DCN:11644

BRAC COMMISSION LETTER RECEIPTS
EXECUTIVE SECRETARIAT ROUTING SLIP

FROM: DIANE CARNEVALE, DIRECTOR, ADMINISTRATION AND OPERATIONS

TO: Gary Dinsick

DATE: 7/18/05

CC:
Frank Cirillo

_____ ACTION ITEM _____ SUSPENSE DATE X FYI/REVIEW

LOG # 063019

COMMENTS:

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RESOLUTION OPPOSING THE CLOSURE OF FORT MONMOUTH

Councilmember Schepiga offered the following resolution and moved its adoption, seconded by Councilmember Siciliano

WHEREAS, on May 13, 2005, the Department of Defense announced that it was recommending the closure of more than 30 major military bases in the United States, including Fort Monmouth; and

WHEREAS, Fort Monmouth, which has been in service since 1917, is the largest employer in Monmouth County, with over 5,000 military and civilian personnel; and

WHEREAS, local officials say that the Fort contributes $3 billion to the local and State economies, and its closure would not only put thousands of people out of work, but would also have a devastating impact on local businesses; and

WHEREAS, Fort Monmouth, which is home to the Army's Communications and Electronics Command, has long been at the forefront of developing state-of-the-art battlefield technology, including many devices currently being used by our troops in Afghanistan and Iraq; and

WHEREAS, Fort Monmouth's contributions to the war in Iraq include electronic jamming devices to interfere with the detonation of roadside bombs, airborne sensors to provide troops with radar images of both stationary and moving targets, and fielding systems to locate enemy artillery pieces and prevent friendly fire casualties; and

WHEREAS, keeping Fort Monmouth open is not only vital to the economy of the State and the County, but also to our nation's efforts in Iraq and the war on terror;

NOW, THEREFORE, BE IT RESOLVED that the Township Council of the Township of Ocean, County of Monmouth, State of New Jersey, strongly condemns the inclusion of Fort Monmouth on the base closure list submitted by the Department of

Why the Secretary's Recommendation to Close Fort Monmouth Should Be Reversed

Fort Monmouth Host Communities

Gerald Tarantolo, Mayor of Eatontown

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Fort Monmouth BRAC Presentation

- Summary of Impacts on the Communities
- Employment and Unemployment Impacts
- Government Contracting in Monmouth County
- Economic Impacts
- Concerns with DoD's BRAC Analysis

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Impacts on the Communities

- Loss of jobs for residents
  - 1,325 residents in the five host communities work at the Fort
  - An additional 787 employees live in the impacted area
- Residential and non-residential property tax revenues at-risk
- Closure could put $430 million of assessed valuation at-risk in the Host Communities, and an additional $260 million in the Impacted Communities

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Employment and Unemployment Impacts

- Direct loss of employment for more than 2,000 local residents
- Unemployment in the Host Communities could increase to 9.5%
- Unemployment in the Impacted Communities projected to increase to 5.4%
- Loss of military contract could make this problem substantially worse
  - Monmouth County contractors received more than $925 million in contracts in FY 03
  - 25% of all NJ contracts
  - Potential for significant vacancy increases in office space

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Economic Impacts

- Direct loss of 4,652 civilian jobs
- Direct loss of 620 military jobs, and the loss of military families
- Loss of location-sensitive contractors
  - Could create up to 425,000 SF of vacancy
- Potential direct loss of $75 million in retail goods and services locally, and an additional $45 million in the region
  - Could create an additional 300,000 to 500,000 of vacancy

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Concerns with DoD's BRAC Evaluation of Fort Monmouth

- Deviation on Criteria 1
- Trying to make Aberdeen more efficient at the expense of others
- Did the Secretary deviate substantially on Criteria 4?
- The impact of DoD's data error

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The Secretary Deviated Substantially on Criteria 1 – Current and Future Mission Capabilities

Tab 1
Military Value
Research, Development and Acquisition, Test and Evaluation Functions

Source: Army Briefing Book, pages 5 through 7 of 200

Fort Monmouth is ranked substantially higher than Aberdeen Proving Ground In RDAT&E Functions

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How Can a Facility so Inefficient Become the Center for Land C4ISR?

Tab 4
Capacity for Research, Development and Acquisition, Test and Evaluation Functions

Source: Army Briefing Book, page 11 of 200

At an existing utilization rate of just 11.8%, Aberdeen is clearly the Army's most inefficiently used RDAT&E site. Why is the Army maintaining 8.5 million square feet of unused space?

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Fort Monmouth has Superior Capacity to Aberdeen

Tab 6
Army Capacity Results Analysis

Despite Aberdeen's reported excess capacity in Tab 4, Tab 6 indicates that Aberdeen is lacking in wide range of facilities

Source: Army Briefing Book, pages 17 and 18 of 200

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Has the Secretary Deviated Substantially from Criteria 4 - the Cost of Operations?

- APG indicates that it has more than 8.5 million SF of unused space
- Removing vacant square footage from the total dramatically increases average operating costs
- Were other facilities evaluated fairly?

Unadjusted Average Base Operations Cost per SF

	Budget	Square Footage	Operations Cost/SF
Aberdeen Proving Ground	$ 209,980,684	14,429,407	$ 14.55
Adelphi Laboratory Center	$ 44,970,244	1,131,049	$ 39.76
Fort Belvoir	$ 128,202,380	7,954,402	$ 16.12
Fort Monmouth	$ 109,302,874	5,014,521	$ 21.80

Adjusted Average Base Operations Cost per SF

	Budget	Existing SF	Less Vacancy	Net SF	Adjusted Cost/Net SF
Aberdeen Proving Ground	$ 209,980,684	14,429,407	8,572,249	5,857,158	$ 35.85
Adelphi Laboratory Center	$ 44,970,244	1,131,049	143,924	987,125	$ 45.56
Fort Belvoir	$ 128,202,380	7,954,402	319,527	7,634,875	$ 16.79
Fort Monmouth	$ 109,302,874	5,014,521	503,522	4,510,999	$ 24.23

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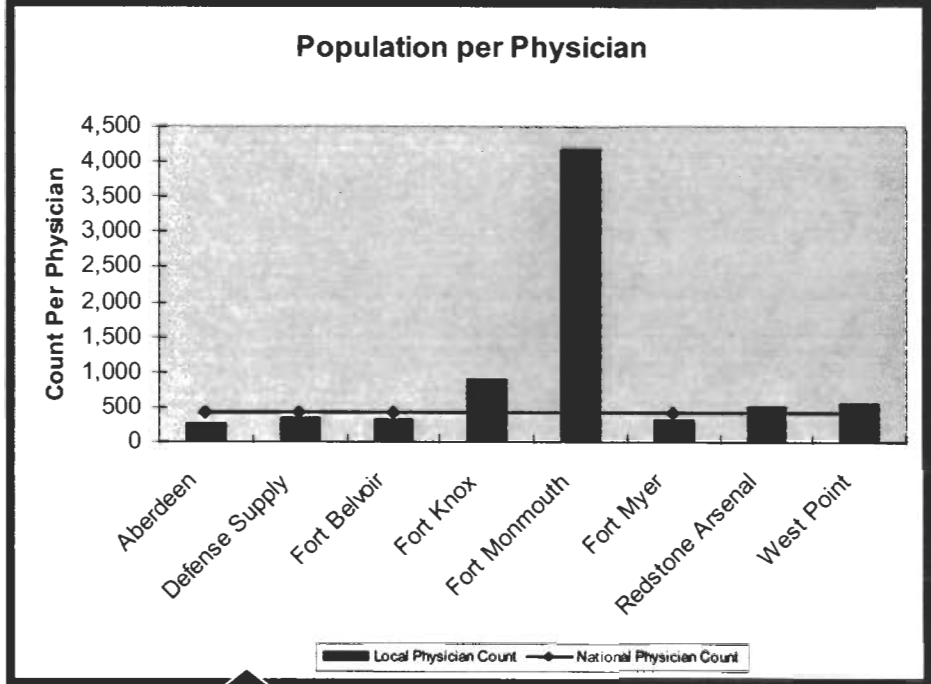
Was Fort Monmouth Fairly Evaluated?

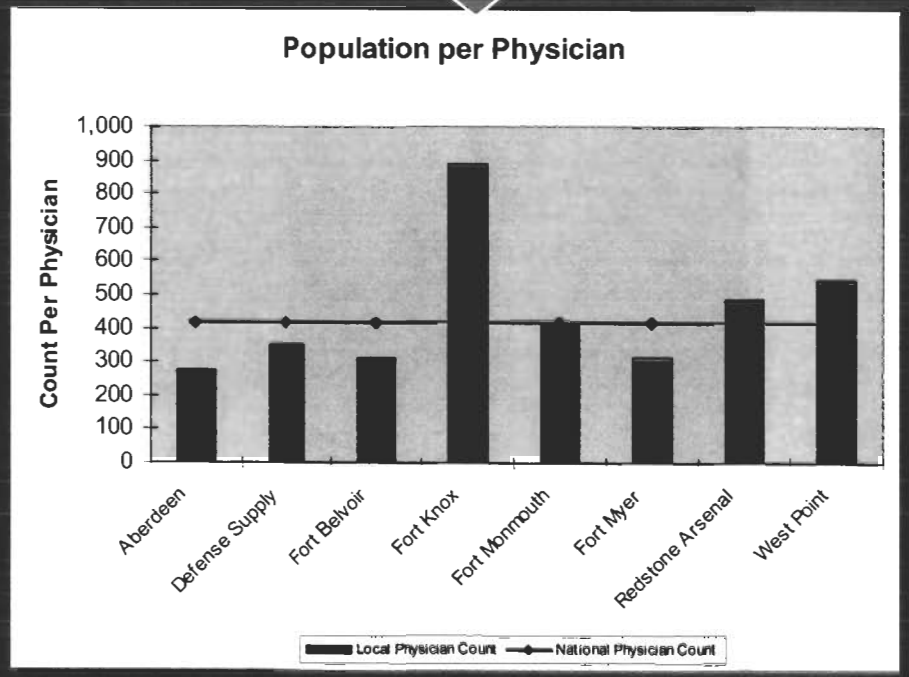
- Data error in population clearly affected how the Fort was evaluated on Medical Providers
  - Population evaluated as 11,262,127, rather than 1,126,217
    - Impacted ratio of population per medical provider, and population per hospital bed
    - Due to the domino effect, moves **from** Monmouth to some other locations inaccurately classified medical services as **improving**, rather than being sustained or declining
  - Were other evaluations impacted? Child care, employment, education?

Population per Physician



Ratio using accurate population data

SecDef ratio using inaccurate population data



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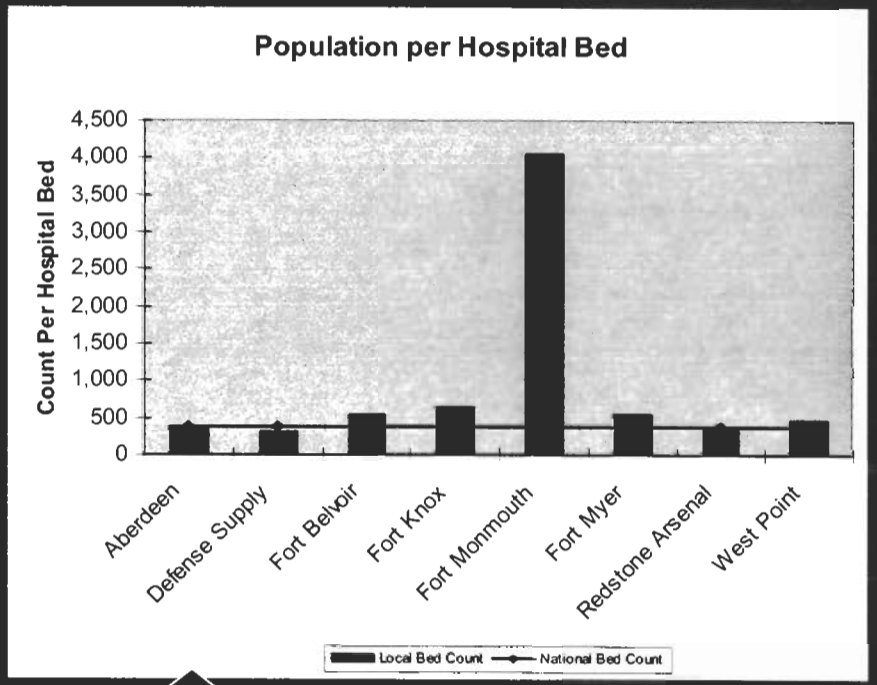
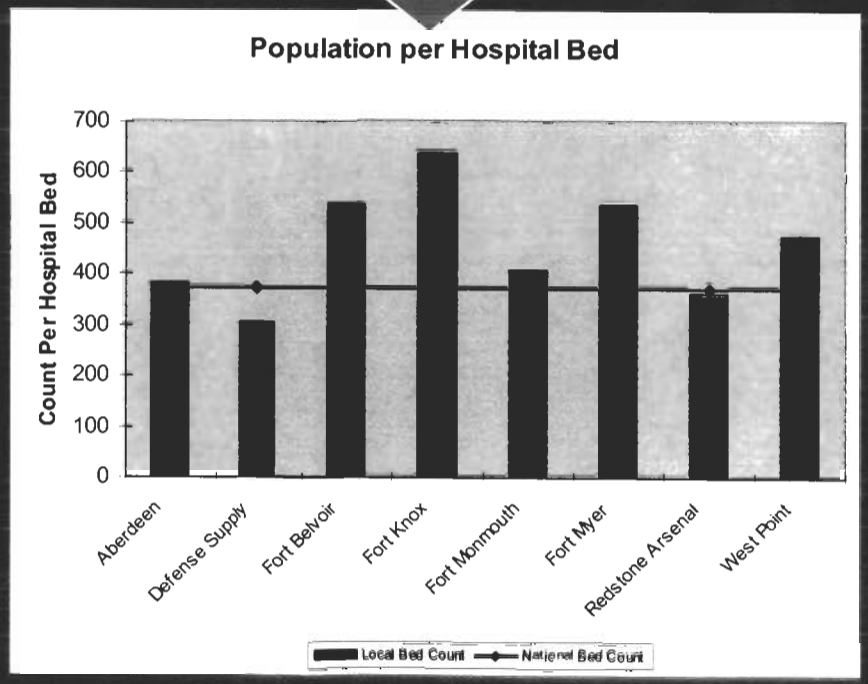
Population per Hospital Bed



Ratio using accurate population data



SecDef ratio using inaccurate population data

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Errata # 1
For
Community Rebuttal to the 2005 BRAC Recommendation to:
Close Fort Monmouth and its Fort Belvoir Elements and Re-Create a Land C4ISR Center, dated July 8, 2005

Attached are several pages which should be inserted as substitute pages in the above Rebuttal Report. We have provided sufficient pages for all reports delivered to the BRAC Commission and have modified the title page to indicate Revision 1 dated 14 July 2005.

While the majority of the changes are for clarification and/or typographical errors there is a major change to the "pay back period" which is in our COBRA data in Annex 7 but was incorrectly stated in the body of the report.

Our rough estimate was calculated simply by dividing corrected "one time cost" by corrected "recurring savings" using "constant dollars." When a formal COBRA run is made it calculates a "net present value" pay back period that is standard in all BRAC recommendations. The Report delivered to the 2005 BRAC Commission on July 8, 2005, referenced the "constant dollar" pay back period, not the "net present value" pay back period automatically calculated by COBRA.

While one can view the corrected COBRA summary and its 33 year pay back period in "Annex 7 – Costs," the 33 year pay back period does not show up in the text of the July 8 Report. We have made this and other changes in the errata sheets provided and request they be inserted into the reports left with the Commission.

The changes in the attached errata sheets are summarized below:

1. Page 6: Change " refurbishent to refurbishment."
2. Page 7:
    a. Add new bullet—"When one considers data from a DD Form 1391 prepared by West Point affiliated facilities experts in June 2005 cost to move the Military Academy Prep School increases by $202M.
    b. Added last sentence to the last bullet "estimate is $152M."
    c. Criterion 4, 1st bullet last sentence add "less than 20% of Fort Monmouth government employees will definitely move; even fewer contractors."
3. Page 8:
    a. Corrected COBRA results.... "Payback period 33 years".
    b. Additional Costs paragraph delete 1st bullet.
4. Page 13: Last paragraph change "shrinking" to "shrink" and payback period stretches by "add over 25 years".

5. Page 19: Clarification---"A June 2005 Harris Poll indicates that less than 20% of the Fort Monmouth government employees will definitely move."
6. Page 20: Add to the end of next to last paragraph: "West Point Prep Costs are understated by $ 202M." Also Section 5 1st paragraph change "21 to 33 years".
7. Page 37: 5th bullet clarification on clearances. Change ….. "averaging above 12-18 months for TS/SCI clearances."
8. Page 39: Above Figure 6 change "35 years of service and age 50 to 30 years of service and age 55."
9. Page 41: Security Issues Paragraph change: "Delay in obtaining clearances can and probably will be 12-18 months for TS/SCI."
10. Page 44: Conclusions 3rd bullet: "clearances (12-18 months)"
11. Page 61:
    a. 2nd paragraph last line delete "(6)".
    b. 3rd paragraph delete "6" and add "a small number".
12. Page 71: Step 5 delete: "this set included……variations of a single parameter".
13. Page 72: Inside Black Box change: "$376.5M to $392M."
14. Page 80: Inside Black Box change: "payback from 21 to 33 years".
15. Page 82: Paragraph starting High End of Cost Spectrum section (a): change "JP AL from 75% to 50%".
16. Page 84: Change Black Box payback from "21 to 33 years."

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Community Rebuttal
to the
2005 BRAC Recommendation to:

Close Fort Monmouth and its Fort Belvoir Elements and Re-create a Land C4ISR Center

July 8, 2005
Rev. 1 July 14, 2005

DCN:11644

Community Rebuttal
to the
2005 BRAC Recommendation to:

Close Fort Monmouth and its Fort Belvoir Elements and Re-create a Land C4ISR Center

July 8, 2005
Rev. 1 July 14, 2005

- **Criterion 1: The Secretary of Defense deviated substantially from BRAC selection criterion 1 by neither considering the "impact on Joint warfighting"** nor current access to or the future opportunities for Joint C4ISR program development, demonstrations or experimentation at the nearby Joint Base (Dix, Lakehurst, McGuire – hereinafter referred to as the "DLM Joint Base"), **and by removing existing Joint access by recommending a relocation to a base (Aberdeen) without Joint or C4ISR capability or plans.**

- **Criterion 2: The Secretary of Defense deviated substantially from BRAC selection criterion 2 by not considering current "availability of airspace" over the nearby DLM Joint Base or existing access to "ground, naval and air maneuver space available"** at the Joint Base and in the nearby, offshore, military operating area (designated: W-107). DOD BRAC deliberations include no reference to the DLM airspace or other maneuver space, and DOD BRAC analysts did not visit the existing capability at the DLM Joint Base.

    - Fort Monmouth currently has access to and uses airspace in the DLM Joint Base area and in military operating area W-107. The Fort Monmouth aviation C4ISR research and development program and its employees and aircraft are located at the DLM Joint Base. Fort Monmouth invested in C4ISR instrumentation at the DLM Joint Base ranges for demonstrations and experimentation, and established robust communications among the ranges and between the ranges and Fort Monmouth and then on to the rest of DOD and appropriate industry partners through a Fort Monmouth communications hub. The DLM Joint Base has several runways, other technical test capabilities, access to ground forces continually, and is 45 miles from W-107 where naval operators and supersonic aircraft can easily join in Joint C4ISR experiments

- **Criterion 4: The Secretary of Defense deviated substantially from BRAC selection criterion 4 by not accurately estimating "cost to relocate or the cost of operations" in the DOD BRAC recommendation.**

    - One time costs were significantly understated and recurring savings were significantly overstated. Summary follows; details pertaining to corrected DOD BRAC costs and savings are presented in the Main Report and Cost Annex:
        - DOD BRAC data understated total space needs by over 800,000 sq. ft. at Aberdeen resulting in increased MILCON costs. DOD inputs also improperly characterize that amount of refurbishment vice new Military Construction; that will increase costs. Total new MILCON costs: $474M.

- DOD BRAC COBRA inputs understate the requirement to install robust intra-base communications linkages for the C4ISR mission.
- DOD BRAC COBRA inputs and BRAC data calls inaccurately describe the magnitude of specialty laboratories/facilities that will need to be reconstructed. Added cost: $151M.
- DOD BRAC COBRA inputs do not address several special facilities that will need to be duplicated (not moved) for a period of time to guarantee continuity of operations. Added costs from $102M to $342M.
- DOD BRAC COBRA inputs considerably underestimate costs to create new hangar space and ramp space for fixed wing, helicopter, lighter than air (aerostat and blimp) aircraft storage, maintenance, mission preparation and staging. Added cost: $60M.
- DOD BRAC COBRA inputs do not include costs for "authorized personnel "over strength positions."
- DOD BRAC COBRA inputs do not include mission support services recurring costs, which reduce annual savings. There were also other Base Operations Support errors that further reduce recurring savings.
- When one considers data from a DD Form 1391 prepared by West Point-affiliated facilities experts in June 2005 cost to move the Military Academy Prep School increase by $202M.
- Not included in COBRA calculations, but a real cost to the Army and the taxpayer, is the $300M it will cost to reconstitute 3000 jobs lost in DOD recommended move. Contractor moves will also, eventually, affect costs to complete the mission; estimate is $152M.

- **Criterion 4: The Secretary of Defense deviated substantially from BRAC selection criterion 4 by neither discussing the probable "manpower implications" caused by the loss of thousands of cleared civilian, technical and/or acquisition certified employees who will not move from New Jersey to Maryland** nor including in the DOD recommendation of the costs and risks involved in reconstituting such a workforce.

  - Neither the DOD recommendation, supporting recommendations from Army and T-JCSG deliberations nor background information released by DOD mention the probable loss of 80% of the professional workforce, calculate the "cost to operations" to replace that workforce, calculate the time to reconstitute a cleared and acquisition certified workforce or comment on its impact on current war-related and high priority C4ISR transformation projects in development. "Manpower implications" associated with the loss of intellectual capital are never discussed in the DOD BRAC records or in DOD's recommendation. Historical BRAC data show that technical civilian workforces, large and small, do not relocate (less than 20% on average). A current Harris Poll survey indicates less than 20% of Fort Monmouth's government employees will definitely move; even fewer contractors.

- Reconstitution of any technical workforce in the areas most important to DOD is difficult by DOD's own admission in Congressional testimony, and other briefings and workshops as late as April 25, 2005, yet DOD never mentions the scientist and engineer supply crisis in its BRAC deliberations.

- **Criterion 5: The Secretary of Defense deviated substantially from BRAC selection criterion 5 by inaccurately estimating "costs and annual savings" thereby significantly underestimating the "payback period."** Further, the DOD recommendation did not discuss probable (and historic) lags in filling critical civilian positions or the timely completion of new, highly technical facilities. Fort Monmouth used a COBRA expert consultant to re-run the COBRA model with corrected input data; a summary follows:

  - Corrected COBRA results are:
    - One time costs: $1.5B
    - Recurring savings $74M/year
    - Payback Period 33 years

  - Additional costs:
    - When one includes the costs to reconstitute the lost workforce (not a COBRA cost, but a real cost to the Army) one must add a minimum of $300M
    - Relocation and establishment of supporting contractors (personnel costs only) , while not an explicit cost, is a cost that will be imbedded in contractor billing. Add $152M.
    - New one time real costs = $ 1.99B. Payback period = greater than 33 years.

  - Time lag:
    - A civilian professional is not required to declare his/her commitment to re-locate when the final BRAC decision is made; he/she needs only make that decision shortly before the position is actually scheduled to move (likely in the 2007-2008 timeframe). Therefore, initiation of hiring actions for expected vacancies cannot start early. One can safely estimate that by the time a civilian professional decides not to move in the 2007- 2008 timeframe, it will take an average of two years to arrange for a trained and cleared replacement ... it will take even longer to earn required acquisition certifications. A likely "personnel timing lag" affecting thousands of positions was not considered or discussed in released BRAC material.

    - Historically, one also finds that similar lags occur due to the time it takes to establish new technical facilities (laboratories, chambers,

The Land C4ISR Center exists today at Fort Monmouth, to move it will destroy a workforce and result in unacceptable program disruption.

Credibility is tested.

Secretary Harvey's testimony also stated that Fort Monmouth lacked test ranges suitable for "maneuver", thereby implying that Aberdeen would help the situation. Simply he was wrong. Formal C4ISR testing is done at places like the Electronic Proving Ground in Arizona and at large maneuver bases like Fort Irwin. Aberdeen is not now and has never been a C4ISR test site. The nearby DLM Joint Base is perfect for demonstration and experimentation testing because of its ranges, troop availability and airspace. Aberdeen cannot match this capability. The Secretary was incorrect in his understanding of formal or informal C4ISR testing and wrong in implying that C4ISR would improve by moving to Aberdeen to gain T&E efficiencies.
Aberdeen is not a better equipped facility. The highly specialized laboratories and engineering and test facilities needed for the C4ISR mission exist on or near Fort Monmouth, not Aberdeen. Aberdeen's facilities are generally inadequate (Source: 2004 Army Installation Status Report).

It appears that the DOD recommendation to close Fort Monmouth was arrived at before any analysis was conducted. On more than one occasion (e.g. on April 1st and again on April 5th) in T-JCSG minutes, one of the "Close out Checklist" items for the Army representative to the T-JCSG was: "Ensure Tech [Scenario] 35R is knitted with Monmouth closure for real good picture." "Tech 35R" refers to a scenario that would move C4ISR expertise to Aberdeen. The appearance this repeated checklist item creates is that the objective of T-JCSG (at least in April 2005) was less focused on mission effectiveness, and more focused on creating a "real good picture" that would support closing Fort Monmouth. This shows precisely the sort of "preordained" decision that Senators Collins and Lieberman recently directed GAO officials to evaluate. Although it may be merely the result of an extraordinarily poor choice of words, one has yet to find a similar entry related to other closure or realignment recommendations. Additionally, by April 2005, one would have thought that the relevant data supporting the proposed recommendations would have been firmly established, and there would have been no need to create a "real good picture" for closing a major installation and relocating the Army's premier C4ISR organization. The facts should have spoken for themselves.

The Main Report, Section 5, provides corrected costs and savings derived from that DOD data that has been released to date. Costs and savings change very significantly: Costs grow by $700M, savings shrink by $69M/year and the payback period stretches by over 25 years. Credibility in the DOD/Army data and calculations has become a real concern.
To punctuate that point:

- The United States Military Academy Preparatory School (MAPS), which is recommended for re-location to West Point recently completed $25M in upgrades to its facilities on Fort Monmouth. The recommended re-location of MAPS and the closure

Section 2. The Loss of Intellectual Capital.

The loss of a highly skilled workforce of this quality and quantity has never been experienced in DoD and certainly not in Industry; it is unique in this BRAC.

To displace over 5000 government personnel plus approximately 4000 contractor support personnel to a location without C4ISR foundation and without a C4ISR skilled workforce to absorb some of the losses will create unacceptable disruption in important C4ISR programs.

The BRAC analyses use 75% relocation as a standard for calculations — from historical analysis, technical workforces in previous BRACs moved at a rate less than 20%. A June 2005 Harris Poll indicates that less than 20% of the Fort Monmouth government employees will definitely move.

The technical workforce supply, upon which the DOD relies, is in crisis by DOD's own admission in Congressional testimony and briefings right up through April 2005. While the loss of thousands of scientists and engineers and certified acquisition officials in this BRAC move will cause unacceptable program disruption, the unlikely ability to reconstitute such a large and talented workforce in a useful timeframe is an equally serious problem.

Costs to reconstitute the lost workforce will be significant (calculated to be $300M).

Section 3. Program Disruption

The BRAC recommendation to close Fort Monmouth and re-create it at Aberdeen risks: (1) serious current program disruption affecting support to an ongoing war and (2) an ability to deliver on priority approved and scheduled Army and Joint C4ISR programs. Particularly at risk are programs with major development, experimentation, test and acquisition milestones in the period 2007 -2011. Several examples are provided in the main report.

The loss of cleared, certified, trained, experienced DOD civilian personnel will accelerate as Fort Monmouth approaches its nominal closing date. Replacement hiring will be slow to gain momentum due to current crisis in the supply of clearable scientists and engineers in America. The Army will experience a major technical "personnel time gap" in the last half of this decade. One can conservatively estimate that the workforce will be less than 50% capable (i.e., a combination of unfilled positions, newly-hired employees not cleared and/or certified, and new employees not adequately trained).

Likewise, facilities complexity and historical evidence indicates that re-creation of many technical facilities will encounter design, cost, build and outfitting delays thereby preventing timely decommissioning of facilities at Fort Monmouth and incurring extra costs. When new hires can be found, but adequate facilities are not ready to accept them at Aberdeen, then the Army risks disruption again.

Section 4. Analysis of RDA and T&E Integration

Examination of the BRAC processes in the Army and within the T-JCSG shows that there was a breakdown in philosophy about integration of R with D&A and with T&E. In the end, after many attempts, the final DOD BRAC recommendation did not move R, moved the huge D&A segment to a place with virtually no C4ISR capability, and never consolidated T&E with RDA, even though the DOD and Army incorrectly claimed efficiencies by collocating RDA with T&E at Aberdeen – a base with no C4ISR T&E capability now or planned. In fact, the Army's designated center for C4I T&E is the Electronic Proving Ground at Fort Huachuca, AZ. No multi-functional integration was accomplished. Certainly collocation of RDA with T&E should never have been attempted, but to claim it was achieved is simply wrong.

Section 5. Cost Credibility

Criteria 4 and 5 demand reasonable cost benefit in BRAC recommendations. Assumptions made and data used in the DOD recommendation regarding Fort Monmouth/Belvoir defy credibility: costs are underestimated by $700M, recurring savings overestimated by $69M, bringing the payback period to 33 years.

Military construction and refurbishment estimates for both Fort Monmouth and the Night Vision Lab at Fort Belvoir omitted large areas or did not consider costs to rebuild existing specialized facilities.

Costs for several Fort Monmouth special capabilities slated to be relocated were not properly estimated (e.g., the satellite ground station cluster).

Over the past several years Fort Monmouth has invested in instrumented C4ISR ranges, inter-range high bandwidth connectivity and high bandwidth connectivity from the ranges to Fort Monmouth and then onward to other portals in DOD. These costs were not considered. Nor were costs to connect on-base C4ISR facilities at modern (and existing) standards. West Point Prep costs are understated by $202M.

Costs were not well estimated in setting up an aviation C4ISR capability at Aberdeen's Phillips Field. Fort Monmouth's flight capability at nearby Lakehurst has significantly more ramp and hangar space than that available at Phillips. One time costs for Aviation related MILCON are underestimated. Recurring-costs (not calculated herein) associated

3.0 THE LOSS OF INTELLECTUAL CAPITAL: Deviation from Criteria 1, 4, 7

The loss of a highly skilled workforce of this quality and quantity has never been experienced in DOD and is unique in BRAC 2005. To displace over 5000 government personnel plus approximately 4000 contractor support personnel to a location without a C4ISR foundation and without a C4ISR skilled workforce to absorb some of the losses will mean unacceptable disruption and will take at least a decade to overcome.

A large percentage of the workforce will not move:

- BRAC report uses 75% relocation as a standard for calculations – history over all BRAC periods show that *technical workforces moved at a rate less than 20%.*
- Fort Monmouth/Belvoir C4ISR personnel are a highly skilled and an "in-demand" workforce that has many options for outside employment. *Statistics for recent hiring in New Jersey punctuate this point. New Jersey currently has America's lowest unemployment rate and technology job opportunity growth is expected to continue.*
- Data on technology workforce moves from past BRAC decisions do not support the large percentage used as the BRAC calculation standard. *Estimates are that well less than 20% will go.*
- Recruitment, time delays in training the workforce and high cost of trying to obtain the right people are understated or not considered. *Our estimates are that it may take as much as 100% (average) of salary to obtain new people when all factors are considered.*
- There is an excessive time to get clearances and majority of the new workforce must be cleared at the Secret level to function. *Clearances cannot start until the employee is hired and are averaging above 12- 18 months for TS/SCI clearances. This is all lost and unproductive time.*
- Establishing the credentials for the Acquisition Certified Work Force takes time to meet experience thresholds and continuing educational requirements.

C4ISR is a dynamic and challenging multi billion dollar business for Fort Monmouth and its elements at Fort Belvoir. The lynchpin for this successful business is the dedication and competence of the personnel and the system engineering expertise that integrates its multiple products. Personnel in C4ISR constitute "critical infrastructure" just like a three mile long pier is considered "critical infrastructure" for seagoing ammunition loading. Fort Monmouth's active R&D activities include: rapid adaptation of commercial products; the largest Army Small Business Innovative Research program; a large number of Cooperative Research and Development Agreements with Industry; dynamic interaction with Industry Independent Research and Development programs; networked laboratories; and field experimentation to better evaluate emerging technology in a real environment. *The annual funding for the R&D activities is $876 Million on average.*

and we do not anticipate any significant number of "experienced" industry personnel taking government jobs due to significant pay differences.

Figure 5 below shows the statistics of the personnel implementing Research (Applied Research and Advanced Technology Development) and also providing Department of the Army matrix engineering support for the various PEO/PMs. The workforce is highly technical averaging 18 years experience with 67% Engineers; 12% Scientists; and 3% Business. 82% have Degrees with 39% Masters or higher. Many S&Es have crossed the technical disciplines shown in the figure increasing their value to the organization. Because of the co-location of Research (R) with Development and Acquisition (D&A), many people have worked in both the certified acquisition world and the R&D world. It is not unusual to find individuals that have worked Intelligence, Command and Control, and Communications in both program management and technology development positions. This level of across-the-board capability cannot be easily recruited; it must evolve as part of a career path.

Technical Discipline	# People	Degrees BA/BA, M, PhD	Clearances Conf.—TS/SCI
Command & Control	355	289 (81%)	340 (96%)
Intelligence & Info Warfare	372	311 (84%)	372 (100%)
Software	244	243 (100%)	230 (94%)
Communication	461	394 (84%)	400 (87%)
Night Vision & Sensors	517	378 (73%)	500 (96%)
Headquarters	106	73 (69%)	100 (94%)
Totals	2055	1688 (82%)	1942 (95%)

Figure 5: R&D Workforce Statistics

Over the next five years, 1336 of the skilled R&D personnel are eligible for retirement or optional retirement (65% of the workforce) under the old Civil Service Retirement System. With an average age of 48, most would normally remain until age 61 (a real statistical average) but BRAC would force them to make an early decision to leave with the majority of the senior personnel leaving early because of their market value. It is relatively easy to recover a 2%/year pension loss once employed at a higher salary in industry. The majority of this workforce has high security clearances with many at the SCI level. Those hired in the past approximately 25 years are under the Federal Employee Retirement System, which is a portable system, akin to a 401K plan. These employees are not "handcuffed to 30 years of service and 55 years of age. They can choose to carry their pension contributions with them to a Federal or non-Federal employer in the prospering New Jersey technical employment environment.

Figure 6 shows the Development and Acquisition (D&A) personnel statistics which include the Post Deployment Software support and the Logistics functions. While the number of degrees is lower than those found in Fort Monmouth/Belvoir's R&D components, the average years of experience is the same 18 years. This workforce is also highly

Area	# People	Degrees BA/BA, M, PhD	Clearances Conf.—TS/SCI
Cmd. Control, Communication	275	176 (64%)	275 (100%)
Intell. EW & Sensors	106	67 (63%)	106 (100%)
Software Engineering	156	101 (65%)	156 (100%)
Logistics & Headquarters	1943	1071 (55%)	1943 (100%)
Totals	2480	1415 (57%)	2480 (100%)

Figure 6: Development & Acquisition Personnel Includes Software & Logistics Support Plus Command Hqs.

facilities and operate as an extension of the government. Industry labs are utilized in direct support of and critical to the Fort Monmouth mission. We also found that 15-18% of this workforce is retired military or government yielding a very large number of years of practical and program management experience. Our recent survey indicates that 80% of this workforce would not move; 100% of those company's employees who are retired military or government personnel would not move.

A loss of the direct support industry base (only 20% moving) will exacerbate the loss of government personnel. In addition, Industry offering higher salaries would probably hire people "away" from their customer—the government. If we need to hire a contractor cleared workforce on the order of 3200 people (80% of the estimated 4000 contractors) along with the government workforce estimated 4500 (80% of 5000) as well, it will create huge holes in C4ISR capability. The clearance delays alone, which can only begin once an individual is hired, will bring operations to a halt.

SECURITY CLEARANCE ISSUE:

The large number of security cleared personnel required to execute the C4ISR mission will present an insurmountable task to recruit, hire and train personnel with adequate clearances who also have the requisite expertise to implement the Fort Monmouth C4ISR mission. Delays in obtaining clearances can and probably will be 12-18 months for TS/SCI. The clearance process can only begin once the individual is hired. This will result in unacceptable delays in hiring what is essentially a new workforce at Aberdeen.

Dr. Sega, the Director of Defense Research & Engineering, in his testimony before the Subcommittee on Emerging Threats and Capabilities of the Senate Armed Services Committee, on 9 March 2005 indicated the following:

- There is an increasing and growing concern about the availability of cleared S&Es for the DOD workforce.
- 60% of federal employees are over 45 years old and will be retirement eligible shortly under both the CSRS and FERS.
- A significant number of the workforce with valuable skills will be eligible for retirement and in fact, under FERS, most employees would consider their retirement contributions as portable.
- There is a declining supply of U.S Citizens awarded degrees in defense related S&E fields.
- DOD will face increased competition with domestic and global commercial interests for top notch cleared people.

Dr. Sega said: "The department is struggling to recruit enough engineers".

NEW JERSEY SCIENCE & ENGINEERING HIRES IN 2004: To reinforce the opportunities available in New Jersey, we surveyed recent S&E hires in 2004:

- 23,742 new hires for S&E related occupations per quarter.
- New hires for S&E accounted for 5% of total state new hires (464,548).
- 11,545 S&E degrees conferred in FY 2004.
- S&E Degrees accounted for 18.8% of total State Degrees in FY 2004.
- Computer Systems Design and Related Services ranked 1st in terms of new hires.
- Telecommunications industry ranked 3rd in terms of new hires.

CAN THE TECHNICAL SKILLS AT ABERDEEN FILL THE GAP?

Answer: No. Aberdeen employs a number of S&Es in chemical and biological warfare defense and in the Army Research Laboratory's materials sciences and super-computer programs. These disciplines are not compatible with the C4ISR development and acquisition (D&A) functions being recommended for relocation to Aberdeen. The very limited number of C4ISR personnel and their very minor programs (<$4M/year) cannot serve as a base upon which relocating employees or new hires can "fall in" on nor can that very, very small Aberdeen cadre of C4ISR employees make an easy transition to developing and fielding C4ISR systems.

We also examined the capability of the workforce at Adelphi and find C4ISR personnel conducting basic research and exploratory development, which transitions to Fort Monmouth and Fort Belvoir for productization. The skill set at Adelphi is not compatible with the advanced technology development; systems development and demonstration, production, logistics, and sustainment mission for Fort Monmouth/Belvoir. They have neither the technical orientation nor the acquisition experience to fill personnel gaps.

CONCLUSIONS FOR LOSS OF INTELLECTUAL CAPITAL

- BRAC analysis has not given sufficient weight to C4ISR Intellectual Capital. *The process is flawed because the cost model uses 75% as a standard for relocation calculations, but the reality of a 20% move is never factored into the Military Value or Military Judgment analyses and therefore DOD has violated their criteria.*
- The combined workforce of 5000 government personnel and 4000 industry personnel in direct support will result in a significant loss of capability. *The absence of cleared people with C4ISR experience will seriously impact Army and Joint missions. Even assuming a higher percentage will move, the problem still remains, especially if only the younger, less experienced people move.*
- Excessive delays in obtaining high level (TS/SCI) security clearances (12- 18 months) will create a critical personnel vacuum, with hired people being unable to work efficiently because of the absence of a clearance. For the many programs requiring an SCI clearance, the loss of productivity is extreme. *Clearances are a major problem since a condition of employment in most areas of C4ISR is having a Secret Clearance.*

We conclude that the current approach for integrating C4ISR basic and applied research (6.1 and 6.2) done by ARL with the applied research and advanced technology development (6.2 and 6.3) being done by Fort Monmouth is working adequately and neither organization should be moved. Both organizations are technologically sophisticated and deal in a world of digital information management; if they had to be collocated to work effectively together, then there would be no hope of ever getting the less sophisticated warfighter client to use digital information management over distances to win wars.

C4ISR ACTIVITIES AT ARL (A brief summary): At ARL, C4ISR research activities are concentrated in two Directorates: Computational and Information Sciences Directorate and Sensors and Electronic Devices Directorate – *both located at Adelphi.* ARL also integrated all vulnerability assessment in one organization, the Survivability Lethality Analysis Directorate, *with C4ISR assessment located at Fort Monmouth to be close to the C4ISR development expertise.*

The Army Research Laboratory (ARL) Computational and Information Sciences Directorate (CISD) deals in information sciences and technology research. The research mission is focused on battlefield communications and networks, data fusion and knowledge management, battlespace weather and environmental effects, and computational science and engineering. The CISD mission (600 staff) areas include the operation of the ARL DOD Major Shared Resource Center (MSRC), the Army High Performance Computing Research Center (AHPCRC), and the ARL Federated Laboratory Consortia for Telecommunications and for Advanced Displays. The C4ISR staff is located at Adelphi and the personnel at Aberdeen run the Major Shared Resource Center and High Performance Computing Center and have no C4ISR expertise. There is a very small staff of C4ISR personnel located at Aberdeen.

The ARL Sensors and Electronic Devices Directorate conducts research in sensors, including radar, electro-optic, night vision, radar and acoustic. Additionally, the directorate is responsible for research in power sources for sensors and other lightweight Army applications. The Directorate is also responsible for two CTA programs, Advanced Sensors and Power and Energy. The staff (360) is located at Adelphi with a small number located at Aberdeen. SEDD interfaces very effectively with CERDEC Night Vision and Electronic Sensors Directorate.

Bottom Line for ARL: Very small number of personnel at Aberdeen which cannot alleviate the C4ISR personnel vacuum caused by the BRAC recommendation. Excellent research staff at Adelphi working well with Fort Monmouth and Fort Belvoir CERDEC personnel with a proven process for transitioning basic and applied research into technology development.

Step #4 – Analyzed the results of the COBRA runs in Step #3 to identify which parameters and potential combination of parameters demonstrated any errors in the BRAC process.

Step #5 – Based on the analysis performed in Step #4, and any additional input from other stakeholders, selected a refined set of parameters that should be varied in a second set of parametric runs.

Step #6 – Made the series of COBRA runs for the parameters and combinations of parameters identified in Step #2.

Step #7 – Analyzed the results of the COBRA runs in Step #6.

MILITARY CONSTRUCTION: Laboratory and Administrative

AREA	COBRA	Revised COBRA	Cost Increase
Facilities Ft. Mon	$368M	$647M	$279M
Facilities MAPS	$24M	$219M	$195M

In analyzing the space required to be built, or modified, we utilized data from the Army Facilities Details (R-Plans) Reports (see Annex Documentation) for Fort Monmouth and Fort Belvoir. Based on feedback from the July 1, 2005, Congressional visit to Aberdeen and its review of facilities to be modified the assumption was made that all "new construction" is required. A DD Form 1391 prepared by its parent organization in June 2005 for the move of the Military Academy Prep School (MAPS) was utilized to better estimate its costs; a small standard factor for "design" was added which was not included in the DD Form 1391.

We accepted the COBRA analysis for the Intelligence Information Warfare Division (I2WD) facility which is a SCIF that houses very sophisticated equipment and employees all of whom are cleared at the SCI security level. That facility is 176,000 square feet at a cost of $375/sq. ft for a total cost of $66.5M.

However, in the other areas of both laboratory space and administrative space the DOD analysis considerably underestimated and made errors in the size and space required, based on functions to be performed. The administrative space required is 1,287,746 square feet and the laboratory square feet required is 1,161,812. Using these more correct space requirements, but using the BRAC cost data of $150/sq. ft. for

administrative space and $320/sq. ft. for laboratory yields an Administrative Facility cost of $193,161,900 and a Laboratory Facility cost (above the I2WD facility discussed above of $371,779,840) brings total C4ISR facilities costs to $564,941,740.

As indicated above, the Military Academy Prep School costs are considerably above (~$200M) the BRAC estimate when all factors and requirements for "separated" facilities are taken into account. The Cost Annex contains the DD Form 1391 which was the basis for the corrected estimate.

MILCON facilities are significantly larger than assumed in the BRAC analysis and supported by the corrected COBRA runs and found in the Cost Annex. DOD BRAC data calls did not "capture" all of the facilities at Fort Monmouth and Fort Belvoir, and the current condition of existing facilities will not permit refurbishment, therefore increasing new construction cost. MAPS costs were also increased based on available DD Form 1391 data. The BRAC estimate for the MILCON area was: $392M; the corrected data indicate costs of $866M -- yielding a cost difference of $474M.

AVIATION: Includes Replication of Existing Lakehurst Capability

AREA	COBRA	Revised COBRA	Cost Increase
Facilities	**$56M**	**$116M**	**$60M**

The Fort Monmouth/Belvoir mission responsibilities include using manned and unmanned aircraft with C4ISR equipment installed. The capabilities of the Lakehurst Naval Air Engineering Station's Army facilities will be discussed in the Main Report Section 7, but are summarized again to show the magnitude of those facilities.

The Lakehurst facility "houses" experimental aircraft including: rotary wing aircraft; fixed wing aircraft; UAVs; and lighter-than-air craft. This facility allows:

- 24/7 airfield operation capability (VFR/IFR)
- Low altitude/high altitude—day/night Night Vision flight testing
- UAV flight testing
- Blimp/aerostat R&D operations
- C-130 modification support
- Aviation support for units mobilizing at Fort Dix.
- Aviation support of C4ISR testbed
- Modifications and test flights for HH-60L and UH-60L fielding
- Jet Tracks for AH-64 laser testing

efficiency reductions target). Considering the continuous downsizing, rightsizing, streamlining and reshaping of the Army workforce over the last 15 years, an unsubstantiated "efficiency savings" cannot be unchallenged. Absent any definitive substantiation of the savings, they should be ignored and expunged from Scenario 0223V5 cost savings position. [Annex 7-Cost]

Correcting BOS data is significant to the calculation of recurring savings and, hence, to a proper calculation of the payback period. The payroll factor while small is also significant because it will reduce recurring savings.

COBRA DATA CONCLUSION:

- ***The DOD COBRA analysis is flawed, does not account for major cost items and overstates savings***
  - ***The cost increase above the COBRA estimated $822M is an additional $719M bringing the total cost for this move to $1,541M.***
  - ***The BOS and payroll data are in error bringing the recurring annnual savings down from $143M to $74M .***

Using corrected COBRA data the total cost of closing Fort Monmouth/Belvoir activities and moving all elements to Aberdeen, and moving the Military Academy Prep School as yields a onetime cost of $1541M with a payback period of 33 years—well beyond the original estimate of 6 years.

5.2 NON COBRA ANALYSIS

Recruitment & Training

A significant factor ignored by the Department's "terms of reference," yet applicable to Criteria 4 and 5, is the cost of replacing the workforce at the gaining installation. The omission can perhaps be wished away by focusing on the Department's use of a low percentage (25%) of personnel that will decline to relocate. The Department's standard cost model assumes that 75% of the civilian population will follow their positions. Preceding sections this report assesses previous BRAC closures and realignments and documents the number that will move to be 20% or less; a recent survey validates the historical figures (19% will chose to move). Regardless, significant hiring must occur at Aberdeen; if history repeats there will be a need to hire vast quantities (well over 3,500) of personnel and of that number 3,000+ must be highly skilled specialized technical talent.

and marketing; recruitment, hiring and training; overtime to personnel taking up the slack; productivity losses; and lost training for departed workers. The article cites the Saratoga Institute study previously referenced. The Bliss conclusions are further supported by the work of Kwasha Lipton (150% of salary for exempt workers, 175% for non-exempt workers). The article concludes, "Regardless of the exact number of businesses, there is widespread agreement that turnover costs are somewhere between high and Olympian."
The COBRA model reflects an increase of just over 5,000 personnel at Aberdeen from various relocation sites at the conclusion of the base-closing exercise. After considering the elimination of spaces and transfers to and from various locations, DoD's analysis reflects a transfer of 3,879 civilians from Fort Monmouth and 767 from Fort Belvoir to APG for a total of 4,646 civilian personnel. Of this total, a maximum of 20% of employees are expected to transfer to their new location. This percentage is a reasonable application of experience data from several previous moves of a parallel nature. The remaining 80%, (3,717 employees), will have to be hired at APG. For most administrative/clerical personnel, the cost of recruitment and training will be negligible. Therefore, a pool of qualified, non-professional applicants is assumed to exist at all locations. For purposes of this analysis, 15% of the personnel are considered administrative/clerical and the remainder skilled professionals. Given the differences of the functional knowledge required to develop, acquire, test and field C4ISR systems and equipments, the professional skills domain is split into two subsets; Scientists/Engineers (SE) and Acquisition/Logistics (AL). However, as described above, the effort to recruit experienced, specialized, engineering, scientific and acquisition personnel will be substantial and drawn out. It is unlikely that the recruitment process will succeed in acquiring fully experienced C4ISR technical and acquisition personnel, therefore training will be required.

COBRA used a single salary factor for civilians of $59,959. For purposes of recruitment and training of senior and journey-person SE and AL personnel, this number is totally unrealistic and, as a result, other outlets were searched for better and more realistic cost data. The source decided upon was the Bliss study with adjustments to tailor the calculations and then results were generated for both ends of the cost spectrum. For costing purposes, the salary of a GS-14/Step 5 was chosen as representative of senior employees and for journey-person (JP) employees, GS-13 and below, the salary of a GS-12/Step 5. In all cases 28.9% is applied for cost of benefits.

High End of the Cost Spectrum.

a. Recruiting Cost Factors. The Bliss study percentage of full salary (150%) was applied for senior SEs and adjusted down for JP SEs (75%), Senior AL (100%) and JP AL (50%) positions.

b. Training Costs Factors. Training is conservatively estimated to be required for at least a three-year period. The assumption is that the newly hired SE employee will be in a training environment three months of each year for three years and

workforce will be unable to complete their responsibilities until all required clearances are granted. (Annex C -Cost]

NON COBRA CONCLUSIONS:

- ***The cost of recruiting, hiring, clearing and training, a workforce of the size required to fill the voids for the thousands or skilled people not electing to move is conservatively estimated to be $300M.***

COST CONCLUSIONS

The total COBRA and Non COBRA costs are estimated at $1.99B with a payback of over 33 years. This estimate does not even consider program disruption cost caused by program delays and inefficiencies and contractor workforce cost passed on to the government—these would make this already dismal cost to implement the BRAC recommendation even more unattractive.