Population and Jobs

**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.00 SF per Demand Unit
Additional BRAC Demand Units	×	18,803 Population and Jobs
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>0 Square Feet</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Baltimore County Fire and EMS Apparatus

The top of Table 36 shows the existing capital apparatus level of service (LOS) for Baltimore County’s career and volunteer fire and EMS apparatus. LOS is calculated based on the County’s existing countywide population and employment. Population and employment are considered the demand drivers for fire and EMS apparatus. The LOS for fire and EMS apparatus in Baltimore County is .0001 apparatus per person and per job (see the LOS report in the Appendix for more detail, including the complete inventory of fire and EMS apparatus).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 13,954 persons and 4,849 jobs in Baltimore County as a result of BRAC growth at APG, for a total of 18,803 persons and jobs.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Baltimore County fire and EMS apparatus. Based on the existing LOS standard of .0001 apparatus per person and per job, this amount of growth will require 2 additional units of fire and EMS apparatus (.0001 apparatus per person and job multiplied by 18,803 persons and jobs = 2.23 apparatus).

**Table 36. Apparatus Demand in Baltimore County: Fire and EMS**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		6 Tankers
		3 Ladder Truck
		13 Rescue Truck
		88 Engine
	+	46 Ambulance
Total	=	156 Apparatus
Existing Demand Units <sup>2</sup>	÷	1,315,578 Population and Jobs
Existing Level of Service	=	0.0001 Apparatus per Demand Unit

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>		13,954 Population
Additional BRAC Jobs <sup>3</sup>		4,849 Jobs
Additional BRAC Demand Units	=	18,803 Population and Jobs

**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.0001 Apparatus per Demand Unit
Additional BRAC Demand Units	x	18,803 Population and Jobs
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>2.23 Apparatus</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Baltimore County Correctional Facilities

The top of Table 37 shows the existing capital facility level of service (LOS) for Baltimore County correctional facilities. LOS is calculated based on the County’s existing inventory of correctional space and the relationship to existing countywide population. Population is considered the demand driver for correctional space. The LOS for correctional space in Baltimore County is .002 beds per person (see the LOS report in the Appendix for more detail, including the complete inventory of correctional facilities).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 13,954 persons in Baltimore County as a result of BRAC growth at APG.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Baltimore County correctional facilities. Based on the existing LOS standard of .002 beds per person, this amount of growth will require 27 additional correctional beds (.002 beds per person multiplied by 13,954 persons = 27 beds).

**Table 37. Capital Facility Demand in Baltimore County: Correctional**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		1,567 Beds
Existing Demand Units <sup>2</sup>	÷	802,300 Population
<hr/>		
Existing Level of Service	=	0.0020 Beds per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	13,954 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.0020 Beds per Person
Additional BRAC Demand Units	x	13,954 Population
<hr/>		
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>27 Beds</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Baltimore County Library Facilities

The top of Table 38 shows the existing capital facility level of service (LOS) for Baltimore County library facilities. LOS is calculated based on the County’s existing inventory of library space and the relationship to existing countywide population. Population is considered the demand driver for library space. The LOS for library space in Baltimore County is .37 square feet per person (see the LOS report in the Appendix for more detail, including the complete inventory of library facilities).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 13,954 persons in Baltimore County as a result of BRAC growth at APG.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Baltimore County library facilities. Based on the existing LOS standard of .37 square feet per person, this amount of growth will require 5,133 sq. ft. in additional library space (.37 sq. ft. per person multiplied by 13,954 persons = 5,133 sq. ft.).

**Table 38. Capital Facility Demand in Baltimore County: Library**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		295,100 Square Feet
Existing Demand Units <sup>2</sup>	÷	802,300 Population
Existing Level of Service	=	0.37 SF per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	13,954 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.3678 SF per Person
Additional BRAC Demand Units	x	13,954 Population
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>5,133 Square Feet</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Baltimore County Judicial and Legal Facilities

The top of Table 39 shows the existing capital facility level of service (LOS) for Baltimore County’s judicial facilities. LOS is calculated based on the County’s existing countywide population and employment. Population and employment are considered the demand drivers for judicial and legal space. The LOS for judicial and legal space in Baltimore County is .21 square feet per person and per job (see the LOS report in the Appendix for more detail, including the complete inventory of judicial facilities).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 13,954 persons and 4,849 jobs in Baltimore County as a result of BRAC growth at APG, for a total of 18,803 persons and jobs.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Baltimore County judicial and legal facilities. Based on the existing LOS standard of .21 square feet per person and per job, this amount of growth will require 3,920 sq. ft. in additional judicial space (.21 sq. ft. per person and job multiplied by 18,803 persons and jobs = 3,920 sq. ft.).

**Table 39. Capital Facility Demand in Baltimore County: Judicial and Legal**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		274,286 Square Feet
Existing Demand Units <sup>2</sup>	÷	1,315,578 Population and Jobs
Existing Level of Service	=	0.21 SF per Demand Unit

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>		13,954 Population
Additional BRAC Jobs <sup>3</sup>	+	4,849 Jobs
Additional BRAC Demand Units	=	18,803 Population and Jobs

**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.21 SF per Demand Unit
Additional BRAC Demand Units	x	18,803 Population and Jobs
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>3,920 Square Feet</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Baltimore County Administrative Facilities

Baltimore County's administrative facilities are used by a number of functions within County government, including general administration such as finance, county administration and planning and human service functions such as health, aging, and social services. Demand for general administration space is driven by both population and employment, while demand for human services is population-driven. As discussed in the LOS report in the Appendix, two level-of-service standards are established for each category of administrative space.

### GENERAL ADMINISTRATIVE FACILITIES

The top of Table 40 shows the existing capital facility level of service (LOS) for Baltimore County's general administrative facilities. LOS is calculated based on the County's existing countywide population and employment. Population and employment are considered the demand drivers for general administrative space. The LOS for general administrative space in Baltimore County is .34 square feet per person and per job (see the LOS report in the Appendix for more detail, including the complete inventory of general administrative facilities).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 13,954 persons and 4,849 jobs in Baltimore County as a result of BRAC growth at APG, for a total of 18,803 persons and jobs.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Baltimore County general administrative facilities. Based on the existing LOS standard of .34 square feet per person and per job, this amount of growth will require 6,361 sq. ft. in additional general administrative space (.34 sq. ft. per person and job multiplied by 18,803 persons and jobs = 6,361 sq. ft.). Including general administrative leased space in the level of service and gap analysis would generate a need for an additional 42 square feet of facility space due to BRAC.

**Table 40. Capital Facility Demand in Baltimore County: General Administration**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		453,772 Square Feet
Existing Demand Units <sup>2</sup>	÷	1,315,578 Population and Jobs
Existing Level of Service	=	0.34 SF per Demand Unit

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>		13,954 Population
Additional BRAC Jobs <sup>3</sup>	+	4,489 Jobs
Additional BRAC Demand Units	=	18,443 Population and Jobs

**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.34 SF per Demand Unit
Additional BRAC Demand Units	x	18,443 Population and Jobs
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>6,361 Square Feet</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

**HUMAN SERVICES ADMINISTRATIVE FACILITIES**

The balance of Baltimore County administrative space is used by functions that serve the residential base on the County. This includes the Health Department, Office of Aging, and administrative space for parks and recreation.

The top of Table 41 shows the existing capital facility level of service (LOS) for Baltimore County human services administrative facilities. LOS is calculated based on the County’s existing inventory of human services administrative space and the relationship to existing countywide population. Population is considered the demand driver for human services administrative space. The LOS for human services administrative space in Baltimore County is .70 square feet per person (see the LOS report in the Appendix for more detail, including the complete inventory of human services administrative facilities).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 13,954 persons in Baltimore County as a result of BRAC growth at APG.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Baltimore County human services administrative facilities. Based on the existing LOS standard of .70 square feet per person, this amount of growth will require 9,828 sq. ft. in additional

human services administrative space (.70 sq. ft. per person multiplied by 13,954 persons = 9,828 sq. ft.). Including human services administrative leased space in the level of service and gap analysis would generate a need for an additional 649 square feet of facility space due to BRAC.

**Table 41. Capital Facility Demand in Baltimore County: Human Services Administration**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		565,093 Square Feet
Existing Demand Units <sup>2</sup>	÷	802,300 Population
Existing Level of Service	=	0.70 SF per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>		13,954 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.7043 SF per Person
Additional BRAC Demand Units	x	13,954 Population
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>9,828 Square Feet</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Baltimore County Parks and Open Space

The top of Table 42 shows the existing capital facility level of service (LOS) for Baltimore County parks and open space parkland. LOS is calculated based on the County’s existing inventory of parks and open space acres and the relationship to existing countywide population. Population is considered the demand driver for parks and open space. The LOS for parks and open space in Baltimore County is .0089 acres per person (see the LOS report in the Appendix for more detail, including the complete inventory of parks and open space parkland).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 13,954 persons in Baltimore County as a result of BRAC growth at APG.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Baltimore County parks and open space parkland. Based on the existing LOS standard of .0089 acres per person, this amount of growth will require 124 acres in additional parks and open space acres (.0089 acres per person multiplied by 13,954 persons = 124 acres).

**Table 42. Capital Facility Demand in Baltimore County: Parks and Open Space**

**Existing Capital Facility Level of Service**

Existing Parkland Inventory <sup>1</sup>		7,122 Acres
Existing Demand Units <sup>2</sup>	÷	802,300 Population
<hr/>		
Existing Level of Service	=	0.0089 Acres per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	13,954 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.0089 Acres per Person
Additional BRAC Demand Units	x	13,954 Population
<hr/>		
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>124 Acres</b>
<hr/>		

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Baltimore County Recreation Facilities

The top of Table 43 shows the existing capital facility level of service (LOS) for Baltimore County recreation facilities. LOS is calculated based on the County’s existing inventory of recreation space and the relationship to existing countywide population. Population is considered the demand driver for recreation space. The LOS for recreation space in Baltimore County is .18 square feet per person (see the LOS report in the Appendix for more detail, including the complete inventory of recreational facilities).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 13,954 persons in Baltimore County as a result of BRAC growth at APG.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Baltimore County recreation facilities. Based on the existing LOS standard of .18 square feet per person, this amount of growth will require 2,494 sq. ft. in additional recreation space (.18 sq. ft. per person multiplied by 13,954 persons = 2,494 sq. ft.).

**Table 43. Capital Facility Demand in Baltimore County: Recreation**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		143,397 Square Feet
Existing Demand Units <sup>2</sup>	÷	802,300 Population
<hr/>		
Existing Level of Service	=	0.18 SF per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	13,954 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.1787 SF per Person
Additional BRAC Demand Units	x	13,954 Population
<hr/>		
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>2,494 Square Feet</b>
<hr/>		

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Baltimore County Schools

### OVERVIEW

With anticipated population growth in Baltimore County due to BRAC expansions at Aberdeen Proving Ground (APG), it is expected that the County's schools will experience increased enrollment. In its mid-case scenario, the Sage Policy Group's *Aberdeen Proving Ground BRAC Impacts on Seven Jurisdictions* study projects an additional 3,385 public school students in Baltimore County as a result of BRAC at APG.

This section first shows the expected enrollment increase from BRAC by school type (elementary, middle and high) given current enrollment by school type. This is shown in Table 44. The analysis shows that the County would need approximately three elementary schools, 0.7 middle schools, and 0.8 high schools, without consideration of existing capacity. This BRAC impact on Baltimore County Public Schools is shown in Table 45.

Next, TischlerBise conducted a capacity analysis to consider to what extent the County may be able to accommodate these new students in existing schools. In this analysis, a number of factors were considered. The County will need additional school capacity to accommodate BRAC students. At the same time, the County is expected to experience growth unrelated to BRAC. In the capacity analysis, TischlerBise projected the demand on Baltimore County's Public Schools given each school type's current capacity, current enrollment and projected future enrollment growth (BRAC and non-BRAC related). The source for the BRAC-related growth projections is the Sage Policy Group study. The source for the non-BRAC related growth is enrollment projections prepared by Baltimore County Public Schools. The results of the capacity analysis shown in Table 47 indicate that the County will need approximately five and a half elementary schools, no middle schools, and one and a half high school. These figures vary from the BRAC impacts presented in Table 45 because they consider existing capacity and non-BRAC related growth.

### ESTIMATED BALTIMORE COUNTY BRAC STUDENTS

As mentioned above, Sage Policy Group's *Aberdeen Proving Ground BRAC Impacts on Seven Jurisdictions* study projects an additional 3,385 public school students in Baltimore County as a result of BRAC at APG.

To estimate the breakdown by school type (elementary, middle/high, and other), TischlerBise examined Baltimore County Public School enrollment as of September 30, 2007 and applied the current percentage by school type to the total Sage projection of 3,385 students. As shown in Table 44, this resulted in 1,492 elementary school students, 784 middle school students, and 1,109 high school students.

**Table 44: Baltimore County Projected BRAC Students by School Type**

School Type	2007 Enrollment	% of Enrollment	Estimated BRAC Students
Elementary Schools	45,520	44.1%	1,492
Middle Schools	23,932	23.2%	784
High Schools	33,829	32.8%	1,109
<b>Total</b>	<b>103,281</b>	<b>100%</b>	<b>3,385</b>

**DEMAND FOR SCHOOL FACILITIES DUE TO BRAC STUDENTS IN BALTIMORE COUNTY**

Using the estimated BRAC students shown in Table 44, future new schools as a result of BRAC are shown in Table 45. Baltimore County Public Schools indicated that future elementary schools will be planned at an optimal capacity of 470 students, middle schools at 1,075 students, and high schools at an optimal capacity of 1,400 students. This results in approximately 3.17 new elementary schools (1,492 BRAC elementary students / 470 elementary school capacity = 3.17 elementary schools), 0.73 new middle schools (784 BRAC middle students / 1,075 middle school capacity = 0.73 middle schools), and 0.79 new high schools (1,109 BRAC high students / 1,400 high school capacity = 0.79 high schools).

For each new school, the County will need to acquire 20 acres of land for an elementary school, 42 acres for a middle school, and 65 acres for a high school. This results in a need for an additional 45.6 acres for elementary (3.17 elementary school sites x 20 acres = 45.6 acres for elementary schools), 15.9 acres for middle (0.73 elementary school sites x 42 acres = 15.9 acres for middle schools), and 33.3 acres for high (0.79 high school sites x 65 acres = 33.3 acres for high schools), for a total of 94.7 acres.

**Table 45: Baltimore County New School Facility Demand Due to BRAC**

School Type	Estimated BRAC Students	New School Capacity	New Schools	Acres Needed
Elementary Schools	1,492	470	3.17	45.6
Middle Schools	784	1075	0.73	15.9
High Schools	1,109	1,400	0.79	33.3
<b>Total</b>	<b>3,385</b>			<b>94.7</b>

In Table 45, only BRAC demand is considered. Non-BRAC related growth is not considered, nor is the County’s current capacity to serve non-BRAC and/or BRAC growth. This is shown later in this section in the capacity analysis. To conduct the capacity analysis, we first consider the non-BRAC students that will also have an impact on future school construction.

**TOTAL GROWTH (NON-BRAC AND BRAC) IN BALTIMORE COUNTY**

In order to better understand the full picture of demand on the County’s school facilities, TischlerBise also considered growth that is unrelated to BRAC. As part of its annual report to the Maryland Department of Education, Baltimore County Public Schools submitted nine year enrollment projections to the State. The projections were extrapolated out one additional year to 2017. As shown in Table 46, the projections anticipate an increase of 4,062 non-BRAC elementary students, 902 non-BRAC middle school students, and 595 non-BRAC high school students from 2007-2016, which is a net increase of 5,559 non-BRAC students.

**Table 46: Baltimore County Projected Non-BRAC and BRAC Students by School Type**

School Type	Projected Students		Total
	BRAC	Non-BRAC	
Elementary Schools	1,492	4,062	5,554
Middle Schools	784	902	1,686
High Schools	1,109	595	1,704
<b>Total</b>	<b>3,385</b>	<b>5,559</b>	<b>8,944</b>

The total impact of public school students, including BRAC and non-BRAC, will be 8,944 students, predominately in elementary schools.

**BALTIMORE COUNTY SCHOOL CAPACITY ANALYSIS (NON-BRAC AND BRAC GROWTH)**

To prepare the capacity analysis, TischlerBise used a “snapshot” approach examining current enrollment and capacity and comparing that with projected student growth. The breakdown of projected future students is based on the current breakdown of students by school type.

To conduct the analysis, TischlerBise first obtained capacity as of September 30, 2007 by school from Baltimore County Public Schools. This is compared with the County’s enrollment as of September 30, 2007 to show the existing surplus/deficit of student seats by school. The totals for each school type are shown in Table 44. Next, new non-BRAC students and BRAC students, shown in Table 46, are added by school type to present a revised enrollment figure. The revised enrollment figure is then compared with today’s existing capacity to reflect a revised seat surplus/deficit by school type. For elementary schools, the County is projected to face a deficit of 2,547 student seats when considering existing capacity along with both non-BRAC and BRAC growth. For middle school there is no deficit, rather a surplus. High schools will have a 1,977 student seat deficit. As the County has in the past and expects in the future to adjust school attendance boundaries as needed, future capital facility needs for schools are considered on a countywide basis.

Baltimore County Public Schools plans to build new elementary schools at a capacity of 470 students. As shown at the bottom of Table 47, this results in a need for more than five and a half elementary schools (2,547 school seat deficit / 470 elementary school capacity = 5.42 new elementary schools). For each new elementary school, the County will need to acquire

approximately 20 acres of land. This results in a need for an additional 108.38 acres (5.42 school sites x 20 acres = 108.38 acres for elementary schools).

Middle schools will be built at a capacity of 1,075 students. As shown at the bottom of Table 47, there is no need to construct middle schools because of surplus capacity. The acreage needed for a new middle school site is 42 acres.

Baltimore County Public Schools plans to build new high schools at a capacity of 1,400 students. As shown at the bottom of Table 47, this results in a need for one and a half additional high school (1,977 school seat deficit / 1,400 high school capacity = 1.41 new high schools). For each new high school, the County will need to acquire approximately 65 acres of land. This results in a need for an additional 91.78 acres (1.41 school sites x 65 acres = 91.78 acres for high schools).

**Table 47: Baltimore County School Capacity Analysis**

School Type	Capacity <sup>1</sup>	2007	Existing Surplus/Deficit	New Students		Revised Enrollment	Revised Seat Surplus/Deficit
		Enrollment <sup>1</sup>		Non-BRAC <sup>2</sup>	BRAC <sup>3</sup>		
Elementary Schools	48,527	45,520	3,007	4,062	1,492	51,074	-2,547
Middle Schools	29,030	23,932	5,098	902	784	25,618	3,412
High Schools	33,556	33,829	-273	595	1,109	35,533	-1,977

**Capacity Analysis Elementary School Facility Demand**

Additional Elementary Schools (470 student capacity) <sup>4</sup>	5.42
Additional Land (20 acres per school) <sup>5</sup>	108.38

**Capacity Analysis Middle School Facility Demand**

Additional Middle Schools (1,075 student capacity) <sup>4</sup>	0.00
Additional Land (42 acres per school) <sup>5</sup>	0.00

**Capacity Analysis High School Facility Demand**

Additional High School (1,400 student capacity) <sup>4</sup>	1.41
Additional Land (65 acres per school) <sup>5</sup>	91.78

<sup>1</sup> Source: School capacity and enrollment provided by Baltimore County Public Schools for September 30, 2007.

<sup>2</sup> Source: Derived from enrollment projections provided by Baltimore County Public Schools to Maryland.

<sup>3</sup> Source: Sage Policy Group mid-case public student projection.

<sup>4</sup> Source: Baltimore County Public Schools. Prototype student size derived from current enrollments by school type.

<sup>5</sup> Source: Prototypical acreage provided by Baltimore County Public Schools.

## CONCLUSIONS

This portion of the report considered the capital facility demand on Baltimore County Public Schools as a result of BRAC expansion at Aberdeen Proving Ground. In its mid-case scenario, the Sage Policy Group's *Aberdeen Proving Ground BRAC Impacts on Seven Jurisdictions* study projects an additional 3,385 public school students in Baltimore County as a result of BRAC at APG. The report shows that if the County were to build new schools to serve BRAC students (without consideration of existing capacity), the County would need approximately three elementary school, 0.7 middle schools, and 0.8 high schools.

TischlerBise also considered to what extent the County may be able to accommodate these new students in existing schools. In the capacity analysis, TischlerBise projected the demand on Baltimore County's Public Schools given each school's current capacity, current enrollment and projected future enrollment growth (BRAC and non-BRAC related). The results of the capacity analysis indicate that the County will need approximately five and a half elementary schools, no middle schools, and one and a half a high schools to meet demand from BRAC and non-BRAC growth.

## Baltimore County Community College

The top of Table 49 shows the existing capital facility level of service (LOS) for Baltimore County community college facilities. LOS is calculated based on the County’s existing inventory of community college space and the relationship to existing countywide population. Population is considered the demand driver for community college space. The LOS for community college space in Baltimore County is 1.36 net assignable square feet per person (see the LOS report in the Appendix for more detail, including the complete inventory of community college facilities).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 13,954 persons in Baltimore County as a result of BRAC growth at APG.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Baltimore County community college facilities. Based on the existing LOS standard of 1.36 net assignable square feet per person, this amount of growth will require 18,934 sq. ft. in additional community college space (1.36 sq. ft. per person multiplied by 13,954 persons = 18,934 sq. ft.).

**Table 49. Capital Facility Demand in Baltimore County: Community College**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		1,088,605 Net Assignable Square Feet
Existing Demand Units <sup>2</sup>	÷	802,300 Population
Existing Level of Service	=	1.36 SF per Demand Unit

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	13,954 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		1.36 SF per Demand Unit
Additional BRAC Demand Units	x	13,954 Population
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>18,934 Net Assignable Square Feet</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## CECIL COUNTY SUMMARY OF PUBLIC CAPITAL FACILITY GAP

Per the Sage Policy Group study, Cecil County is expected to receive 5% of projected employment growth from APG BRAC expansion (1,460 jobs) and 12% of the population growth (5,357 persons). Table 50 presents the projected public capital facility gap in Cecil County as a result of APG BRAC growth (population and employment). The table shows that based on the County's existing LOS standards (see Appendix B), and projected BRAC-related growth in Cecil County (see Chapter 2), growth at APG will have an impact on public facilities in the County.

BRAC growth results in the need for an additional 27,315 square feet of building space in Cecil County. Of this, the largest impacts are to Community College (8,190 square feet) and Fire and EMS facilities (6,978 square feet). Administrative facilities include the County's administrative space for general government uses such as finance, planning, budgeting, etc. along with its program offices for the housing and community development, senior services, parks and recreation, etc. Administrative facilities will also require additional space, however the impact is not as significant as for the community college and Fire and EMS facilities.

The table also shows a demand for land acquisition resulting from BRAC growth. This totals 64 acres. Of this, the majority is for schools, 37.92 acres and parkland, 22.81 acres. The remainder is for expansion of the County's public facilities. The analysis for public facilities assumes a Floor Area Ratio of .25.

The analysis showed a need for 11 additional correctional beds as a result of BRAC growth. The number of school seats needed is 1,300, which was provided by Sage and projected in the analysis. The following section provides detailed calculations of the BRAC capital facility gap in Cecil County by category.

**Table 50. Public Capital Facility Gap in Cecil County by Category**

Public Facility Category	Building <i>Square Feet</i>	Land <i>Acres</i>	Detention <i>Beds</i>	Apparatus <i>Units</i>	Student <i>Seats</i>
Sheriff	812	0.07	n/a	n/a	n/a
Fire and EMS	6,978	0.64	n/a	3.07	n/a
Correctional	n/a	0.55	11	n/a	n/a
Library	3,166	0.29	n/a	n/a	n/a
Judicial and Legal	3,877	0.36	n/a	n/a	n/a
Administrative	4,292	0.39	n/a	n/a	n/a
Parks	n/a	22.81	n/a	n/a	n/a
Recreation	0	0	n/a	n/a	n/a
Public Schools	n/a	37.92	n/a	n/a	1,300
Community College	8,190	0.75	n/a	n/a	n/a
<b>TOTAL</b>	<b>27,315</b>	<b>64</b>	<b>11</b>	<b>3.07</b>	<b>1,300</b>

n/a = not applicable

## DEMAND BY PUBLIC FACILITY CATEGORY - CECIL COUNTY

This section presents the public capital facility gap in Cecil County as a result of APG BRAC growth (population and employment) by facility category. All facilities impacted are examined on a countywide basis.

## Cecil County Sheriff Facilities

The top of Table 51 shows the existing capital facility level of service (LOS) for Cecil County’s sheriff facilities. LOS is calculated based on the County’s existing countywide population and employment. Population and employment are considered the demand drivers for sheriff space. The LOS for sheriff space in Cecil County is .12 square feet per person and per job (see the LOS report in the Appendix for more detail, including the complete inventory of sheriff facilities).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 5,357 persons and 1,460 jobs in Cecil County as a result of BRAC growth at APG, for a total of 6,817 persons and jobs.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Cecil County sheriff facilities. Based on the existing LOS standard of .12 square feet per person and per job, this amount of growth will require 812 sq. ft. in additional sheriff space (.12 sq. ft. per person and job multiplied by 6,817 persons and jobs = 812 sq. ft.).

**Table 51. Capital Facility Demand in Cecil County: Sheriff**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		16,895 Square Feet
Existing Demand Units <sup>2</sup>	÷	141,915 Population and Jobs
Existing Level of Service	=	0.12 SF per Demand Unit

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>		5,357 Population
Additional BRAC Jobs <sup>3</sup>	+	1,460 Jobs
Additional BRAC Demand Units	=	6,817 Population and Jobs

**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.12 SF per Demand Unit
Additional BRAC Demand Units	×	6,817 Population and Jobs
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>812 Square Feet</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Cecil County Fire and EMS Facilities

The top of Table 52 shows the existing capital facility level of service (LOS) for Cecil County’s sheriff facilities. LOS is calculated based on the County’s existing countywide population and employment. Population and employment are considered the demand drivers for fire/EMS space. The LOS for fire/EMS space in Cecil County is 1.02 square feet per person and per job (see the LOS report in the Appendix for more detail, including the complete inventory of fire and EMS facilities).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 5,357 persons and 1,460 jobs in Cecil County as a result of BRAC growth at APG, for a total of 6,817 persons and jobs.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Cecil County fire and EMS facilities. Based on the existing LOS standard of 1.02 square feet per person and per job, this amount of growth will require 6,978 sq. ft. in additional fire and EMS space (1.02 sq. ft. per person and job multiplied by 6,817 persons and jobs = 6,978 sq. ft.).

**Table 52. Capital Facility Demand in Cecil County: Fire and EMS**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		145,265 Square Feet
Existing Demand Units <sup>2</sup>	÷	141,915 Population and Jobs
Existing Level of Service	=	1.02 SF per Demand Unit

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>		5,357 Population
Additional BRAC Jobs <sup>3</sup>	+	1,460 Jobs
Additional BRAC Demand Units	=	6,817 Population and Jobs

**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		1.02 SF per Demand Unit
Additional BRAC Demand Units	x	6,817 Population and Jobs
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>6,978 Square Feet</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Cecil County Fire and EMS Apparatus

The top of Table 53 shows the existing capital apparatus level of service (LOS) for Cecil County's fire and EMS apparatus. LOS is calculated based on the County's existing countywide population and employment. Population and employment are considered the demand drivers for fire and EMS apparatus. The LOS for Fire/EMS apparatus in Cecil County is .0005 apparatus per person and per job (see the LOS report in the Appendix for more detail, including the complete inventory of fire and EMS apparatus).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 5,357 persons and 1,460 jobs in Cecil County as a result of BRAC growth at APG, for a total of 6,817 persons and jobs.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Cecil County fire and EMS apparatus. Based on the existing LOS standard of .0005 apparatus per person and per job, this amount of growth will require 3 additional fire and EMS apparatus (.0005 apparatus per person and job multiplied by 6,817 persons and jobs = 3.07 apparatus).

**Table 53. Apparatus Demand in Cecil County: Fire and EMS**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		0 Pumper 5 Ladder Truck 3 Rescue Truck 36 Engine 20 Ambulance
	+	
Total	=	64 Apparatus
Existing Demand Units <sup>2</sup>	÷	141,915 Population and Jobs
Existing Level of Service	=	0.0005 Apparatus per Demand Unit

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>		5,357 Population
Additional BRAC Jobs <sup>3</sup>		1,460 Jobs
Additional BRAC Demand Units	=	6,817 Population and Jobs

**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.0005 Apparatus per Demand Unit
Additional BRAC Demand Units	x	6,817 Population and Jobs
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>3.07 Apparatus</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Cecil County Correctional Facilities

The top of Table 54 shows the existing capital facility level of service (LOS) for Cecil County correctional facilities. LOS is calculated based on the County’s existing inventory of correctional space and the relationship to existing countywide population. Population is considered the demand driver for correctional space. The LOS for correctional space in Cecil County is .002 beds per person (see the LOS report in the Appendix for more detail, including the complete inventory of correctional facilities).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 5,357 persons in Cecil County as a result of BRAC growth at APG.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Cecil County correctional facilities. Based on the existing LOS standard of .002 beds per person, this amount of growth will require 11 additional correctional beds (.002 beds per person multiplied by 5,357 persons = 11 beds).

**Table 54. Capital Facility Demand in Cecil County: Correctional**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		204 Beds
Existing Demand Units <sup>2</sup>	÷	102,000 Population
<hr/>		
Existing Level of Service	=	0.0020 Beds per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	5,357 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.0020 Beds per Person
Additional BRAC Demand Units	x	5,357 Population
<hr/>		
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>11 Beds</b>
<hr/>		

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Cecil County Library Facilities

The top of Table 55 shows the existing capital facility level of service (LOS) for Cecil County library facilities. LOS is calculated based on the County’s existing inventory of library space and the relationship to existing countywide population. Population is considered the demand driver for library space. The LOS for library space in Cecil County is .59 square feet per person (see the LOS report in the Appendix for more detail, including the complete inventory of library facilities).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 5,357 persons in Cecil County as a result of BRAC growth at APG.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Cecil County library facilities. Based on the existing LOS standard of .59 square feet per person, this amount of growth will require 3,166 sq. ft. in additional library space (.59 sq. ft. per person multiplied by 5,347 persons = 3,166 sq. ft.).

**Table 55. Capital Facility Demand in Cecil County: Library**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		60,291 Square Feet
Existing Demand Units <sup>2</sup>	÷	102,000 Population
<hr/>		
Existing Level of Service	=	0.59 SF per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	5,357 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.5911 SF per Person
Additional BRAC Demand Units	x	5,357 Population
<hr/>		
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>3,166 Square Feet</b>
<hr/>		

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Cecil County Judicial and Legal Facilities

The top of Table 56 shows the existing capital facility level of service (LOS) for Cecil County’s judicial facilities. LOS is calculated based on the County’s existing countywide population and employment. Population and employment are considered the demand drivers for judicial and legal space. The LOS for judicial and legal in Cecil County is .57 square feet per person and per job (see the LOS report in the Appendix for more detail, including the complete inventory of judicial and legal facilities).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 5,357 persons and 1,460 jobs in Cecil County as a result of BRAC growth at APG, for a total of 6,817 persons and jobs.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Cecil County judicial and legal facilities. Based on the existing LOS standard of .57 square feet per person and per job, this amount of growth will require 3,877 sq. ft. in additional judicial space (.57 sq. ft. per person and job multiplied by 6,817 persons and jobs = 3,877 sq. ft.).

**Table 56. Capital Facility Demand in Cecil County: Judicial and Legal**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		80,720 Square Feet
Existing Demand Units <sup>2</sup>	÷	141,915 Population and Jobs
Existing Level of Service	=	0.57 SF per Demand Unit

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>		5,357 Population
Additional BRAC Jobs <sup>3</sup>	+	1,460 Jobs
Additional BRAC Demand Units	=	6,817 Population and Jobs

**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.57 SF per Demand Unit
Additional BRAC Demand Units	x	6,817 Population and Jobs
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>3,877 Square Feet</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Cecil County Administrative Facilities

Cecil County's administrative facilities are used by a number of functions within County government, including general administration such as finance, county administration and planning and human service functions such as housing and community development, senior services, and social services. Demand for general administration space is driven by both population and employment, while demand for human services is population-driven. As discussed in the LOS report in the Appendix, two level-of-service standards are established for each category of administrative space.

### GENERAL ADMINISTRATIVE FACILITIES

The top of Table 57 shows the existing capital facility level of service (LOS) for Cecil County's general administrative facilities. LOS is calculated based on the County's existing countywide population and employment. Population and employment are considered the demand drivers for general administrative space. The LOS for general administrative space in Cecil County is .44 square feet per person and per job (see the LOS report in the Appendix for more detail, including the complete inventory of general administrative facilities).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 5,357 persons and 1,460 jobs in Cecil County as a result of BRAC growth at APG, for a total of 6,817 persons and jobs.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Cecil County general administrative facilities. Based on the existing LOS standard of .44 square feet per person and per job, this amount of growth will require 3,013 sq. ft. in additional general administrative space (.44 sq. ft. per person and job multiplied by 6,817 persons and jobs = 3,013 sq. ft.).

**Table 57. Capital Facility Demand in Cecil County: General Administration**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		62,733 Square Feet
Existing Demand Units <sup>2</sup>	÷	141,915 Population and Jobs
Existing Level of Service	=	0.44 SF per Demand Unit

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>		5,357 Population
Additional BRAC Jobs <sup>3</sup>	+	1,460 Jobs
Additional BRAC Demand Units	=	6,817 Population and Jobs

**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.44 SF per Demand Unit
Additional BRAC Demand Units	x	6,817 Population and Jobs
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>3,013 Square Feet</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

**HUMAN SERVICES ADMINISTRATIVE FACILITIES**

A list of human service departments was provided for the main county building. This balance along with other Cecil County administrative space is used by functions that serve the residential base on the County. This includes the Housing and Community Development, Senior Services, and administrative space for parks and recreation.

The top of Table 58 shows the existing capital facility level of service (LOS) for Cecil County human services administrative facilities. LOS is calculated based on the County’s existing inventory of human services administrative space and the relationship to existing countywide population. Population is considered the demand driver for human services administrative space. The LOS for human services administrative space in Cecil County is .24 square feet per person (see the LOS report in the Appendix for more detail, including the complete inventory of human services administrative facilities).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 5,357 persons in Cecil County as a result of BRAC growth at APG.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Cecil County human services administrative facilities. Based on the existing LOS standard of .24

square feet per person, this amount of growth will require 1,278 sq. ft. in additional human services administrative space (.24 sq. ft. per person multiplied by 5,357 persons = 1,278 sq. ft.).

**Table 58. Capital Facility Demand in Cecil County: Human Services Administration**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		24,342 Square Feet
Existing Demand Units <sup>2</sup>	÷	102,000 Population
Existing Level of Service	=	0.24 SF per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>		5,357 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.2386 SF per Person
Additional BRAC Demand Units	x	5,357 Population
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>1,278 Square Feet</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Cecil County Parks and Open Space

The top of Table 59 shows the existing capital facility level of service (LOS) for Cecil County parks and open space parkland. LOS is calculated based on the County’s existing inventory of parks and open space acres and the relationship to existing countywide population. Population is considered the demand driver for parks and open space. The LOS for parks and open space in Cecil County is .0043 acres per person (see the LOS report in the Appendix for more detail, including the complete inventory of parks and open space parkland).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 5,357 persons in Cecil County as a result of BRAC growth at APG.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Cecil County parks and open space parkland. Based on the existing LOS standard of .0043 acres per person, this amount of growth will require 23 acres in additional parks and open space acres (.0043 acres per person multiplied by 5,357 persons = 23 acres).

**Table 59. Capital Facility Demand in Cecil County: Parks and Open Space**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		434 Acres
Existing Demand Units <sup>2</sup>	÷	102,000 Population
<hr/>		
Existing Level of Service	=	0.0043 Acres per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	5,357 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.0043 Acres per Person
Additional BRAC Demand Units	x	5,357 Population
<hr/>		
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>23 Acres</b>
<hr/>		

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Cecil County Recreation Facilities

The Cecil County Department of Parks and Recreation indicated that the County does not own any recreational facilities.

## Cecil County Schools

### OVERVIEW

With anticipated population growth in Cecil County due to BRAC expansions at Aberdeen Proving Ground (APG), it is expected that the County's schools will experience increased enrollment. In its mid-case scenario, the Sage Policy Group's *Aberdeen Proving Ground BRAC Impacts on Seven Jurisdictions* study projects an additional 1,300 public school students in Cecil County as a result of BRAC at APG.

This section first shows the expected enrollment increase from BRAC by school type (elementary, middle and high) given current enrollment by school type. This is shown in Table 60. The analysis shows that the County would need approximately one elementary school and less than a half of a school for middle and high school, without consideration of existing capacity. This BRAC impact on Cecil County Public Schools is shown in Table 61.

Next, TischlerBise conducted a capacity analysis to consider to what extent the County may be able to accommodate these new students in existing schools. In this analysis, a number of factors were considered. The County will need additional school capacity to accommodate BRAC students. At the same time, the County is expected to experience growth unrelated to BRAC. In the capacity analysis, TischlerBise projected the demand on Cecil County's Public Schools given each school type's current capacity, current enrollment and projected future enrollment growth (BRAC and non-BRAC related). The source for the BRAC-related growth projections is the Sage Policy Group study. The source for the non-BRAC related growth is enrollment projections prepared by Cecil County Public Schools. The results of the capacity analysis shown in Table 63 indicate that the County will need approximately one and a half elementary schools, no middle schools, and half a high school. These figures vary from the BRAC impacts presented in Table 61 because they consider existing capacity and non-BRAC related growth.

### ESTIMATED CECIL COUNTY BRAC STUDENTS

As mentioned above, Sage Policy Group's *Aberdeen Proving Ground BRAC Impacts on Seven Jurisdictions* study projects an additional 1,300 public school students in Cecil County as a result of BRAC at APG.

To estimate the breakdown by school type (elementary, middle/high, and other), TischlerBise examined Cecil County Public School enrollment as of September 30, 2007 and applied the current percentage by school type to the total Sage projection of 1,300 students. As shown in Table 60, this resulted in 574 elementary school students, 316 middle school students, and 410

high school students.

**Table 60: Cecil County Projected BRAC Students by School Type**

School Type	2007 Enrollment	% of Enrollment	Estimated BRAC Students
Elementary Schools	7,147	44.2%	574
Middle Schools	3,926	24.3%	316
High Schools	5,100	31.5%	410
<b>Total</b>	<b>16,173</b>	<b>100%</b>	<b>1,300</b>

**DEMAND FOR SCHOOL FACILITIES DUE TO BRAC STUDENTS IN CECIL COUNTY**

Using the estimated BRAC students shown in Table 60, future new schools as a result of BRAC are shown in Table 61. Cecil County Public Schools indicated that future elementary schools will be planned at an optimal capacity of 600 students, middle schools at 700 students, and high schools at an optimal capacity of 1,200 students. This results in approximately 0.96 new elementary schools (574 BRAC elementary students / 600 elementary school capacity = 0.96 elementary schools), 0.45 new middle schools (316 BRAC middle students / 700 middle school capacity = 0.45 middle schools), and 0.34 new high schools (410 BRAC high students / 1,200 high school capacity = 0.34 high schools).

For each new school, the County will need to acquire 14.35 acres of land for an elementary school, 21.8 acres for a middle school, and 42 acres for a high school. The acreage also assumes the land on the site is 100% useable. This results in a need for an additional 13.7 acres for elementary (0.96 elementary school sites x 14.35 acres = 13.7 acres for elementary schools), 9.8 acres for middle (0.45 elementary school sites x 21.8 acres = 9.8 acres for middle schools), and 14.3 acres for high (0.34 high school sites x 42 acres = 14.3 acres for high schools), for a total of 37.9 acres.

**Table 61: Cecil County New School Facility Demand Due to BRAC**

School Type	Estimated BRAC Students	New School Capacity	New Schools	Acres <sup>1</sup> Needed
Elementary Schools	574	600	0.96	13.7
Middle Schools	316	700	0.45	9.8
High Schools	410	1,200	0.34	14.3
<b>Total</b>	<b>1,300</b>			<b>37.9</b>

1) Acres per school type assume land site is 100% useable

In Table 61, only BRAC demand is considered. Non-BRAC related growth is not considered, nor is the County’s current capacity to serve non-BRAC and/or BRAC growth. This is shown later in this section in the capacity analysis. To conduct the capacity analysis, we first consider the non-BRAC students that will also have an impact on future school construction.

**TOTAL GROWTH (NON-BRAC AND BRAC) IN CECIL COUNTY**

In order to better understand the full picture of demand on the County’s school facilities, TischlerBise also considered growth that is unrelated to BRAC. As part of its annual report to the Maryland Department of Education, Cecil County Public Schools submitted nine year enrollment projections to the State. The projections were extrapolated out one additional year to 2017. The projections anticipate an increase of 1,357 non-BRAC elementary students, 133 non-BRAC middle school students, and a decrease of 330 non-BRAC high school students from 2007-2016, which is a net increase of 1,160 non-BRAC students.

**Table 62: Cecil County Projected Non-BRAC and BRAC Students by School Type**

School Type	Projected Students		Total
	BRAC	Non-BRAC	
Elementary Schools	574	1,357	1,931
Middle Schools	316	133	449
High Schools	410	-330	80
<b>Total</b>	<b>1,300</b>	<b>1,160</b>	<b>2,460</b>

The total impact of public school students, including BRAC and non-BRAC, will be 2,460 students, predominately in elementary schools.

**CECIL COUNTY SCHOOL CAPACITY ANALYSIS (NON-BRAC AND BRAC GROWTH)**

To prepare the capacity analysis, TischlerBise used a “snapshot” approach examining current enrollment and capacity and comparing that with projected student growth. The breakdown of projected future students is based on the current breakdown of students by school type.

To conduct the analysis, TischlerBise first obtained capacity as of September 30, 2007 by school from Cecil County Public Schools. This is compared with the County’s enrollment as of September 30, 2007 to show the existing surplus/deficit of student seats by school. The totals for each school type are shown in Table 60. Next, new non-BRAC students and BRAC students, shown in Table 62, are added by school type to present a revised enrollment figure. The revised enrollment figure is then compared with today’s existing capacity to reflect a revised seat surplus/deficit by school type. For elementary schools, the County is projected to face a deficit of 844 student seats when considering existing capacity along with both non-BRAC and BRAC growth. For middle school the deficit will be 69 student seats and a 737 student seat deficit for high schools. As the County has in the past and expects in the future to adjust school attendance boundaries as needed, future capital facility needs for schools are considered on a countywide basis.

Cecil County Public Schools plans to build new elementary schools at an optimal capacity of

600 students. As shown at the bottom of Table 63, this results in a need for more than one additional elementary school (844 school seat deficit / 600 elementary school capacity = 1.41 new elementary schools). For each new elementary school, the County will need to acquire approximately 14.35 acres of land. This results in a need for an additional 20.20 acres (1.41 school sites x 14.35 acres = 20.20 acres for elementary schools).

Middle schools will be built at an optimal capacity of 700 students. As shown at the bottom of Table 63, this results in a marginal need for a middle school (69 school seat deficit / 700 middle school capacity = 0.10 new middle schools). The middle school needs are so small that additions to existing schools could be considered. The acreage needed for a new middle school site is 21.8. This analysis results in a need for an additional 2.14 acres (0.10 school sites x 21.8 acres = 2.14 acres for middle schools).

Cecil County Public Schools plans to build new high schools at an optimal capacity of 1,200 students. As shown at the bottom of Table 63, this results in a need for more a little more than half an additional high school (737 school seat deficit / 1,200 elementary school capacity = 0.61 new high schools). For each new high school, the County will need to acquire approximately 42 acres of land. This results in a need for an additional 25.79 acres (0.61 school sites x 42 acres = 25.79 acres for high schools).

**Table 63: Cecil County School Capacity Analysis**

School Type	Capacity <sup>1</sup>	2007	Existing	New Students		Revised	Revised Seat
		Enrollment <sup>1</sup>	Surplus/Deficit	Non-BRAC <sup>2</sup>	BRAC <sup>3</sup>	Enrollment	Surplus/Deficit
Elementary Schools	8,234	7,147	1,087	1,357	574	9,078	-844
Middle Schools	4,306	3,926	380	133	316	4,375	-69
High Schools	4,443	5,100	-657	-330	410	5,180	-737

**Capacity Analysis Elementary School Facility Demand**

Additional Elementary Schools (600 student capacity) <sup>4</sup>	1.41
Additional Land (14.35 acres per school) <sup>5</sup>	20.20

**Capacity Analysis Middle School Facility Demand**

Additional Middle Schools (700 student capacity) <sup>4</sup>	0.10
Additional Land (21.80 acres per school) <sup>5</sup>	2.14

**Capacity Analysis High School Facility Demand**

Additional High School (1,200 student capacity) <sup>4</sup>	0.61
Additional Land (42.00 acres per school) <sup>5</sup>	25.79

<sup>1</sup> Source: School capacity and enrollment provided by Cecil County Public Schools for September 30, 2007.

<sup>2</sup> Source: Derived from enrollment projections provided by Cecil County Public Schools to Maryland.

<sup>3</sup> Source: Sage Policy Group mid-case public student projection.

<sup>4</sup> Source: School prototype student size provided by Cecil County Public School.

<sup>5</sup> Source: Cecil County Public Schools. Prototype acreage of existing school lots by type, and assumes land is 100% useable.

## CONCLUSIONS

This portion of the report considered the capital facility demand on Cecil County Public Schools as a result of BRAC expansion at Aberdeen Proving Ground. In its mid-case scenario, the Sage Policy Group's *Aberdeen Proving Ground BRAC Impacts on Seven Jurisdictions* study projects an additional 1,300 public school students in Cecil County as a result of BRAC at APG. The report shows that if the County were to build new schools to serve BRAC students (without consideration of existing capacity), the County would need approximately one elementary school and less than a half of a school for middle and high schools.

TischlerBise also considered to what extent the County may be able to accommodate these new students in existing schools. In the capacity analysis, TischlerBise projected the demand on Cecil County's Public Schools given each school's current capacity, current enrollment and projected future enrollment growth (BRAC and non-BRAC related). The results of the capacity analysis indicate that the County will need approximately one and a half elementary schools, no middle schools, and half a high school to meet demand from BRAC and non-BRAC growth.

## Cecil County Community College

The top of Table 64 shows the existing capital facility level of service (LOS) for Cecil County community college facilities. LOS is calculated based on the County’s existing inventory of community college space and the relationship to existing countywide population. Population is considered the demand driver for community college space. The LOS for community college space in Cecil County is 1.53 net assignable square feet per person (see the LOS report in the Appendix for more detail, including the complete inventory of community college facilities).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 5,357 persons in Cecil County as a result of BRAC growth at APG.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Cecil County community college facilities. Based on the existing LOS standard of 1.53 net assignable square feet per person, this amount of growth will require 8,190 sq. ft. in additional community college space (1.53 sq. ft. per person multiplied by 5,357 persons = 8,190 sq. ft.).

**Table 64. Capital Facility Demand in Cecil County: Community College**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		155,937 Net Assignable Square Feet
Existing Demand Units <sup>2</sup>	÷	102,000 Population
Existing Level of Service	=	1.53 SF per Demand Unit

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	5,357 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		1.53 SF per Demand Unit
Additional BRAC Demand Units	x	5,357 Population
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>8,190 Net Assignable Square Feet</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## BALTIMORE CITY SUMMARY OF CAPITAL FACILITY DEMAND

Discussions with Baltimore City staff indicated that three facility categories will need increased capacity in the NE portion of Baltimore, an area where Aberdeen BRAC growth in the City is expected. For Baltimore City, the three facility categories considered are: libraries, recreation and schools.

Table 65 presents the public capital facility gap in Baltimore City for select capital facility categories as a result of APG BRAC growth (population). The table shows that based on the City's existing LOS standards (see Appendix B), and projected BRAC-related growth in the City (see Chapter 2), growth at APG will have an impact on these categories of public facilities.

BRAC growth results in the need for an additional 2,081 square feet of library space and 2,172 for recreation. The City projects that it will also need to acquire parcels for these expansions, so a land acquisition component is included as well for all facilities considered. The analysis for public facilities assumes that additional land will need to be acquired for library and recreation based on a Floor Area Ratio of .25.

Aberdeen BRAC growth is also expected to impact schools in northeast Baltimore. In its FY2008-2013 CIP, the City plans to expand its Garrett-Heights Elementary/Middle School in anticipation of BRAC growth in that area. In its mid-case scenario, the Sage Policy Group's *Aberdeen Proving Ground BRAC Impacts on Seven Jurisdictions* study projects an additional 575 public school students in Baltimore City as a result of BRAC at APG. Of these, 285 are expected to be elementary and 125 middle school students. These students would be expected to be accommodated through the expansion of the Garrett-Heights Elementary/Middle School. The Maryland Governor's Subcabinet on BRAC indicates in its FY08 BRAC Budget that it will provide funding to the City to expand two high schools: Dunbar High School and Carver Vocational Technical High School. New high school students as a result of Aberdeen BRAC would be expected to be served by these expansions. Shown in Table 65 are the total student seats as a result of BRAC. No land is projected for schools as the expansions will take place on existing school sites.

**Table 65. Capital Facility Gap in Baltimore City by Category**

Public Facility Category	Building <i>Square Feet</i>	Land <i>Acres</i>	Student <i>Seats</i>
Library	2,081	0.19	n/a
Recreation	2,172	0.20	n/a
Schools	n/a	0.00	575
<b>TOTAL</b>	<b>4,253</b>	<b>0.39</b>	<b>575</b>

n/a = not applicable

## PUBLIC FACILITY GAP BY FACILITY CATEGORY IN BALTIMORE CITY

This section presents the public capital facility gap in Baltimore City in select categories as a result of APG BRAC growth (population). The categories are libraries, recreation and schools.

## Baltimore City Library Facilities

The top of Table 66 summarizes the existing capital facility level of service (LOS) for Baltimore City’s library facilities. Population drives demand for library space, so the capital facility LOS is calculated based on the City’s existing inventory of library facilities and the relationship to existing citywide population. The LOS for library space in Baltimore City is .88 square feet per person (see the LOS report in the Appendix for more detail, including the complete inventory of library facilities).

The middle of the table shows projected citywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 2,368 persons in Baltimore City as a result of BRAC growth at APG.

The bottom portion of the table shows the capital facility demand from BRAC growth for Baltimore City library space. Based on the existing LOS standard of .88 square feet per person, this amount of growth will require 2,081 sq. ft. in additional library space (.88 sq. ft. per person multiplied by 2,368 persons = 2,081 sq. ft.).

**Table 66. Capital Facility Demand in Baltimore City: Library**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		572,278 Square Feet
Existing Demand Units <sup>2</sup>	÷	651,080 Population
Existing Level of Service	=	0.88 SF per Person

**Citywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>		2,368 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.88 SF per Person
Additional BRAC Demand Units	×	2,368 Population
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>2,081 Square Feet</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Baltimore City Recreation Facilities

The top of Table 67 summarizes the existing capital facility level of service (LOS) for Baltimore City’s recreation facilities. Population drives demand for recreation space, so the capital facility LOS is calculated based on the City’s existing inventory of recreation facilities and the relationship to existing citywide population. The LOS for recreation space in Baltimore City is .88 square feet per person (see the LOS report in the Appendix for more detail, including the complete inventory of recreation facilities).

The middle of the table shows projected citywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 2,368 persons in Baltimore City as a result of BRAC growth at APG.

The bottom portion of the table shows the capital facility demand from BRAC growth for Baltimore City recreation space. Based on the existing LOS standard of .92 square feet per person, this amount of growth will require 2,172 sq. ft. in additional recreation space (.92 sq. ft. per person multiplied by 2,368 persons = 2,172 sq. ft.).

**Table 67. Capital Facility Demand in Baltimore City: Recreation**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		597,130 Square Feet
Existing Demand Units <sup>2</sup>	÷	651,080 Population
Existing Level of Service	=	0.92 SF per Person

**Citywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	2,368 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.92 SF per Person
Additional BRAC Demand Units	×	2,368 Population
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>2,172 Square Feet</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Baltimore City Public Schools

With anticipated population growth in NE Baltimore City due to BRAC expansions at Aberdeen Proving Ground (APG), the City expects to build additional capacity in a elementary/middle school to serve these new students. In its mid-case scenario, the Sage Policy Group’s *Aberdeen Proving Ground BRAC Impacts on Seven Jurisdictions* study projects an additional 575 public school students in Baltimore City as a result of BRAC at APG.

To estimate the breakdown of BRAC students by school type (elementary, middle, and high), TischlerBise examined Baltimore City Public School enrollment as of September 30, 2007 and applied the current percentage by school type to the total Sage mid-case projection of 575 students. As shown in Table 68, this resulted in 285 elementary students, 125 middle student and 165 high students.

BRAC students are expected to be accommodated through the expansion of the Garrett-Heights Elementary/Middle school. High school students from BRAC are anticipated to be absorbed through capacities in the City’s existing high schools. Shown in Table 68 are the total student seats as a result of BRAC.

**Table 68: Baltimore City Projected BRAC Students by School Type**

School type	2007		new brac students
	Enrollment	%	
Elementary Schools	40,632	50%	285
Middle Schools	17,771	22%	125
High Schools	23,525	29%	165
<b>TOTAL</b>	<b>81,928</b>		<b>575</b>



## Chapter 4: Private Capital Facility Gap Analysis

### METHODOLOGY

TischlerBise, Inc. is under contract with the Chesapeake Science and Security Corridor and the Aberdeen BRAC (Base Realignment and Closure) Office to determine the additional demands for public and private facilities that will be generated by the increase in BRAC-related population and employment growth associated with Aberdeen Proving Ground (APG). Presented in this chapter is the private facility gap analysis. The public facility gap analysis is presented in the previous chapter.

The process began with a study conducted by Sage Policy Group projecting growth in the various jurisdictions expected to be impacted by BRAC, including four Maryland jurisdictions (Harford County, Baltimore County, Cecil County and Baltimore City), three Pennsylvania counties (Chester, Lancaster and York) and New Castle County in Delaware. The demographic projections from the Sage Policy Group study are summarized in Chapter 2 of this report.

Next, TischlerBise, Inc.'s subcontractor, AKRF, obtained data from public and private sources for the following categories of private facilities/service provider:

- Meeting Space
- Hotels
- Hospitals
- Doctors
- Senior Homes
- Day Care

The primary data sources were Smith Travel Research (hotels and meeting space), the Maryland Office of Health Care Quality (senior homes), Maryland Health Care Commission (hospitals), Direct Medical Data (doctors) and the Maryland Department of Education (day care facilities/providers).

For each facility/service provider, two pieces of information were obtained: an address and the demand measurement factor. A facility or service provider's address was used to place it geographically on a map. The inventory of facilities/service providers by jurisdiction, including maps, is shown in Appendix A. The Appendix also includes a discussion of two private facility categories that are regional in nature: convention centers and museums. Due to the magnitude of the inventories for doctors, senior homes and day care, inventory summaries are provided showing service providers by geographic area within each jurisdiction. In addition to facility/service provider addresses, a second data element, the demand measurement factor, is used to establish an existing level of service for each facility/service provider category.

Like most public facilities, demand for meeting space is measured by square feet. Demand for other private facilities/service providers vary for each category considered. Those are:

**Table 69. Private Facilities/Service Providers Demand Measurement Factors**

<b>Private Facility or Service Provider Category</b>	<b>Demand Measurement Factor</b>
Meeting Space	Square Feet
Hotels	Rooms
Hospitals	Beds
Doctors	Doctors
Senior Homes	Beds
Day Care	Child Seats

Using current demographic factors (see Chapter 2), LOS is established for each private facility/service provider for each jurisdiction. Some examples include meeting space square feet per job, and senior home beds per capita. Level-of-service calculations are shown in detail in Appendix B.

This private facility/service provider gap analysis was conducted for each of the Maryland jurisdictions, and is presented here in the following order based on the projected BRAC growth in each jurisdiction: Harford County, Baltimore County, Cecil County and Baltimore City. The existing LOS for the various private facility categories/service providers documents the current relationship between the number of facilities/service providers and demographics in the applicable jurisdiction. For all private facilities/service providers, demand is considered on a countywide basis.

Unlike public facilities where demand is generally limited to residents in the applicable jurisdiction, demand for some private facilities can extend beyond jurisdictional boundaries. This would be true largely for hospitals and doctors. For example, the regional hospital center in Baltimore City serves an area beyond the City itself. The most complete picture of demand for hospital facilities would require a market study to determine service area and demand for services. In this report, we document the LOS for various private facilities/service providers, noting that in some cases the LOS may be over/understated. Returning to the Baltimore City regional hospital center example, the LOS in Harford County is 1.1 beds per 1,000 residents compared with 6.3 beds per 1,000 in Baltimore City. While BRAC population growth in Baltimore City is relatively small (2,368 persons, or % of total Aberdeen BRAC growth), the demand for hospital beds is only 25% less than the hospital bed demand shown for Harford County where the largest BRAC population increase will be experienced (19,059 persons, or 41%). The projection show a demand for 20 beds in Harford County and 15 beds in Baltimore City.

The private facility/service provider gap is calculated by applying the jurisdiction’s existing LOS to the projected BRAC-related increase in population and/or employment from APG. The

private facility/service provider gap is calculated for meeting space square footage, hotel rooms, hospital beds, doctors, senior home beds and day care child seats. A summary of the facility/service provider demand for all jurisdictions is presented in the next section. Following that is the detailed methodology for each jurisdiction.

## SUMMARY OF PRIVATE FACILITY/SERVICE PROVIDER GAP FOR MARYLAND JURISDICTIONS IN CSSC REGION

Table 70 shows a summary of the private facility/service provider gap as a result of Aberdeen BRAC for all Maryland jurisdictions in the CSSC region. The summary table is broken down by private facility/service provider category and by jurisdiction. Based on TischlerBise’s analysis of existing levels of service, Maryland jurisdictions will need an additional 5,704 square feet of meeting space, 450 additional hotel rooms, 64 hospital beds, 91 doctors, 329 senior home beds and 1,482 day care child seats.

**Table 70. Private Facility/Service Provider Gap in Maryland Jurisdictions**

Private Facility Category	Total Private Facility Demand	Demand Measurement	Detail by Jurisdiction			
			Harford County	Baltimore County	Cecil County	Baltimore City
Meeting Space	5,704	Square Feet	3,278	1,246	1,029	151
Hotels	450	Rooms	357	55	35	3
Hospitals	64	Beds	20	22	6	16
Doctors	91	Doctors	29	49	5	8
Senior Homes	329	Beds	107	163	37	22
Day Care	1,482	Child Seats	729	520	150	83

Based on maintaining the existing inventory, Figure 28 shows the demand for meeting space broken down by Maryland CSSC jurisdiction. The gap for meeting space totals 5,704 square feet, and is largely in Harford County. A typical ratio is approximately 10 to 15 square feet of meeting space per person. This gap is driven by the relatively high level of service as a result of the existing inventory of hotel meeting space near the Aberdeen Proving Ground combined with the significant employment growth expected in the County.

**Figure 28. Cumulative Private Capital Facility Gap in Maryland Jurisdictions by Category: Meeting Space**

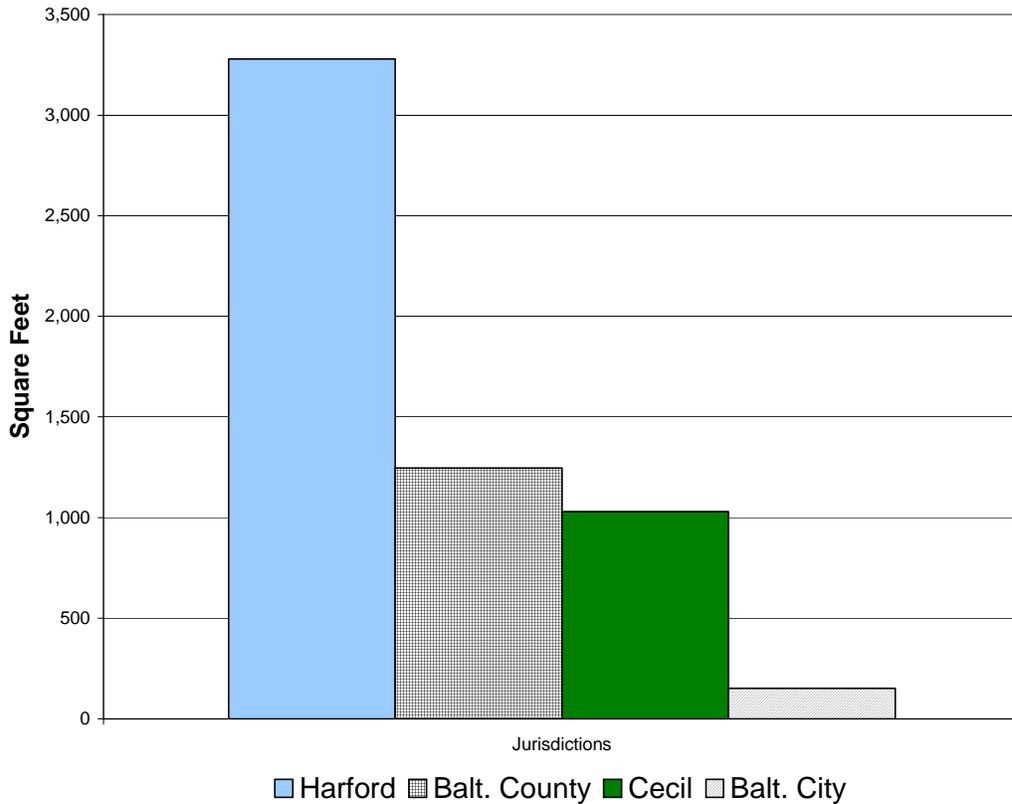
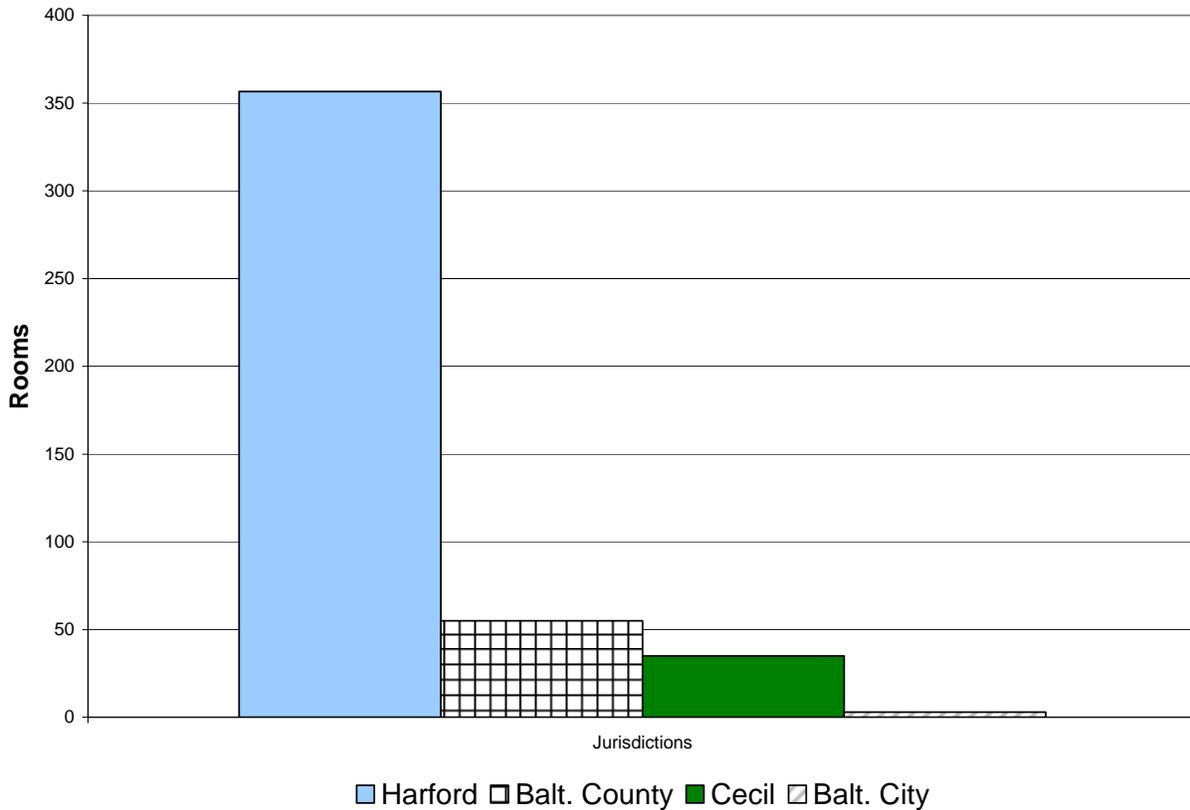


Figure 29 shows the gap for hotels broken down by Maryland CSSC jurisdiction. The analysis projects a need for 450 new beds as a result of Aberdeen BRAC within the 4-county region. Based on the level of service analysis and given employment projections, this growth is expected to be found largely in Harford. Given the significant employment expected at APG, it follows that additional hotel rooms will be needed to serve contractors and visitors to the base.

**Figure 29. Cumulative Private Capital Facility Gap in Maryland Jurisdictions by Category: Hotels**



The remaining private facilities are a function of population. Figure 30 shows the gap for hospital and senior home beds in the four Maryland jurisdictions. The demand projections show a need for an additional 64 hospital beds and 329 senior homes based on current level of service standards. Demand for hospital beds is projected be dispersed throughout the region, with 22 beds in Baltimore County, 20 beds in Harford County, 16 in Baltimore City and 6 in Cecil. The gap for senior beds is found primarily in Harford County (729 beds) and Baltimore County (520 beds), followed by Cecil County (150 beds) and Baltimore City (83 beds).

**Figure 30. Cumulative Private Capital Facility Gap in Maryland Jurisdictions by Category: Hospital and Senior Home Beds**

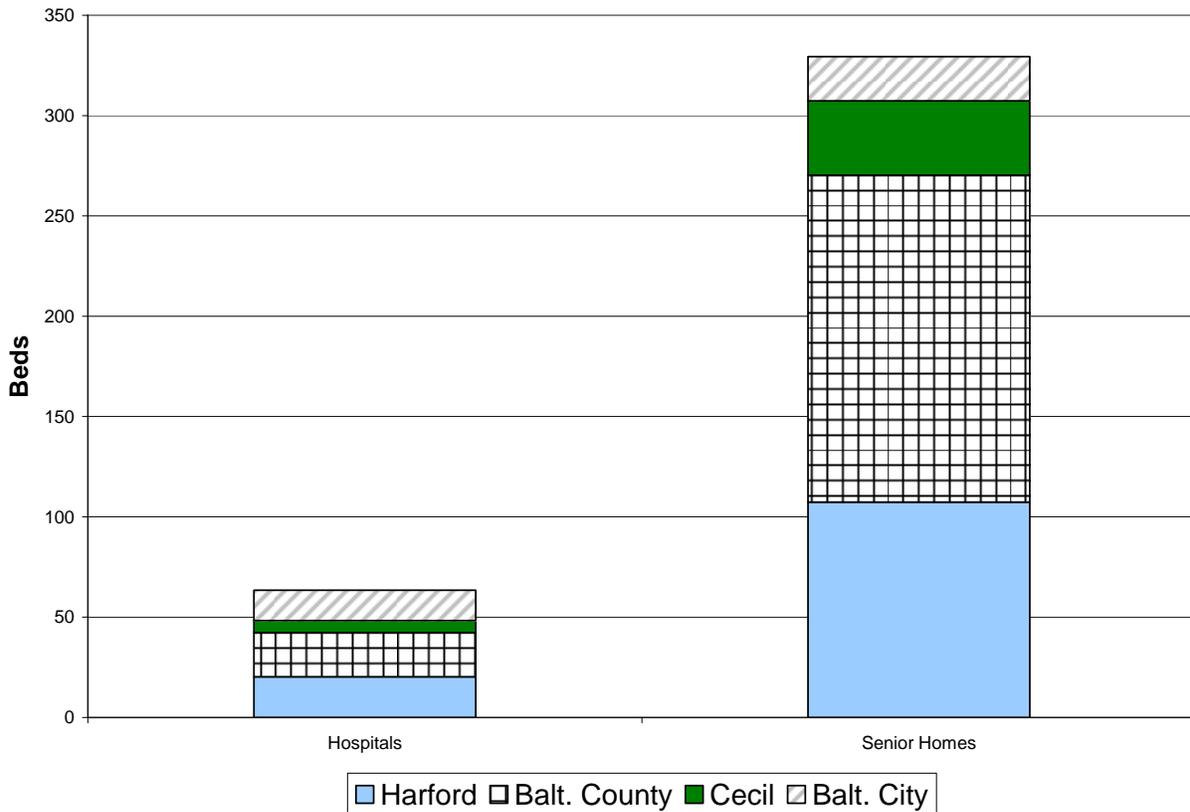


Figure 31 shows the demand for doctors in the four Maryland jurisdictions. The majority (54%) of demand is found in Baltimore County. This is largely explained by the relatively high number of doctors in the County (3.5 per 1,000 persons) and the significant population growth expected there as a result of Aberdeen BRAC. Baltimore County is followed by Harford County (29 doctors), Baltimore City (8 doctors) and Cecil County (5 doctors).

**Figure 31. Cumulative Private Capital Facility Gap in Maryland Jurisdictions by Category: Doctors**

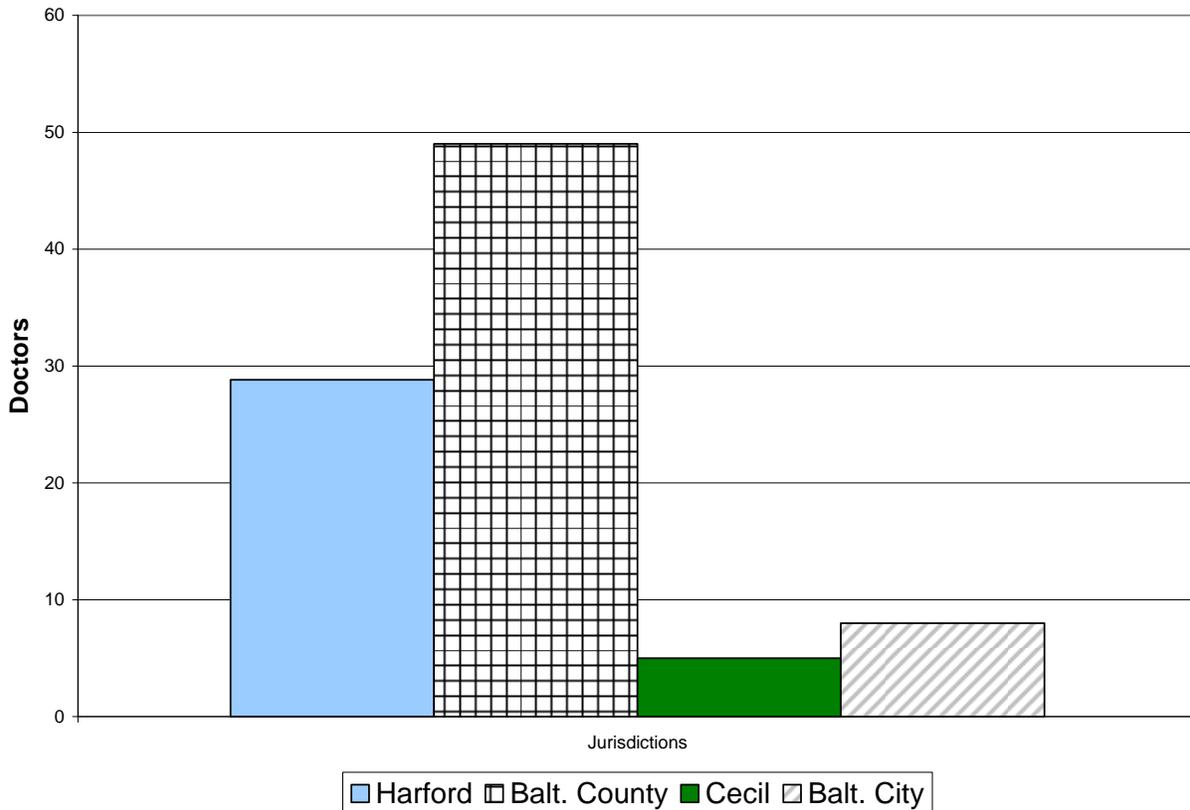
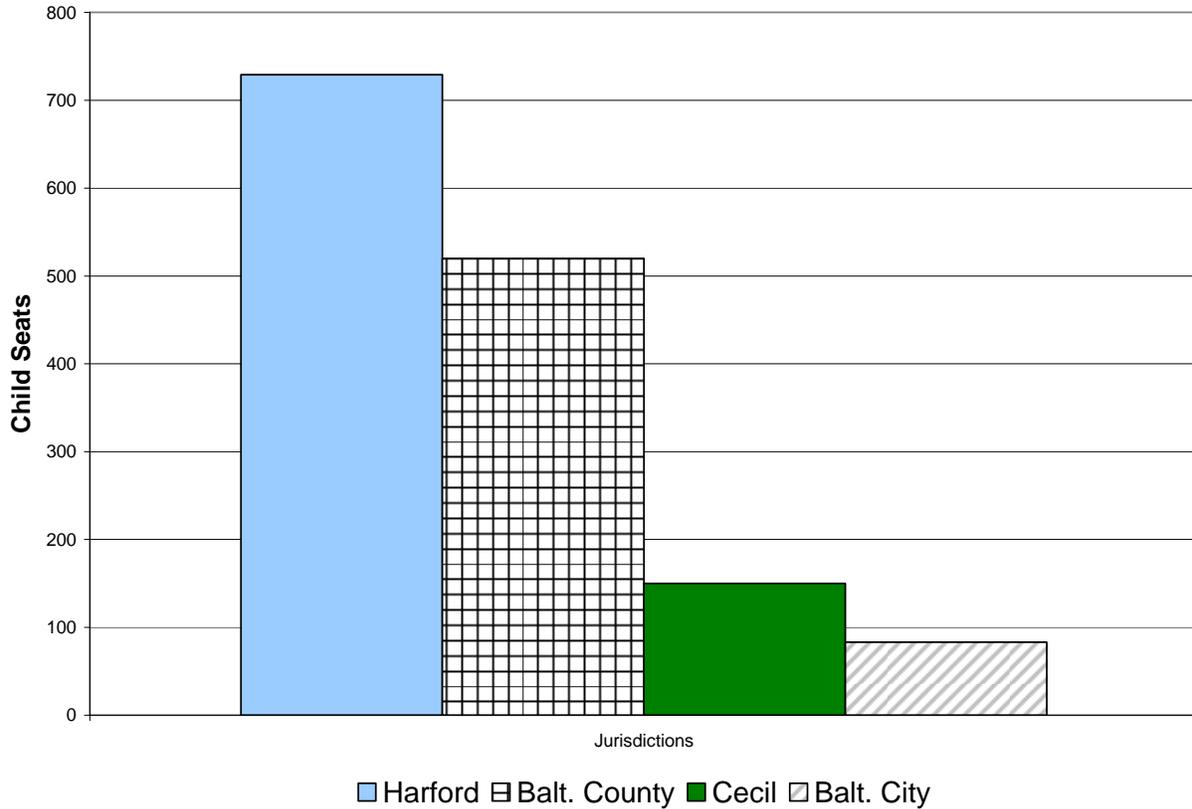


Figure 32 shows the demand for day care facilities by child seats in the four Maryland jurisdictions. In total, the area is projected to need an additional 1,482 child seats. About half of the seats, 729, are projected for Harford County. Second is Baltimore County with 520 seats. The remainder are projected for Cecil County (150 seats) and Baltimore City (83 seats).

**Figure 32. Cumulative Private Capital Facility Gap in Maryland Jurisdictions by Category: Day Care**



## HARFORD COUNTY SUMMARY OF PRIVATE FACILITY/SERVICE PROVIDER GAP

Per the Sage Policy Group study, Harford County is expected to receive 69% of projected employment growth from APG BRAC expansion (19,237 jobs) and 42% of the population growth (19,059 persons). Table 71 presents the projected private facility/service provider demand in Harford County as a result of APG BRAC growth (population and/or employment). The table shows that based on the County’s existing LOS standards (see Appendix B), and projected BRAC-related growth in Harford County (see Chapter 2), growth at APG will have a significant impact on private facilities/service providers in the County.

As a result of BRAC employment growth, the CSSC anticipates a need for additional space to accommodate meetings and large events. BRAC growth results in the need for an additional 3,278 square feet of additional meeting space in Harford County. A typical ratio is approximately 10 to 15 square feet of meeting space per person. It is also expected that due to increased employment, demand for hotel rooms will also increase. The analysis showed that based on existing levels of service, BRAC generates a demand for 357 additional hotel rooms.

Growth in population as a result of BRAC expansion is also expected to have an impact on facilities such as hospitals, senior homes and day care facilities. Based on existing levels of service in the County, growth of 19,059 persons will generate a need for 20 hospital beds, 29 doctors, 107 senior home beds, and 729 child seats in day care.

**Table 71. Private Facility/Service Provider Gap in Harford County by Category**

Private Facility Category	Demand Factor	Additions Due to BRAC
Meeting Space	Square Feet	3,278
Hotels	Rooms	357
Hospitals	Beds	20
Doctors	Doctors	29
Senior Homes	Beds	107
Day Care	Child Seats	729

## **GAP BY PRIVATE FACILITY/SERVICE PROVIDER CATEGORY IN HARFORD COUNTY**

This section presents the private facility/service provider gap in Harford County as a result of APG BRAC growth (population and/or employment) by facility category. Facilities/service providers are presented in the order shown in Table 71. Demand for all categories is considered to be countywide.

## Harford County Meeting Space

The top of Table 72 summarizes the existing capital facility level of service (LOS) for meeting space in Harford County. Employment is considered the demand driver for meeting space, so the capital facility LOS is calculated based on the existing inventory of meeting space in the County and the relationship to existing countywide jobs. The LOS for meeting space in Harford County is .17 square feet per job (see the LOS report in the Appendix for more detail, including the complete inventory of meeting facilities.).

The middle of the table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 19,237 jobs in Harford County as a result of BRAC growth at APG.

The bottom portion of the table shows the capital facility demand from BRAC growth for meeting space in Harford County. Based on the existing LOS standard of .17 square feet per job, this amount of growth will require 3,278 sq. ft. in additional meeting space (.17 sq. ft. per job multiplied by 19,237 jobs = 3,278 sq. ft.).

**Table 72. Capital Facility Demand in Harford County: Meeting Space**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		20,088 Square Feet
Existing Demand Units <sup>2</sup>	÷	117,886 Jobs
<hr/>		
Existing Level of Service	=	0.17 SF per Demand Unit

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Jobs <sup>3</sup>	19,237 Jobs
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.17 SF per Demand Unit
Additional BRAC Demand Units	x	19,237 Jobs
<hr/>		
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>3,278 Square Feet</b>
<hr/>		

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Harford County Hotels

The top of Table 73 summarizes the existing capital facility level of service (LOS) for hotels in Harford County. Employment is considered the demand driver for hotels, so the capital facility LOS is calculated based on the existing inventory of hotel rooms in the County and the relationship to existing countywide jobs. The LOS for hotels in Harford County is .02 rooms per job (see the LOS report in the Appendix for more detail, including the complete inventory of hotels.).

The middle of the table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 19,237 jobs in Harford County as a result of BRAC growth at APG.

The bottom portion of the table shows the capital facility demand from BRAC growth for hotels in Harford County. Based on the existing LOS standard of .02 hotel rooms per job, this amount of growth will require 357 additional hotel rooms (.02 hotel rooms per job multiplied by 19,237 jobs = 357 rooms).

**Table 73. Capital Facility Demand in Harford County: Hotels**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory		2,206 Rooms
Existing Demand Units	÷	117,886 Jobs
Existing Level of Service	=	0.02 Rooms per Job

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	19,059 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.02 Rooms per Job
Additional BRAC Demand Units	x	19,059 Population
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>357 Rooms</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Harford County Hospitals

The top of Table 74 summarizes the existing capital facility level of service (LOS) for hospitals in Harford County. Population is considered the demand driver for hospitals, so the capital facility LOS is calculated based on the existing inventory of hospitals in the County and the relationship to existing countywide population. The LOS for hospital beds in Harford County is .0011 beds per person (see the LOS report in the Appendix for more detail, including the complete inventory of hospitals.).

The middle of the table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 19,059 persons in Harford County as a result of BRAC growth at APG.

The bottom portion of the table shows the capital facility demand from BRAC growth for hospitals in Harford County. Based on the existing LOS standard of .0011 beds per person, this amount of growth will require 20 additional hospital beds (.0011 beds per person multiplied by 19,059 persons = 20 beds).

**Table 74. Capital Facility Demand in Harford County: Hospitals**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		259 Beds
Existing Demand Units <sup>2</sup>	÷	242,700 Population
Existing Level of Service	=	0.0011 Beds per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	19,059 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.0011 Beds per Person
Additional BRAC Demand Units	x	19,059 Population
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>20 Beds</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Harford County Doctors

The top of Table 75 summarizes the existing level of service (LOS) for doctors in Harford County. Population is considered the demand driver for doctors, so the LOS is calculated based on the existing directory of doctors in the County and the relationship to existing countywide population. The LOS for doctors in Harford County is .0015 doctors per person (see the LOS report in the Appendix for more detail, including the complete inventory of doctors.).

The middle of the table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 19,059 persons in Harford County as a result of BRAC growth at APG.

The bottom portion of the table shows the demand from BRAC growth for doctors in Harford County. Based on the existing LOS standard of .0015 doctors per person, this amount of growth will require 29 doctors (.0015 doctors per person multiplied by 19,059 persons = 29 doctors).

**Table 75. Service Provider Demand in Harford County: Doctors**

**Existing Level of Service**

Existing Directory <sup>1</sup>		367 Doctors
Existing Demand Units <sup>2</sup>	÷	242,700 Population
Existing Level of Service	=	0.0015 Doctors per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	19,059 Population
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**Demand from BRAC Growth**

Existing Level of Service		0.0015 Doctors per Person
Additional BRAC Demand Units	x	19,059 Population
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>29 Doctors</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for summarized directory of doctors.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Harford County Senior Homes

The top of Table 76 summarizes the existing capital facility level of service (LOS) for senior homes in Harford County. Population is considered the demand driver for senior homes, so the capital facility LOS is calculated based on the existing inventory of senior home beds in the County and the relationship to existing countywide population. The LOS for senior home beds in Harford County is .01 beds per person (see the LOS report in the Appendix for more detail, including a summary inventory of senior home facilities by geographic area.).

The middle of the table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 19,059 persons in Harford County as a result of BRAC growth at APG.

The bottom portion of the table shows the capital facility demand from BRAC growth for senior homes in Harford County. Based on the existing LOS standard of .01 beds per person, this amount of growth will require 107 additional senior home beds (.01 beds per person multiplied by 19,059 persons = 107 beds).

**Table 76. Capital Facility Demand in Harford County: Senior Homes**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		1,367 Beds
Existing Demand Units <sup>2</sup>	÷	242,700 Population
Existing Level of Service	=	0.01 Beds per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	19,059 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.01 Beds per Person
Additional BRAC Demand Units	x	19,059 Population
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>107 Beds</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for summarized directory of senior homes.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Harford County Day Care

The top of Table 77 summarizes the existing capital facility level of service (LOS) for day care facilities in Harford County. Population is considered the demand driver for day care, so the capital facility LOS is calculated based on the existing inventory of day care child seats in the County and the relationship to existing countywide population. The LOS for day care child seats in Harford County is .04 child seats per person (see the LOS report in the Appendix for more detail, including a summary inventory of day care facilities by geographic area.).

The middle of the table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 19,059 persons in Harford County as a result of BRAC growth at APG.

The bottom portion of the table shows the capital facility demand from BRAC growth for day care facilities in Harford County. Based on the existing LOS standard of .04 child seats per person, this amount of growth will require 729 additional day care child seats (.04 child seats per person multiplied by 19,059 persons = 729 seats).

**Table 77. Capital Facility Demand in Harford County: Day Care**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		9,284 Child Seats
Existing Demand Units <sup>2</sup>	÷	242,700 Population
Existing Level of Service	=	0.04 Child Seats per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	19,059 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.04 Child Seats per Person
Additional BRAC Demand Units	x	19,059 Population
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>729 Child Seats</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for summarized directory of day care providers.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## BALTIMORE COUNTY SUMMARY OF PRIVATE FACILITY/SERVICE PROVIDER GAP

Per the Sage Policy Group study, Baltimore County is expected to receive 18% of projected employment growth from APG BRAC expansion (4,849 jobs) and 31% of the population growth (13,954 persons). Table 78 presents the projected private facility/service provider demand in Baltimore County as a result of APG BRAC growth (population and/or employment). The table shows that based on the County’s existing LOS standards (see Appendix B), and projected BRAC-related growth in Baltimore County (see Chapter 2), growth at APG will have an impact on private facilities/service providers in the County.

As a result of BRAC employment growth, the CSSC anticipates a need for additional space to accommodate meetings and large events. BRAC growth results in the need for an additional 1,246 square feet of additional meeting space in Baltimore County. A typical ratio is approximately 10 to 15 square feet of meeting space per person. It is also expected that due to increased employment, demand for hotel rooms will also increase slightly. The analysis showed that based on existing levels of service, BRAC generates a demand for 55 additional hotel rooms.

Growth in population as a result of BRAC expansion is also expected to have a small impact on facilities such as hospitals, senior homes and day care facilities. Based on existing levels of service in the County, growth of 13,954 persons will generated a need for 22 hospital beds, 49 doctors, 163 senior home beds and 520 child seats in day care.

**Table 78. Private Capital Facility Gap in Baltimore County by Category**

Private Facility Category	Demand Factor	Additions
		Due to BRAC
Meeting Space	Square Feet	1,246
Hotels	Rooms	55
Hospitals	Beds	22
Doctors	Doctors	49
Senior Homes	Beds	163
Day Care	Child Seats	520

n/a = not applicable

## GAP BY PRIVATE FACILITY/SERVICE PROVIDER CATEGORY IN BALTIMORE COUNTY

This section presents the private facility/service provider gap in Baltimore County as a result of APG BRAC growth (population and/or employment) by facility category. Facilities/service providers are presented in the order shown in Table 78. All facilities impacted are examined on

a countywide basis.

## Baltimore County Meeting Space

The top of Table 79 shows the existing capital facility level of service (LOS) for Baltimore County meeting space facilities. LOS is calculated based on the County’s existing inventory of meeting space and the relationship to existing countywide jobs. Jobs are considered the demand driver for meeting space. The LOS for meeting space in Baltimore County is .26 square feet per job (see the LOS report in the Appendix for more detail, including the complete inventory of meeting space facilities).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 4,849 jobs in Baltimore County as a result of BRAC growth at APG.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Baltimore County meeting space facilities. Based on the existing LOS standard of .26 square feet per job, this amount of growth will require 1,246 sq. ft. in meeting space (.26 sq. ft. per job multiplied by 4,849 jobs = 1,246 sq. ft.).

**Table 79. Private Capital Facility Demand in Baltimore County: Meeting Space**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		131,939 Square Feet
Existing Demand Units <sup>2</sup>	÷	513,278 Jobs
Existing Level of Service	=	0.26 SF per Job

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>		4,849 Jobs
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.2571 SF per Job
Additional BRAC Demand Units	x	4,849 Jobs
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>1,246 Square Feet</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Baltimore County Hotels

The top of Table 80 shows the existing capital facility level of service (LOS) for Baltimore County hotel facilities. LOS is calculated based on the County’s existing inventory of hotel rooms and the relationship to existing countywide jobs. Jobs are considered the demand driver for hotel rooms. The LOS for hotel rooms in Baltimore County is .01 rooms per job (see the LOS report in the Appendix for more detail, including the complete inventory of hotel facilities).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 4,849 jobs in Baltimore County as a result of BRAC growth at APG.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Baltimore County hotel rooms. Based on the existing LOS standard of .01 rooms per job, this amount of growth will require 55 hotel rooms (.01 rooms per job multiplied by 4,849 jobs = 55 rooms).

**Table 80. Private Capital Facility Demand in Baltimore County: Hotels**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		5,786 Rooms
Existing Demand Units <sup>2</sup>	÷	513,278 Jobs
Existing Level of Service	=	0.01 Rooms per Job

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Jobs <sup>3</sup>	4,849 Jobs
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.0113 Rooms per Job
Additional BRAC Demand Units	x	4,849 Jobs
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>55 Rooms</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Baltimore County Hospitals

The top of Table 81 shows the existing capital facility level of service (LOS) for Baltimore County hospital facilities. LOS is calculated based on the County’s existing inventory of hospital beds and the relationship to existing countywide population. Population is considered the demand driver for hospital beds. The LOS for hospital beds in Baltimore County is .0015 beds per person (see the LOS report in the Appendix for more detail, including the complete inventory of hospital facilities).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 13,954 persons in Baltimore County as a result of BRAC growth at APG.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Baltimore County hospital beds. Based on the existing LOS standard of .0015 beds per person, this amount of growth will require 22 hospital beds (.0015 beds per person multiplied by 13,954 persons = 22 beds).

**Table 81 Private Capital Facility Demand in Baltimore County: Hospitals**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		1,237 Beds
Existing Demand Units <sup>2</sup>	÷	802,300 Population
<hr/>		
Existing Level of Service	=	0.0015 Beds per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	13,954 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.0015 Beds per Person
Additional BRAC Demand Units	x	13,954 Population
<hr/>		
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>22 Beds</b>
<hr/>		

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Baltimore County Doctors

The top of Table 82 shows the existing level of service (LOS) for Baltimore County doctors. LOS is calculated based on the County’s existing directory of doctors and the relationship to existing countywide population. Population is considered the demand driver for doctors. The LOS for doctors in Baltimore County is .0035 doctors per person (see the LOS report in the Appendix for more detail, including a summary directory of doctors by geographic area).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 13,954 persons in Baltimore County as a result of BRAC growth at APG.

The bottom portion of the Table shows the existing demand from BRAC growth for Baltimore County doctors. Based on the existing LOS standard of .0035 doctors per person, this amount of growth will require 49 doctors (.0035 doctors per person multiplied by 13,954 persons = 49 doctors).

**Table 82. Service Provider Demand in Baltimore County: Doctors**

**Existing Level of Service**

Existing Directory <sup>1</sup>		2,842 Doctors
Existing Demand Units <sup>2</sup>	÷	802,300 Population
<hr/>		
Existing Level of Service	=	0.0035 Doctors per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	13,954 Population
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**Demand from BRAC Growth**

Existing Level of Service		0.0035 Doctors per Person
Additional BRAC Demand Units	x	13,954 Population
<hr/>		
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>49 Doctors</b>
<hr/>		

<sup>1</sup>Please refer to Level-of-service report in Appendix for summarized directory of doctors.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Baltimore County Senior Home Facilities

The top of Table 83 shows the existing capital facility level of service (LOS) for Baltimore County senior home facilities. LOS is calculated based on the County’s existing inventory of senior home beds and the relationship to existing countywide population. Population is considered the demand driver for senior home beds. The LOS for senior home beds in Baltimore County is .01 beds per person (see the LOS report in the Appendix for more detail, including a summary inventory of senior home facilities by geographic area).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 13,954 persons in Baltimore County as a result of BRAC growth at APG.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Baltimore County senior home facilities. Based on the existing LOS standard of .01 beds per person, this amount of growth will require 163 senior home beds (.01 beds per person multiplied by 13,954 persons = 30 senior home beds).

**Table 83. Private Capital Facility Demand in Baltimore County: Senior Homes**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		9,399 Beds
Existing Demand Units <sup>2</sup>	÷	802,300 Population
<hr/>		
Existing Level of Service	=	0.01 Beds per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	13,954 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.0117 Beds per Person
Additional BRAC Demand Units	x	13,954 Population
<hr/>		
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>163 Beds</b>
<hr/>		

<sup>1</sup>Please refer to Level-of-service report in Appendix for summarized inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Baltimore County Day Care Facilities

The top of Table 84 shows the existing capital facility level of service (LOS) for Baltimore County day care facilities. LOS is calculated based on the County’s existing inventory of day care child seats and the relationship to existing countywide population. Population is considered the demand driver for day care child seats. The LOS for day care child seats in Baltimore County is .04 child seats per person (see the LOS report in the Appendix for more detail, including a summary inventory of day care facilities by geographic area).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 13,954 persons in Baltimore County as a result of BRAC growth at APG.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Baltimore County day care facilities. Based on the existing LOS standard of .04 child seats per person, this amount of growth will require 520 day care child seats (.04 child seats per person multiplied by 13,954 persons = 520 day care child seats).

**Table 84. Private Capital Facility Demand in Baltimore County: Day Care**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		29,888 Child Seats
Existing Demand Units <sup>2</sup>	÷	802,300 Population
<hr/>		
Existing Level of Service	=	0.04 Child Seats per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	13,954 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.0373 Child Seats per Person
Additional BRAC Demand Units	x	13,954 Population
<hr/>		
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>520 Child Seats</b>
<hr/>		

<sup>1</sup>Please refer to Level-of-service report in Appendix for summarized inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## CECIL COUNTY SUMMARY OF PRIVATE FACILITY/SERVICE PROVIDER GAP

Per the Sage Policy Group study, Cecil County is expected to receive 5% of projected employment growth from APG BRAC expansion (1,460 jobs) and 12% of the population growth (5,357 persons). Table 85 presents the projected private facility/service provider demand in Cecil County as a result of APG BRAC growth (population and/or employment). The table shows that based on the County’s existing LOS standards (see Appendix B), and projected BRAC-related growth in Cecil County (see Chapter 2), growth at APG will have a modest impacts on private facilities/service providers in the County.

As a result of BRAC employment growth, the CSSC anticipates a need for additional space to accommodate meetings and large events. BRAC growth results in the need for an additional 1,029 square feet of additional meeting space in Cecil County. A typical ratio is approximately 10 to 15 square feet of meeting space per person. It is also expected that due to increased employment, demand for hotel rooms will also increase slightly. The analysis showed that based on existing levels of service, BRAC generates a demand for 35 additional hotel rooms.

Growth in population as a result of BRAC expansion is also expected to have a small impact on facilities such as hospitals, senior homes and day care facilities. Based on existing levels of service in the County, growth of 5,357 persons will generated a need for 6 hospital beds, 5 doctors, 37 senior home beds and 150 child seats in day care.

**Table 85. Private Capital Facility Gap in Cecil County by Category**

Private Facility Category	Demand Factor	Additions
		Due to BRAC
Meeting Space	Square Feet	1,029
Hotels	Rooms	35
Hospitals	Beds	6
Doctors	Doctors	5
Senior Homes	Beds	37
Day Care	Child Seats	150

n/a = not applicable

## GAP BY PRIVATE FACILITY/SERVICE PROVIDER CATEGORY IN CECIL COUNTY

This section presents the private facility/service provider demand in Cecil County as a result of APG BRAC growth (population and/or employment) by facility category. Facilities/service providers are presented in the order shown in Table 85. All facilities impacted are examined on a countywide basis.

## Cecil County Meeting Space

The top of Table 86 shows the existing capital facility level of service (LOS) for Cecil County meeting space facilities. LOS is calculated based on the County’s existing inventory of meeting space and the relationship to existing countywide jobs. Jobs are considered the demand driver for meeting space. The LOS for meeting space in Cecil County is .70 square feet per job (see the LOS report in the Appendix for more detail, including the complete inventory of meeting space facilities).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 1,460 jobs in Cecil County as a result of BRAC growth at APG.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Cecil County meeting space facilities. Based on the existing LOS standard of .70 square feet per job, this amount of growth will require 1,029 sq. ft. in meeting space (.70 sq. ft. per job multiplied by 1,460 jobs = 1,029 sq. ft.).

**Table 86. Private Capital Facility Demand in Cecil County: Meeting Space**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		28,132 Square Feet
Existing Demand Units <sup>2</sup>	÷	39,915 Jobs
<hr/>		
Existing Level of Service	=	0.70 SF per Job

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Jobs <sup>3</sup>	1,460 Jobs
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.7048 SF per Demand Unit
Additional BRAC Demand Units	x	1,460 Jobs
<hr/>		
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>1,029 Square Feet</b>
<hr/>		

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Cecil County Hotels

The top of Table 87 shows the existing capital facility level of service (LOS) for Cecil County hotel facilities. LOS is calculated based on the County’s existing inventory of hotel rooms and the relationship to existing countywide jobs. Jobs are considered the demand driver for hotel rooms. The LOS for hotel rooms in Cecil County is .02 rooms per job (see the LOS report in the Appendix for more detail, including the complete inventory of hotel facilities).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 1,460 jobs in Cecil County as a result of BRAC growth at APG.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Cecil County hotel rooms. Based on the existing LOS standard of .02 rooms per job, this amount of growth will require 35 hotel rooms (.02 rooms per job multiplied by 1,460 jobs = 35 rooms).

**Table 87. Private Capital Facility Demand in Cecil County: Hotels**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		970 Rooms
Existing Demand Units <sup>2</sup>	÷	39,915 Jobs
Existing Level of Service	=	0.02 Rooms per Job

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Jobs <sup>3</sup>	1,460 Jobs
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.0243 Rooms per Job
Additional BRAC Demand Units	x	1,460 Jobs
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>35 Rooms</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Cecil County Hospitals

The top of Table 88 shows the existing capital facility level of service (LOS) for Cecil County hospital facilities. LOS is calculated based on the County’s existing inventory of hospital beds and the relationship to existing countywide population. Population is considered the demand driver for hospital beds. The LOS for hospital beds in Cecil County is .0010 beds per person (see the LOS report in the Appendix for more detail, including the complete inventory of hospital facilities).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 5,357 persons in Cecil County as a result of BRAC growth at APG.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Cecil County hospital beds. Based on the existing LOS standard of .0010 beds per person, this amount of growth will require 6 hospital beds (.0010 beds per person multiplied by 5,357 persons = 6 beds).

**Table 88. Private Capital Facility Demand in Cecil County: Hospitals**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		105 Beds
Existing Demand Units <sup>2</sup>	÷	102,000 Population
<hr/>		
Existing Level of Service	=	0.0010 Beds per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	5,357 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.0010 SF per Person
Additional BRAC Demand Units	x	5,357 Population
<hr/>		
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>6 Beds</b>
<hr/>		

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Cecil County Doctors

The top of Table 89 shows the existing level of service (LOS) for Cecil County doctors. LOS is calculated based on the County’s existing directory of doctors and the relationship to existing countywide population. Population is considered the demand driver for doctors. The LOS for doctors in Cecil County is .0009 doctors per person (see the LOS report in the Appendix for more detail, including a summary directory of doctors by geographic area).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 5,357 persons in Cecil County as a result of BRAC growth at APG.

The bottom portion of the Table shows the existing demand from BRAC growth for Cecil County doctors. Based on the existing LOS standard of .0009 doctors per person, this amount of growth will require 5 doctors (.0009 doctors per person multiplied by 5,357 persons = 5 doctors).

**Table 89. Service Provider Demand in Cecil County: Doctors**

**Existing Level of Service**

Existing Directory <sup>1</sup>		96 Doctors
Existing Demand Units <sup>2</sup>	÷	102,000 Population
Existing Level of Service	=	0.0009 Doctors per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	5,357 Population
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**Demand from BRAC Growth**

Existing Level of Service		0.0009 Doctors per Person
Additional BRAC Demand Units	x	5,357 Population
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>5 Doctors</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for summarized directory of doctors.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Cecil County Senior Home Facilities

The top of Table 90 shows the existing capital facility level of service (LOS) for Cecil County senior home facilities. LOS is calculated based on the County’s existing inventory of senior home beds and the relationship to existing countywide population. Population is considered the demand driver for senior home beds. The LOS for senior home beds in Cecil County is .01 beds per person (see the LOS report in the Appendix for more detail, including a summary inventory of senior home facilities by geographic area).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 5,357 persons in Cecil County as a result of BRAC growth at APG.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Cecil County senior home facilities. Based on the existing LOS standard of .01 beds per person, this amount of growth will require 37 senior home beds (.01 beds per person multiplied by 5,357 persons = 37 senior home beds).

**Table 90. Private Capital Facility Demand in Cecil County: Senior Homes**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		711 Beds
Existing Demand Units <sup>2</sup>	÷	102,000 Population
Existing Level of Service	=	0.01 Beds per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	5,357 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.01 Beds per Person
Additional BRAC Demand Units	x	5,357 Population
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>37 Beds</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for summarized inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Cecil County Day Care Facilities

The top of Table 91 shows the existing capital facility level of service (LOS) for Cecil County day care facilities. LOS is calculated based on the County’s existing inventory of day care child seats and the relationship to existing countywide population. Population is considered the demand driver for day care child seats. The LOS for day care child seats in Cecil County is .03 child seats per person (see the LOS report in the Appendix for more detail, including a summary inventory of day care facilities by geographic area).

The middle of the Table shows projected countywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 5,357 persons in Cecil County as a result of BRAC growth at APG.

The bottom portion of the Table shows the capital facility demand from BRAC growth for Cecil County day care facilities. Based on the existing LOS standard of .03 child seats per person, this amount of growth will require 150 day care child seats (.03 child seats per person multiplied by 5,357 persons = 150 day care child seats).

**Table 91. Private Capital Facility Demand in Cecil County: Day Care**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		2,854 Child Seats
Existing Demand Units <sup>2</sup>	÷	102,000 Population
<hr/>		
Existing Level of Service	=	0.03 Child Seats per Person

**Countywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>		5,357 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.0280 Child Seats per Person
Additional BRAC Demand Units	x	5,357 Population
<hr/>		
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>150 Child Seats</b>
<hr/>		

<sup>1</sup>Please refer to Level-of-service report in Appendix for summarized inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## BALTIMORE CITY SUMMARY OF PRIVATE FACILITY/SERVICE PROVIDER GAP

Per the Sage Policy Group study, Baltimore City is expected to receive 3% of projected employment growth from APG BRAC expansion (941 jobs) and 5% of the population growth (2,368 persons). Table 92 presents the projected private facility/service provider demand in Harford County as a result of APG BRAC growth (population and/or employment). The table shows that based on the City’s existing LOS standards (see Appendix), and projected BRAC-related growth in Baltimore City (see Chapter 2), growth at APG will have modest impacts on private facilities/service providers in the City.

As a result of BRAC employment growth, the CSSC anticipates a need for additional space to accommodate meetings and large events. BRAC growth results in the need for an additional 151 square feet of additional meeting space in Baltimore City. It is also expected that due to increased employment, there will be a marginal demand for hotel rooms. The analysis showed that based on existing levels of service, BRAC generates a demand for 3 additional hotel rooms.

Growth in population as a result of BRAC expansion is also expected to have minor impacts on Baltimore City private facilities such as hospitals, senior homes and day care facilities. Based on existing levels of service in the City, growth of 2,368 persons will generate a need for 16 hospital beds, 8 doctors, 22 senior home beds, and 83 child seats in day care.

**Table 92. Private Facility/Service Provider Gap in Baltimore City by Category**

Private Facility Category	Demand Factor	Additions Due to BRAC
Meeting Space	Square Feet	151
Hotels	Rooms	3
Hospitals	Beds	16
Doctors	Doctors	8
Senior Homes	Beds	22
Day Care	Child Seats	83

## GAP BY PRIVATE FACILITY/SERVICE PROVIDER CATEGORY IN BALTIMORE CITY

This section presents the private facility/service provider gap in Baltimore City as a result of APG BRAC growth (population and/or employment) by facility category. Facilities/service providers are presented in the order shown in Table 92. Demand for all categories is considered to be countywide.

## Baltimore City Meeting Space

The top of Table 93 summarizes the existing capital facility level of service (LOS) for meeting space in Baltimore City. Employment is considered the demand driver for meeting space, so the capital facility LOS is calculated based on the existing inventory of meeting space in the City and the relationship to existing countywide jobs. The LOS for meeting space in Baltimore City is .89 square feet per job (see the LOS report in the Appendix for more detail, including the complete inventory of meeting facilities.).

The middle of the table shows projected citywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 941 jobs in Baltimore City as a result of BRAC growth at APG.

The bottom portion of the table shows the capital facility demand from BRAC growth for meeting space in Baltimore City. Based on the existing LOS standard of .78 square feet per job, this amount of growth will require 172 sq. ft. in additional meeting space (.78 sq. ft. per job multiplied by 941 jobs = 151 sq. ft.).

**Table 93. Capital Facility Demand in Baltimore City: Meeting Space**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		320,546 Square Feet
Existing Demand Units <sup>2</sup>	÷	410,277 Jobs
Existing Level of Service	=	0.78 SF per Job

**Citywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Jobs <sup>3</sup>	+	193 Jobs
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.78 SF per Person
Additional BRAC Demand Units	x	193 Jobs
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>151 Square Feet</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Baltimore City Hotels

The top of Table 94 summarizes the existing capital facility level of service (LOS) for hotels in Baltimore City. Employment is considered the demand driver for hotels, so the capital facility LOS is calculated based on the existing inventory of hotel rooms in the City and the relationship to existing countywide jobs. The LOS for hotels in Baltimore City is .03 rooms per job (see the LOS report in the Appendix for more detail, including the complete inventory of hotels.).

The middle of the table shows projected citywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 941 jobs in Baltimore City as a result of BRAC growth at APG.

The bottom portion of the table shows the capital facility demand from BRAC growth for hotels in Baltimore City. Based on the existing LOS standard of .02 hotel rooms per job, this amount of growth will require 3 additional hotel rooms (.02 hotel rooms per job multiplied by 941 jobs = 3 rooms).

**Table 94. Capital Facility Demand in Baltimore City: Hotels**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory		7,181 Rooms
Existing Demand Units	÷	410,277 Jobs
Existing Level of Service	=	0.02 Rooms per Job

**Citywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	193 Jobs
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.02 Rooms per Job
Additional BRAC Demand Units	x	193 Jobs
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>3 Rooms</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Baltimore City Hospitals

The top of Table 95 summarizes the existing capital facility level of service (LOS) for hospitals in Baltimore City. Population is considered the demand driver for hospitals, so the capital facility LOS is calculated based on the existing inventory of hospitals in the City and the relationship to existing countywide population. The LOS for hospital beds in Baltimore City is .0066 beds per person (see the LOS report in the Appendix for more detail, including the complete inventory of hospitals.).

The middle of the table shows projected citywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 2,368 persons in Baltimore City as a result of BRAC growth at APG.

The bottom portion of the table shows the capital facility demand from BRAC growth for hospitals in Baltimore City. Based on the existing LOS standard of .0066 beds per person, this amount of growth will require 16 additional hospital beds (.0066 beds per person multiplied by 2,368 persons = 16 beds).

**Table 95. Capital Facility Demand in Baltimore City: Hospitals**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		4,329 Beds
Existing Demand Units <sup>2</sup>	÷	651,080 Population
Existing Level of Service	=	0.0066 Beds per Person

**Citywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	2,368 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.01 Beds per Person
Additional BRAC Demand Units	x	2,368 Population
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>16 Beds</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for detailed inventory of existing facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Baltimore City Doctors

The top of Table 96 summarizes the existing level of service (LOS) for doctors in Baltimore City. Population is considered the demand driver for doctors, so the LOS is calculated based on the existing directory of doctors in the City and the relationship to existing countywide population. The LOS for doctors in Baltimore City is .0033 doctors per person (see the LOS report in the Appendix for more detail, including a summarized directory of doctors.).

The middle of the table shows projected citywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 2,368 persons in Baltimore City as a result of BRAC growth at APG.

The bottom portion of the table shows the capital facility demand from BRAC growth for doctors in Baltimore City. Based on the existing LOS standard of .0033 doctors per person, this amount of growth will require 8 additional doctors (.0033 doctors per person multiplied by 2,368 persons = 8 doctors).

**Table 96. Service Provider Demand in Baltimore City: Doctors**

**Existing Capital Facility Level of Service**

Existing Directory <sup>1</sup>		2,167 Doctors
Existing Demand Units <sup>2</sup>	÷	651,080 Population
Existing Level of Service	=	0.0033 Doctors per Person

**Citywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	2,368 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.0033 Doctors per Person
Additional BRAC Demand Units	x	2,368 Population
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>8 Doctors</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for summarized directory of doctors.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Baltimore City Senior Homes

The top of Table 97 summarizes the existing capital facility level of service (LOS) for senior homes in Baltimore City. Population is considered the demand driver for senior homes, so the capital facility LOS is calculated based on the existing inventory of senior home beds in the City and the relationship to existing countywide population. The LOS for senior home beds in Baltimore City is .01 beds per person (see the LOS report in the Appendix for more detail, including a summary of the inventory for senior homes.).

The middle of the table shows projected citywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 2,368 persons in Baltimore City as a result of BRAC growth at APG.

The bottom portion of the table shows the capital facility demand from BRAC growth for senior homes in Baltimore City. Based on the existing LOS standard of .01 beds per person, this amount of growth will require 22 additional senior home beds (.01 beds per person multiplied by 2,368 persons = 107 beds).

**Table 97. Capital Facility Demand in Baltimore City: Senior Homes**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		6,033 Beds
Existing Demand Units <sup>2</sup>	÷	651,080 Population
Existing Level of Service	=	0.01 Beds per Person

**Citywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	2,368 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.01 Beds per Person
Additional BRAC Demand Units	x	2,368 Population
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>22 Beds</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for summarized directory of senior homes.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.

## Baltimore City Day Care

The top of Table 98 summarizes the existing capital facility level of service (LOS) for day care facilities in Baltimore City. Population is considered the demand driver for day care, so the capital facility LOS is calculated based on the existing inventory of day care child seats in the City and the relationship to existing countywide population. The LOS for day care child seats in Baltimore City is .04 child seats per person (see the LOS report in the Appendix for more detail, including a summary of the inventory for senior homes.).

The middle of the table shows projected citywide Aberdeen Proving Ground BRAC growth from 2007 through 2017. Projections are discussed in more detail in Chapter 2. During the 2007-2017 period, there is a projected increase of 2,368 persons in Baltimore City as a result of BRAC growth at APG.

The bottom portion of the table shows the capital facility demand from BRAC growth for day care facilities in Baltimore City. Based on the existing LOS standard of .04 child seats per person, this amount of growth will require 83 additional day care child seats (.04 child seats per person multiplied by 2,368 persons = 83 seats).

**Table 98. Capital Facility Demand in Baltimore City: Day Care**

**Existing Capital Facility Level of Service**

Existing Capital Facility Inventory <sup>1</sup>		22,915 Child Seats
Existing Demand Units <sup>2</sup>	÷	651,080 Population
Existing Level of Service	=	0.04 Child Seats per Person

**Citywide Aberdeen BRAC Growth 2007-2017**

Additional BRAC Population <sup>3</sup>	2,368 Population
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**Capital Facility Demanded by BRAC Growth**

Existing Level of Service		0.04 Child Seats per Person
Additional BRAC Demand Units	x	2,368 Population
<b>Demand Due to BRAC Growth</b>	<b>=</b>	<b>83 Child Seats</b>

<sup>1</sup>Please refer to Level-of-service report in Appendix for summarized directory of day care facilities.

<sup>2</sup>Please refer to Chapter 2 for a description of existing demographic factors.

<sup>3</sup>Please refer to Chapter 2 for a description of projected BRAC-related growth.