July 8, 2005, 7:30AM

1. The justification for the recommendation to "Relocate the US Army Military Academy Preparatory School to West Point, NY" states that this move "increases training to enhance coordination, doctrine development, training effectiveness and improve operational and functional efficiencies". Please discuss these improvements.

USMA response pending.

2. Part of the recommendation is to "Relocate the Joint Network Management System Program Office to Fort Meade, MD." What are the functions that these personnel perform, and what is the efficiency that will be gained from this movement?

The Communications-Electronics Life Cycle Management Command (C-E LCMC), PEO Command, Control and Communications-Tactical, Program Manager Tactical Radio Communications Systems (PM TRCS) has a program called the "Joint Network Management System". Joint Network Management System (JNMS) is a tool to accomplish joint-level communications planning and network management functions conducted by a Joint Communications Center. It supports Network Operations in the areas of high level planning, detailed planning and engineering, spectrum planning and management, and network management. If the true intent is to establish a Land C4ISR LCMC, then JNMS needs to remain with the group of Network Operations systems which include, in addition to JNMS, Integrated Systems Control (ISYSCON), Tactical Internet Management Systems (ISYSCON V4/TIMS), Army Key Management (AKMS), and Information Dissemination Management Tactical (IDM-T) which are relocating to Aberdeen Proving Ground. The majority of program support is provided on-site to JNMS by C-E LCMC (all recommended for relocation to Aberdeen Proving Ground). Without this support, there would be significant loss of program history and experience. **We are not aware of any efficiencies to be gained from movement to Fort Meade.**

3. Please elaborate on the functions and mission of people impacted by the recommendation to "Relocate Information Systems, Sensors, Electronic Warfare, and Electronics Research and Development & Acquisition (RDA) to Aberdeen Proving Ground, MD."

Summary:

The people impacted by the recommendation execute the life cycle for Command and Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) systems from research and development of technology, system development, testing and acquisition, system fielding and new equipment training, to system readiness (sustainment and maintenance) and upgrade as long as the system remains in the Army inventory.

- **These systems provide critical capabilities to the Warfighter. The systems are pervasive across all the Army's platforms (soldiers, ground vehicles, aircraft, etc.) and involve tactical, strategic and sustaining base systems.**
- **Team C4ISR simultaneously supports current operations, modularity, and transformation to the future force.**
- **Team C4ISR technologies are being applied to Homeland Defense requirements.**
- **The scope of the mission is enormous involving half of the items in the Army's inventory of nationally stock numbered items and overall FY04 contract obligations of $8B including $1.9B in spare parts**

Mission

As an integrated entity, Team C4ISR develops, acquires, fields and sustains tactical, strategic and sustaining base C4ISR systems for the Joint Warfighter.

C4ISR systems give the Warfighter the capability to:

- See and hear the enemy and to disrupt and deny the enemy's capability to do the same;
- Communicate through space and airborne communications and relays, terrestrial means and manportable devices;

- Out-think the enemy, by giving the Warfighter the tools to make decisions faster than the enemy;
- Survive by providing jammers and countermeasures that improve aircraft survivability, ground survivability, force protection and mine detection.

Team C4ISR manages over 6,000 C4ISR systems, some stand alone (also called end items), as well as C4ISR systems that are integrated into weapon system platforms...from the foot soldier, vehicles, helicopters, to Theatre Support Vessels, Team C4ISR systems are integrated with every major weapon system platform.

Organizational Elements

Team C4ISR is headquartered at Fort Monmouth, NJ and consists primarily of three organizational elements who work together to develop, acquire, field and sustain C4ISR systems for the Warfighter:

- The Communications-Electronics Research Development and Engineering Center (CERDEC). CERDEC is part of the Research, Development and Engineering Command (RDECOM), a Major Subordinate Command (MSC) of the Army Materiel Command (AMC). CERDEC is responsible for the research and development of C4ISR products and technologies.

- The Communications-Electronics Life Cycle Management Command (C-E LCMC). C-E LCMC reports to AMC and to the Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASAALT). C-E LCMC includes two Program Executive Officers (PEO): PEO Intelligence, Electronic Warfare and Sensors (IEW&S) and PEO Command, Control and Communications-Tactical (PEO C3T). These PEOs are responsible for the program management and systems acquisition of intensively managed, high dollar value defense systems. Additionally, C-E LCMC provides for the readiness and sustainment for C4ISR systems, both hardware and software, as well as contracting, legal and other staff support.

- The PEO for Enterprise Information Systems (EIS). This PEO reports to the Army G6/Chief Information Officer and ASAALT. This PEO is headquartered at Fort Belvoir; however, several program management offices are located at Fort Monmouth (e.g., Project Manager (PM) for Defense Communications and Army Transmission Systems (DCATS) and the PM for Defense Communications and Army Switched Systems (DCASS)). The PMs DCASS and DCATS programs are crucial to the sustaining base and strategic infrastructure of the LandWarNet concept supported by Team C4ISR and the PM DCATS relies heavily on matrix personnel and facilities of the CERDEC and C-E LCMC. The PEO EIS elements currently located at Fort Monmouth are identified to move to Fort Belvoir.

Life Cycle Support to C4ISR Systems

Team C4ISR is responsible for the full life cycle of support to C4ISR systems, from "Concept to Combat." Life cycle support includes Research, Development and Engineering; Program Management and Systems Acquisition; and Readiness and Sustainment. The team provides life cycle support for tactical C4ISR systems (systems that are used on the battlefield by the Warfighter), strategic systems (systems that provide the Warfighter reachback to headquarters, posts, camps and stations) and sustaining base systems (infostructure of bases, such as wiring/cabling, telephone switches and networks).

- Research, Development and Engineering. Team C4ISR leads three of the eight Advanced Technology Demonstration (ATD) programs and manages and executes 46 of the 181 Army Science and Technology Programs. These programs help to define "the art of the possible" and help to mature technology as it proceeds to become a specific weapon system/or part of one. Dollar-wise as well as people-wise, Team C4ISR has the Army's 2nd largest Science and Technology organization.
- Program Management and System Acquisition. Team C4ISR manages 98 major defense C4ISR programs – over $34 billion worth over the next five years. These are high dollar weapon systems that have statutorily imposed management requirements and are crucial to the

development of Network Centric Warfare (Network Centric Warfare means a networked force shares information by means of a secure infrastructure that enables collaboration, thereby enhancing the quality of the information, improving situational awareness, and ultimately, resulting in more effective military operations.)

- Readiness and Sustainment. Team C4ISR supports the Warfighter today, day and night, providing spare parts and maintenance through its National Inventory Control Point and National Maintenance Point. In FY04, spare parts purchases amounted to $1.9 billion and this is estimated to grow to $2.3 billion for this year. Team C4ISR has 247 Logistics Assistance Representatives (LARs) deployed worldwide – these are individuals that provide technical assistance on the team's systems to the Warfighter. Currently, Team C4ISR has 43 LARS in Iraq and 8 in Afghanistan. Additionally, Team C4ISR has 161 Field Software Engineers deployed worldwide – providing software technical assistance. Currently, there are 35 in Iraq and 7 in Afghanistan. Every Army item used on the battlefield has an identification number – a National Stock Number – and Team C4ISR manages over half of all the Army items - that's over 51,000 items. Team C4ISR is responsible for the software for the majority of the Army's deployed systems as well as systems employed by Joint, Allied and Coalition forces. That's over 200 systems and 215 million lines of Code. In FY 04, Team C4ISR accomplished 887 fieldings of equipment. What that means is that 887 times, Team C4ISR delivered a suite of equipment to Warfighters somewhere in the world. In addition, 762 times, teams from Fort Monmouth and subject matter experts provided new equipment training to users in the field worldwide. Team C4ISR systems are repaired at Tobyhanna Army Depot – a Joint C4ISR depot ($714 million program) that Fort Monmouth manages just a two-hour drive from Fort Monmouth.
- Procurement. In support of the C4ISR life cycle mission, Team C4ISR has a large procurement function, ensuring the contractual vehicles are in place with our industry partners and that they are delivering the products and services required. This function continues to grow, as evidenced by the dollar value of contractual actions displayed below:

  FY 03 - $6.3 billion
  FY 04 - $8.0 billion
  FY 05 - $10.0 billion (estimated)

Partners in Industry and Academia

The technological systems that Team C4ISR, along with its Industry and Academia partners have developed, fielded and supported were principal contributors to victory in Operations Enduring Freedom (OEF) and Iraqi Freedom (OIF). This industry/academia/government team has improved America's warfighting capability and has contributed greatly to concepts such as "Network-Centric Warfare" and "Force 21 Digitization" enabling total information dominance for Commanders and Warfighters. These technologies have given Commanders an unparalleled and unprecedented ability to see the enemy first, to understand rapidly what is happening on the battlefield and to act decisively and with precision. The road toward information dominance on the battlefield will continue to be led by Team C4ISR and its industry and academia partners.

Team C4ISR currently maintains approximately 46 Cooperative Research and Development Agreements (CRADAs) with Industry and Academia. These CRADAs are a part of the CERDEC's core technology base program and result in ground-breaking C4ISR research, development and engineering.

Fort Monmouth is strategically located for science and technology excellence, with local firms such as Lucent, Telcordia, Sarnoff and Lockheed Martin supporting the Team C4ISR mission. The NJ Institute of Technology, Stevens Institute of Technology, Monmouth University, Rutgers University, Princeton University, University of Pennsylvania and Drexel University are located nearby. Team C4ISR has established training and education agreements with many of these universities, resulting in curriculum that is focused on the Team's mission-specific needs.

The relationship with academia and industry has allowed Fort Monmouth and Team C4ISR to develop a high level of technical synergy that enables the exploitation of research activities as well as optimizes the ability to meet manpower surge requirements in support of rapid responses to crises.

Support to Current Force

Team C4SIR projects its workforce worldwide in support of the Warfighter, sending personnel to over 32 countries, to include several classified locations. The workforce at Fort Monmouth is the single C4ISR "belly-button", the reachback for the Warfighter. Team C4ISR has a 24/7 Operations Center, responding immediately to Warfighter requests. The Team quickly responds to emerging threats with solutions; that's because Team C4ISR is an integrated team with profound knowledge of the C4ISR domain. Additionally, Team C4ISR's procurement capability provides for the rapid delivery of products and services.

Since the capture of Baghdad approximately 25 months ago, Team C4ISR systems, whether they are radars, radios, computers or Night Vision systems, continue to run 24/7 and require continuous support and maintenance. In all cases, C4ISR tactical and strategic systems are still operating at peak wartime levels, and in some cases, as in the area of countermeasures against Improvised Explosive Devices (IED), C4ISR systems are operating at even higher levels. Some of the Team's systems (Firefinder and Lightweight Counter Mortar Radars for example) demand 100% availability – that means the systems must always be operational. If they aren't operational, Warfighters are put at risk, and lives can be lost.

In support of current operations, Team C4ISR has responded with quick-reaction capabilities, adapted to wartime needs. Below are several examples

- Warlock: Warlock "jams" electronically controlled IED. In response to a critical need in June 2004, Team C4ISR adapted existing technology and was able to field 92 systems in five weeks. [redacted] Team C4ISR continues to respond to the changing IED threats.
- Joint Combat Identification (ID): In less than 90 days, Team C4ISR provided 384,000 Combat ID Devices for the US Army and Marine Corps and for United Kingdom platforms and personnel. These devices reduce fratricide by positively identifying friendly joint forces.
- HSTAMIDS: The Handheld Standoff Mine Detection System (HSTAMIDS) detects metallic and non-metallic anti-personnel and anti-tank landmines. Within 36 months, Team C4ISR fielded [redacted].
- FBCB2: This system prevents fratricide by allowing the Warfighter to see where they are and identify locations of friendly forces on a computer-generated map. Force Xxi Battle Command Brigade and Below (FBCB2) and the similar Blue Force Tracking system were rapidly fielded to Iraq to all key friendly platforms – over 1200 systems were installed in 5 months. This system improved the survivability of friendly forces.
- Omni Sense: This sensor "sees" intrusions and allows the Warfighter to respond rapidly to threats. 62 units were fielded to Iraq in February 2005, providing protection for border crossings, perimeter defense, pipelines, petroleum facilities and other critical infrastructures.
- Lynx SAR: The Lynx Synthetic Aperture Radar (Lynx SAR) is capable of providing aerial all-weather, high-resolution images for Military Intelligence officers. The Lynx SAR is also capable of tracking moving targets. [redacted]
- Guardrail: Guardrail/Common Sensor (GR/CS) detects, identifies and locates enemies' communications and other electronic signals. Two systems were configured within four months and software was modified to allow the system to work from greater distances in order to operate in approved air space.
- LCMR: Lightweight Counter Mortar Radar (LCMR) was a rapid response to Special Operation Forces requirements and three Operational Need Statements. [redacted] LCMR detects and locates mortar fire beyond mortar range and it provides 360 degrees of coverage. It locates with accuracy sufficient to enable

the Warfighter to respond with Combat Air or Counter Fire. It is man packable and communicates with its operator via a Personal Digital Assistant (PDA). LCMR was one of the Army's Greatest Inventions for 2004.

Team C4ISR processed over 598,000 spare parts requisitions, resulting in $1.6 billion in parts in support of OEF/OIF. Team C4ISR's reset mission (returning hardware to "mission capable") is $2.0 billion through FY05, supporting 180 battalions, 75 different weapon systems and 4,495 items. Team C4ISR has nine forward-deployed troubleshooting repair facilities in theater. These facilities are called Electronic Sustainment Support Centers (ESSC) and have completed 60,700 repair work orders. Approximately 55 LARs are in the theater of operation at any given time. Team C4ISR has responded to over 8,500 software support requests, has fielded 83 software upgrades and has an average of 45 Field Software Engineers in support of OEF/OIF.

Support to the Modular Force

The Army is redesigning itself into a larger, more powerful, flexible and deployable force. This Force Transformation initiative is called "modularity." Prior to rotation into Iraq, the brigades within each Army division are being reengineered into smaller, more flexible "Units of Action" – they are modularized. The modularity concept results in the removal of a division's signal brigade and the spread of the signal function throughout multiple Units of Action. Modularity, therefore, results in increased C4ISR system requirements at the same time that new C4ISR technology needs to be inserted (resulting from lessons learned from Iraq), at the same time C4ISR systems need to be returned to mission capable levels (reset) and at the same time spare parts need to be restocked. For example, the 3rd Infantry Division (ID) just completed modularization. In 12 months, Team C4ISR reengineered the 3rd ID's architecture to allow for technology insertion; integrated and delivered 20 Battle Command, seven Communications and 15 Intelligence, Surveillance and Reconnaissance Systems (42 total); inserted selected capability upgrades; sustained the unit by restocking 73,000 spare parts at a value of $48 million; and reset C4ISR hardware to mission capable levels at a cost of $23 million. Team C4ISR will continue to do this for every division that transforms to a modular configuration.

Support to the Future Force

At the same time that Team C4ISR supports Current Operations and Modularization of the Force, Team C4ISR plays an indispensable role in defining future force capabilities. DoD Transformation is complex – DoD is moving to a joint/interagency/ multinational interoperable networked force where all the parts are connected via a multi-tiered complex network. Team C4ISR is enabling this transformation by providing 19 programs of record that will be integrated into the Army's Future Combat System or that will be used on other applications. Additionally, Team C4ISR is providing 67% of the future force's critical technology as identified by the Office of the Secretary of Defense.

Homeland Defense

Team C4ISR technologies and systems have been applied to Homeland Defense applications, beginning with the immediate support of the efforts in response to the terrorist attacks on the World Trade Center and the Pentagon. Team C4ISR's close proximity to New York City has resulted in Fort Monmouth's designation as a "Contingency Operations Point" by the Department of Homeland Security, FEMA Region II. Additionally, through the use of CRADAs, Team C4ISR is assisting the City of New York, the National Guard Bureau, the Port Authority of New York/New Jersey, Army Corps of Engineers and the State of New Jersey by bringing C4ISR expertise to bear in support of efforts to protect critical infrastructure from terrorist attacks.

4. Are there any drawbacks to consolidating the PEO EIS functions at Ft. Belvoir?

Yes. The PEO EIS PM DCATS office relies significantly on embedded matrix support from the CERDEC and other functional organizations in C-E LCMC (such as the Logistics Readiness Center (LRC), Software Engineering Center (SEC), Deputy Chief of Staff for Resource Management (DCSRM) and Acquisition Center) and is collocated with the CERDEC's Space & Terrestrial Communications

Directorate in the Joint Satellite Communications (SATCOM) Engineering Center (JSEC). **Moving this function to Fort Belvoir separates it from the matrix support and JSEC which will move to Aberdeen Proving Ground.** PEO EIS PM DCATS Project Leaders work side-by-side with JSEC engineers and technicians in the Satellite Labs (Control Systems Lab, Strategic Systems Lab, Tactical Systems Lab, and DOD Teleport Testbed) to design and develop new satellite communications architectures to introduce technology insertion and to meet expanding Warfighter communications needs, as well as modeling problems in the field. There is more detailed information on the JSEC in the answer to question #9 and the associated attachment. This team provides 24/7 technical assistance to the deployed forces to troubleshoot problems and provide solutions (often within hours of receiving the problem). The CERDEC supplies a large number of Project leaders in support of the PM DCATS mission. The CERDEC's relocation to Aberdeen would greatly impact their ability to continue providing the support currently in place. The level of expertise that this organization brings to PM DCATS is key to the successful programs that we have been able to develop. Moving PEO EIS's other offices at Fort Monmouth to Fort Belvoir appears to consider no other factor but collocation with PEO EIS HQ. The PEO EIS should be allowed the flexibility/discretion to move its other program management organizations to the locations that provide the maximum benefit to the Army and the Warfighter. For example, it may be more beneficial to relocate the Assistant Project Manager Joint Computer-aided Acquisition Logistics System (APM JCALS) and Assistant Project Manager Tactical Logistics Data Digitization (APM TLDD) to Fort Lee, to be collocated with the parent office, PM Logistics Information Systems, if it is determined that it makes better sense from a managerial/organizational efficiency perspective. This same flexibility should be provided to determine the ultimate location for the PM DCASS, which plays a significant role in modifying/replacing the installation infrastructure that is critical to Network Centric Warfare and Transformation.

5. An additional part of the recommendation is to: "Relocate the Budget/Funding, Contracting, Cataloging, Requisition Processing, Customer Services, Item Management, Stock Control, Weapon System Secondary Item Support, Requirements Determination, Integrated Materiel Management Technical Support Inventory Control Point functions for Consumable Items to Defense Supply Center Columbus, OH, and reestablish them as Defense Logistics Agency Inventory Control Point functions; relocate the procurement management and related support functions for Depot Level Reparables to Aberdeen Proving Ground, MD, and designate them as Inventory Control Point functions, detachment of Defense Supply Center Columbus, OH, and relocate the remaining integrated materiel management, user, and related support functions to Aberdeen Proving Ground, MD. How are these functions currently performed and organized?

The above recommendation addresses two functional areas; logistics and readiness, and procurement: The logistics and readiness functions are performed by the C-E LCMC Logistics and Readiness Center (LRC). LRC's organizational structure includes all functional disciplines needed to provide complete support for a Weapon System, including end items, reparable items, and technically complex consumable items. LRC's personnel are organized into Weapon System Teams, which manage all requirements for their programs. Collocated experts on teams include Item Managers, Provisioners, Logistics Management Specialists, Technical Writers, Maintenance Engineers and Production Engineers. Equipment Specialists and Security Assistance Management experts are non-collocated team members. This multi-functional team manages the overall Weapon System, to include maintaining Configuration Control. LRC completely reorganized the Center over nine years ago to create these collocated, multi-functional weapon system teams. The effect of this concept was a significant increase in readiness.

Although Item Management of consumables is recognized as mainly a Defense Logistics Agency (DLA) responsibility, as noted above, C-E LCMC does manage a limited population of consumable items. These consumables have remained under Army control based on technical factors including, but not limited to, complexity, design instability, or safety concerns. Other less complex consumables deemed appropriate for DLA management have been transferred under the Consumable Item Transfer (CIT)

program and routine transfer actions. Some statistics on the CIT program and other transfer actions are provided below:

- C-E LCMC transferred approximately 25,000 items to DLA in Phase 1 CIT (1991-1994)
- C-E LCMC transferred approximately 2,000 items in Phase 2 (1995-1997)
- 4,367 of the items above were later deemed to be field level reparables and, therefore, appropriate for service management under the Single Stock Fund program. Accordingly, 2,220 of the active items in this category were designated for return, 1700 of which have been returned to date.
- C-E LCMC transferred 88 batteries to DLA, effective 1 Oct 04. As a result of this transfer, DLA is in the process of providing additional funding for engineering support over and above what was originally agreed to, an indication of the complexity of this sensitive commodity group.
- Routine item transfers from C-E LCMC to DLA occur as required.
- Routine item transfers from DLA back to C-E LCMC are approximately 10-12 per year.

C-E LCMC LRC uses existing available business systems to manage the end items, reparables, and consumables that it is responsible for. The primary modern IT business system in use here is the only one available anywhere to manage both reparables and consumables. Others are available, but only for consumable item management.

The collocated multi-functional weapon system team structure that was created, combined with the intellectual capital in people resident within those teams, has resulted in an extremely efficient and effective situation and significant increases in readiness rates for C4ISR weapon systems. These teams manage the end item weapon systems along with the reparable and critical (technically complex) consumable spares necessary to sustain them. The synergy created by these teams and the end items, reparable and consumable items they manage has been of paramount importance. The above has proven itself over the past nine years.

The procurement function is performed by the C-E LCMC Acquisition Center. **The Acquisition Center structure is such that individuals perform lifecycle contracting.** An individual will solicit, award and administer contracts for consumable and repairable items as well as weapons systems. There is no clear division in the organization with regard to consumable and repairable contract actions/support. It is also noted that workload within the Acquisition Center is distributed on a 'capacity basis' and as such, work can and does rotate among contracting personnel. This rotation of work has resulted in broad-based learning experiences for the center personnel and the preclusion of 'stove-piping' of skill sets. This structure and workload distribution process has resulted in significant efficiencies. In FY04, the cost to procure $100 worth of goods was a mere four cents. The average number of actions executed per day is 58 with each individual in the center averaging $21.2 M in obligations per year.

6. Please discuss the recommendation to "Realign Fort Belvoir, VA by relocating and consolidating Sensors, Electronics, and Electronic Warfare Research, Development and Acquisition activities to Aberdeen Proving Ground, MD, and by relocating and consolidating Information Systems Research and Development and Acquisition (except for the Program Executive Office, Enterprise Information Systems) to Aberdeen Proving Ground, MD" and the benefits from the justification that state: "The recommendation establishes a Land C4ISR Lifecycle Management Command (LCMC) to focus technical activity and accelerate transition."

Discussion of Recommendation:
Approximately 7% of Team C4ISR is located at Fort Belvoir, Virginia. For this discussion, Team C4ISR will be divided into two groups. The first group consists of logisticians and software engineers who are located at Fort Belvoir for the primary purpose of supporting Team C4ISR customers' resident at Fort Belvoir and in the Washington D.C. metropolitan area. Relocation to Aberdeen Proving Ground severs the supplier-customer relationship. With the lack of co-located support, these customers will seek other providers for this support which may or may not be available. The personnel relocated to Aberdeen

Proving Ground will be without customer reimbursement which will result in an increase in direct costs to the Army.

The second group comprises the Team C4ISR center of excellence for Night Vision/Electro-Optical (NV/EO) at Fort Belvoir. This group includes scientists, engineers, program managers and support personnel who have received worldwide recognition for their accomplishments. Moving this group to Aberdeen Proving Ground will separate them from other smaller tri-service R&D facilities that have a similar focus on military sensor technology development. These Tri-Service R&D organizations include; Defense Advanced Research Projects Agency (DARPA), Naval Research Lab, Army Research Lab, and the Naval Explosive Ordnance Disposal Technology Center. Additionally, moving this group will separate them from PMs that will remain at Fort Belvoir – these are important customers for NV/EO technology. These PM's include; PM Close Combat Systems (Mines & Countermines), PM Soldier Sensors & Lasers and PM Force Protection.

The current facilities located at Fort Belvoir and Fort AP Hill provide for unencumbered access to external test capabilities that are critical extensions to the sensor development laboratories. These include: Aircraft (Manned and Unmanned) Sensor Integration and Testing at Davison Army Airfield, Fort Belvoir, 5.2 km fenced laser range facility for testing non eyesafe lasers, countermine lanes for testing live explosive mines that include both recently buried as well as mines that have been buried for years, 5 km drop zone for testing navigation, targeting and surveillance sensors both in the day as well in a darkened environment. The unencumbered access near Fort Belvoir allows NV/EO technical work to more quickly prepare sensor technologies for the varying field environments in a quick turn test, fix, test relationship. There is also concern associated with the night time, high ambient light level (5X that at Ft. AP Hill Drop Zone) caused by the Aberdeen Proving Ground external ranges proximity to Baltimore as well as the potential interruption of laser/optical system bench development and FPA epitaxial crystal growth caused by the relatively high shock and vibration environment caused by the explosive testing and live firing mission of Aberdeen Proving Ground.

Information Technology has enabled a "virtual co-location" of the NV/EO group with the larger mass at Fort Monmouth. The geographic separation has not been an impediment to achieving mission requirements. As a matter of fact – NV/EO is one of Team C4ISR's "leading accomplishments."

Discussion of Benefits:
The recommendation does not establish, but rather moves an existing Land C4ISR Lifecycle Management Command from Fort Belvoir and Fort Monmouth to Aberdeen Proving Ground. Fort Belvoir was rated 2nd in Military Value in the Army for Sensors, Electronics and Electronic Warfare – Research and 3rd in the Army for Sensors, Electronics and Electronic Warfare – Development and Acquisition. Aberdeen Proving Ground, the recommended relocation site, was rated 6th and 4th in the Army, respectively for these categories. Moving will put the NV/EO capability at great risk at a time when the Nation is prosecuting the Global War on Terror, modularizing the force and transforming the future force.

7. Are there any concerns regarding the payback portion which states: "The total estimated one-time cost to the Department of Defense to implement this recommendation is $822.3M. The net of all costs and savings to the Department of Defense during the implementation period is a cost of $395.6M. Annual recurring savings to the Department after implementation are $143.7M with a payback expected in 6 years."

Base Operating Support (BOS) Costs

- During review of the COBRA report for the recommendation to close Fort Monmouth, we became concerned that the value used for the BOS Non-Pay input on the Static Base Information screen seemed higher than it should be. We, therefore revisited our responses to the BRAC data call and found that the response we provided to question #811, Base Operating Support Non-Pay Obligations, was incorrect. For FY03, FY02 and FY01, we reported values of approximately $94.5M, $94.1M and $72.6M,

respectively. The basis for all of these values was the certified 218 data in the Service Based Costing (SBC) report. The figures for FY02 and FY03 were erroneously taken from the toploaded data, which includes non-BASOPS funding and obligations and BASOPS funding for Fort Monmouth support to other installations such as McGuire Air Force Base, Lakehurst Naval AES, Fort Dix and Earle Naval Weapons Station. In addition, we discovered that the values for all three years also included Sustainment costs, which are accounted for separately in the COBRA model. Therefore, we believe the annual savings that would result from closure of Fort Monmouth have been significantly overstated in the analysis.

- We have started with a blank page and begun to recalculate what the responses to question #811 should have been. While we have not yet computed final, certifiable numbers, we believe the correct value for BOS Non-Pay to be in the range of $50M - $60M, substantial difference from the $93.4M that was used in the DoD COBRA analysis.

MILCON

- COBRA includes $21.4M for MILCON at West Point for the Prep School. The current 1391 estimate from the West Point Garrison is $207M plus a 9% design fee for a total of $226M.

Number of individuals who would move with their jobs to Aberdeen Proving Ground:

- The COBRA model assumes that approximately 80% of employees would move with their jobs. We believe this number to be no more than 20%. While decreasing the number of employees moving would decrease one-time costs, we believe these reductions would be more than offset by the cost to hire and train new employees, which are not considered in the COBRA model.
- Assuming that the percentages of employees that would not move, would take an early retirement and would take a regular retirement are 25.5%, 22% and 26.8% vice the standard 6%, 8.1%, and 1.67% used in COBRA, the one-time costs computed in COBRA would decrease by approximately $72.2 million. However, our Deputy Chief of Staff for Personnel (DCSPER) projects that replacing these employees would cost between $256 million and $385 million, based on various studies of such costs in the personnel administration literature. In addition, a Naval Research Lab study estimates formal training costs for replacement staff at 33% of annual salary over a three year period. (See response to question 13 below.)

To determine the impact of the three issues described above on the implementation costs and payback, the COBRA model was rerun with the following modifications to the input data:

1. BOS Non-Pay for Fort Monmouth = $55,000K/year vice 93,444K/year.
2. Total cost for MILCON at West Point = $226,000K vice 21,480K as originally computed by COBRA.
3. Standard Factors:
    - Civilians Not Willing to Move = 25% vice 6%
    - Civilian Early Retire Rate = 22% vice 8.1%
    - Civilian Regular Retire Rate = 26.8% vice 1.67%
4. One time Hiring and Training costs totaling $300M and $196.8M, respectively, spread over the years 2007 through 2011 were added. (Note, additional training costs for individuals hired in 2010 and 2011 will be incurred beyond 2011.)

Using the data above, the COBRA analysis demonstrated that the recommendation to close Fort Monmouth did not payback in the 20 year analysis timeframe ending in 2025. The estimated one-time cost to implement the recommendation is $1,441M, and the net of all costs and savings to the Department of Defense during the implementation period is a cost of $1,139M.

Additional Concerns:

- The COBRA run for the scenario to close Fort Monmouth indicates that the Housing Assistance Program (HAP) would not be offered to Fort Monmouth employees. If the HAP is offered, the one-time costs would increase by approximately $10M.

- There is a concern that the amount of laboratory space required at Aberdeen Proving Ground has been underestimated. CERDEC requires 800,000 square feet of lab space. It appears that only 300,000 square feet has been identified for construction at Aberdeen.

- There is a concern that the costs for moving equipment from Fort Monmouth to Aberdeen Proving Ground have been underestimated. CERDEC has $650M worth of specialized equipment which will either need to be moved or reprocured. We do not believe these costs were taken into account.

- We believe the timelines for the implementation of the recommendation are optimistic when considering the time required to budget for construction funds, award and execute design contracts, design the renovated or to-be-constructed facilities, award construction contracts, execute those contracts, prepare the space for occupancy and finally, move such a large number of people.

8. Is there any additional information that you would like to communicate that might impact on these recommendations?

Yes, in three areas: Military Value of Fort Monmouth, issues associated with PEO EIS and the CERDEC's Joint Satellite Engineering Center (JSEC) and the recommendation to relocate the Communications Security Logistics Activity (CSLA) from Fort Huachuca, AZ to Aberdeen Proving Ground, MD.

Military Value:
The ratings assigned to technical areas by the Technical Joint Cross Service Group (TJCSG) reflect the preeminence of C4ISR at Fort Monmouth. The overall installation military value rating weighted maneuver space, a factor of no relevance to C4ISR RDA, higher than technical capabilities in all cases (it didn't matter if it was a decision to relocate large masses of troops vs. a decision to relocate a technical capability). As a result, a decision that should have been driven by technical capabilities was driven by the number of available acres.

The TJCSG assigned Military Value rankings by technical areas and functions in the BRAC process. The following rankings that directly relate to C4ISR were reported for Fort Monmouth:
1st in Army in Information Systems Technology – Development and Acquisition
1st in Army in Information Systems Technology – Research
1st in Army in Sensors, Electronics and Electronic Warfare – Development and Acquisition
3rd in Army in Sensors, Electronics and Electronic Warfare – Research

In all of these critical functional areas, Fort Monmouth was ranked above Aberdeen Proving Ground (in the same order of the above list, Aberdeen was ranked 10th, a distant 2nd, 5th, and 6th). These rankings support the position that Team C4ISR /Fort Monmouth is an established Land C4ISR Center of Excellence. As long as the Global War on Terror continues, Team C4ISR's support must continue unabated. At the same time, Team C4ISR must continue to support Modularity and the Transformation of the Future Force. Any slips in Team C4ISR's schedule will cause the Army's schedule for Modularity and Transformation to slip.

PEO EIS and the CERDEC's Joint Satellite Engineering Center (JSEC)
PEO EIS reports to the Army G6/Chief Information Officer and ASAALT. This PEO is headquartered at Fort Belvoir; however, several program management offices are located at Fort Monmouth (e.g., PM DCATS and PM DCASS). The PMs DCASS and DCATS programs are crucial to the sustaining base

and strategic infrastructure of the LandWarNet concept supported by Team C4ISR. PM DCATS relies heavily on matrix personnel and facilities of the CERDEC and C-E LCMC. The PEO EIS elements currently located at Fort Monmouth are identified to move to Fort Belvoir.

PM DCATS has been supporting Satellite Communications missions since the earliest days of the military Satellite Program, by providing the essential SATCOM infrastructure for the entire DoD Community, including our deployed Warfighting forces. In support of the vital Joint Satellite Communications (SATCOM) mission, PM DCATS and Team C4ISR design the architecture, develop the systems, acquire the equipment and perform the integration. Once procured and integrated, PM DCATS performs the detailed testing, training, fielding and lifecycle support for the entire DoD Satellite Communications Infrastructure for the DSCS and Gapfiller satellite systems. This organization has implemented a worldwide network of over 100 Satellite Communications Earth Terminals at 70 sites operated by Army, Navy and AF personnel supporting the entire DoD user community including, the Army, Navy and Air Force Combatant Commanders, the Intelligence Community and Deployed Warfighters. These Satellite Communications Earth Terminals provide the longhaul communications to both strategic and tactical Warfighters requiring reachback capabilities into our DoD DISN and the Global Information Grid- Bandwidth Expansion (GIG-BE) networks. PM DCATS fields the strategic terminals with 20, 40 and 60 ft dishes and all of the baseband equipment to process voice, video and data over the satellites as well as connecting the satellite communications path into the GIG-BE. They also perform all functions from architecture definition, engineering, procurement, test, training and fielding for the ASD/DISA ACAT 1 Teleport program and the DISA Standardized Tactical Entry Point program. These critical facilities extend voice, data and video to the tactical Warfighting forces over any commercial or military satellite system available to them. **They are the deployed forces "information lifeline".** In addition, PM DCATS provides the SATCOM resources for the Ground Based Mid-Course Defense (the National Missile Defense Program), the presidential Hotline between Washington and Moscow [redacted]. PM DCATS has consistently been called upon to architect, design and prototype the surge in SATCOM infrastructure to support Desert Storm, Operations Enduring Freedom (OEF) and Operations Iraqi Freedom (OIF), and the Global War on Terrorism (GWOT).

To successfully perform a global mission, PM DCATS extensively draws upon the support of experienced and competent personnel from Team C4ISR including CERDEC, C-E LCMC as well as contractor support. In many instances PM DCATS' Project Leaders are embedded engineers matrixed from the CERDEC and some of the PM DCATS Core Project Leaders and engineers perform detailed design and testing in the JSEC facilities. Daily interaction between all members of Team C4ISR has been instrumental to our successful mission achievement. **Consolidating the PM DCATS functions at Fort Belvoir would put distance between the PM and their supporting matrix organizations. Under the BRAC recommendation, CERDEC (and its JSEC), and C-E LCMC would move to Aberdeen Proving Ground.** The PEO EIS consolidation will required the PMs at Fort Belvoir to travel over 97 miles one way to Aberdeen to conduct business. One example, with regard to testing alone, would be if the JSEC is located at Aberdeen, a project leader working on his/her project would have to commute between Fort Belvoir and Aberdeen in order to perform testing at JSEC. JUICE testing is run annually and lasts three to four weeks. DICE testing is run annually and takes up to two months to complete. PM DCATS personnel that are involved in these events would spend a large amount of their time commuting back and forth. This time could be much more valuably spent supporting the mission.

PM DCATS' mission has brought many resources into the JSEC test facility. PM DCATS' mission has expanded JSEC's Strategic Systems Lab (SSL) and the Control Systems Lab (CSL) to include DISA's Standardized Tactical Entry Point (STEP) testbed, DISA's DoD Teleport Testbed (DTT) and the 24/7 Teleport/MIDAS hotline. The 24/7 Hotline requires that it be able to respond immediately to issues in support to the Warfighter, 365 days of the year. These labs within JSEC plays a vital role to the success in the execution of PM DCATS' joint global missions by performing testing and evaluation of new hardware and new software version releases for legacy systems, certification of new and modified satellite terminals for use over DSCS, commercial and the soon to launch WGS satellite system. Joint

users throughout the world rely on the expertise of our JSEC team to trouble shoot problems they are experiencing on fielded systems by duplicating the problem and advising a fix, or by sending technical support to the site. Often JSEC is called upon to support joint exercises and real world missions.

The level of expertise required to manned and operate 12 Satellite terminals, a Wideband Satellite Operations Center (WSOC) facility, over 250 different specialized legacy and IP baseband equipment (to include one-of-a-kind type of systems) requires extensive team of very knowledgeable and experienced personnel. The JSEC team is comprised of government engineers, technicians, and contractor support personnel furnished from both PM DCATS and CERDEC organizations. Over the years these PM DCATS/CERDEC personnel have performed their mission synergistically as one team. PM DCATS conducted a survey and have determined the personnel working at JSEC have more than 725 years of experience in supporting Warfighter communications. The average personnel experience of JSEC's engineers and technicians (both government and contractor) is over 20 years. Over 25 of the engineers are considered senior systems experts having over 20 years experience. Many of the systems experts have been working in communications for almost 40 years or more. The experience that these senior systems experts have gained while supporting programs from their inception through production, test, and deployment cannot be recreated. The knowledge gained during development, first article test, production, and installation of current and legacy systems will be lost with the resignation and/or retirement of JSEC's senior systems experts. This is a highly specialized field and historically government personnel who retire then return to the same job as contractors, thereby maintaining continuity, working side by side with new employees thereby training the next generation of system experts. **It can be anticipated that virtually none of the current systems experts will relocate. Employees who relocate will be at a trainee level and will be expected to not only to carry on the vital missions, but to train an entirely new workforce**. What currently resides at the JSEC is a priceless combination of unique laboratory equipment and senior systems experts who have been maintaining the DOD Satellite Communications Infrastructure since its inception.

As mentioned above, this JSEC facility houses many specialized and unique equipment that is needed to support the Warfighter. Many pieces of equipment in the JSEC are irreplaceable, they are either one-of-a-kind or no longer produced legacy systems which are still used to support Warfighter communications through trouble shooting field problems or interoperability testing to new systems. To relocate JSEC to Aberdeen would pose significant mission downtime impacting global support to the deployed Warfighter as well as to the DoD SATCOM Communications infrastructure.

In the response to question #9, word document #24, the Table 1 of Appendix A: "PM DCATS Requirement", identifies the estimated costs associated with the replacement and relocation of JSEC components. It includes relocation costs (rather than replacement of numerous systems and subsystems) due to the fact that these subsystems are one-of-a-kind, legacy systems that are not in production and are extremely difficult if not impossible to recreate in the same hardware and software configuration as originally produced.

Also in the response to question #9, word document #24, The Table 2 of Appendix A: "PM DCATS Requirement", identifies those unique and irreplaceable JSEC legacy systems that would require significant reverse engineering and major redesign efforts to build additional systems at Aberdeen rather than relocate existing systems. It identifies the cost estimate to duplicate the systems through either reverse engineering or major redesign so that the new equipment is as close as possible to the hardware and software configuration of these systems at the JSEC. It is not possible to completely duplicate hardware and software configurations due to the ever changing technology baseline.

By summing the replacement and relocation estimate of $102M FY05 $ (see table 1) with the reproduction of irreplaceable legacy equipment (previously assumed to be relocated with associated significant mission downtime) estimate of $241M FY05 dollars (see table 2), **the total estimated cost to fully duplicate the JSEC in Aberdeen prior to closing Fort Monmouth is approximately $343M in FY 05 dollars.** In the tables escalation factors were applied for outyears.

CSLA

The relocation of the Communications Security Logistics Activity (CSLA) from Fort Huachuca, AZ, to Aberdeen Proving Ground, MD, is a major concern and could adversely impact critical security-related mission support to the Warfighter. Although CSLA is a subordinate organization of the C-E LCMC LRC, it has several unique security-related missions that it performs in support of DoD and in conjunction with several partner activities at Fort Huachuca. CSLA has been strategically located at Fort Huachuca since 1967 when it was part of USASTRATCOM (now Network Enterprise Technology Command (NETCOM)). It was located at Fort Huachuca as part of the Army's Integrated Communications Management community. It became a part of AMC/CECOM in 1972.

CSLA is a security-focused organization of approximately 300 security and logistics management professionals. [redacted] In addition to Army personnel, they have both Air Force and Navy personnel on staff to support DoD mandated missions. While they are widely recognized as the Army's Inventory Control Point (ICP) for COMSEC products, this is only a small portion (less than 10%) of the total CSLA mission. Many other parts of CSLA's mission are less publicized, especially outside the COMSEC/Security Community, primarily due to the sensitive and classified nature of the COMSEC commodity. However, each of these security-related missions has a significant impact on support to the joint Warfighter. It appears the security portion (over 90%) of CSLA's mission (cryptographic key management, audit /inspections, Cryptographic New Equipment Training, etc.) was over-looked and the realignment decision was focused on the ICP (logistics) portion of the CSLA mission.

Currently, CSLA is collocated with the following organizations, at Fort Huachuca, for immediate support and the synergy that is achieved through close working relationships.

- NETCOM, which manages all Regional Interface Control Offices and Information Assurance personnel Army-wide that CSLA supports on a day-to-day basis. They also host the Electronic Key Management System (EKMS) extension Tier 1 site via their 5th Signal Command in Germany.
- The 11th Signal Brigade, the largest COMSEC account holder in the Army.
- The Joint Interoperability Test Center (JITC), responsible for EKMS and cryptographic equipment interoperability testing.

Critical aspects of CSLA's mission potentially impacted by re-location include:

EKMS Program: - The EKMS was developed jointly by the National Security Agency and the services to satisfy the Combatant Commanders' requirement to automate management and delivery of cryptographic material directly to the Warfighter. CSLA operates one of only two EKMS Tier 1 sites worldwide and the Army's only EKMS Help Desk that provides problem resolution support for all Army COMSEC accounts worldwide on a 24/7 basis. EKMS generates, distributes, and manages cryptographic key material used to encrypt voice and data communications directly to soldiers, sailors, and airmen worldwide. EKMS ensures secure communications, which are essential to protect lives and information on the battlefield in the Global War on Terrorism. EKMS is also necessary to ensure the successful mission of the Department of Homeland Security, the White House Communications Agency, Special Operations, the Department of State, the Defense Intelligence Agency, National Aeronautics & Space Administration (NASA), the Federal Bureau of Investigation (FBI), and the Central Intelligence Agency (CIA). After many years of intensive management and engineering efforts, the EKMS is now scheduled to achieve full operational capability (FOC) worldwide later this year. To move the EKMS Tier 1 shortly after achieving FOC will present many challenges and could have some significant operational impacts. Actions must be taken to ensure uninterrupted support to the services and sustained material

accountability. The services are required by statute to maintain continuous control and tracking of cryptographic material. As a result, the relocated Tier 1 capability must be installed and be functioning at the new location before closing down the current CSLA Tier 1. This is complicated by the fact that several pieces of mission critical equipment can no longer be procured; replacement equipment (form/fit/function) must be identified. Additionally, the skill set necessary for operating and managing the Tier 1 is highly specialized and is based on years of experience. Potential loss of such personnel presents significant risk. To move the EKMS Tier 1during the execution of the Army transformation initiative (which increases the number of COMSEC accounts in the Army) could have a negative impact on the success of the initiative. Lastly, locating the EKMS Tier 1 site in close proximity to NSA's Tier 0 site could jeopardize DoD cryptographic key management capabilities in case of a terrorist attack or natural disaster in the greater Maryland area. This would seriously impact Warfighter support.

Cryptographic Modernization Program

CSLA supports HQDA CIO G-6 for replacement planning of all COMSEC Devices over the next 20 years as mandated by NSA. This is a Multi-Service initiative that has been accelerated due to technology improvements and evolving security threats.

COMSEC Account Audits, Inspections, and Incidents

CSLA performs on-site inspection of all COMSEC accounts worldwide, requiring 100% inventory of COMSEC accountable items (Key and Equipment); physical inspection and site approval for COMSEC storage and processing; Certification Authority Workstation (CAW) audits supporting the Defense Messaging System (DMS); and the tracking and coordination of Army COMSEC incidents with NSA to ensure no compromise or disclosure of COMSEC information

CSLA Information Security (INFOSEC) Representatives (CIR)

CSLA provides On Site representatives for advice and assistance as well as representatives located CONUS – Fort Bragg, Fort Hood, Fort Lewis, Fort Huachuca and OCONUS – Korea, Germany, Southwest Asia (SWA).

COMSEC National Inventory Control Point

CSLA is a COMSEC National Inventory Control Point, providing COMSEC End Item and Secondary Item Management, Contracting (End Item Procurement and Spares), Stock control, Type Classification and Materiel Release, and Total Package Fielding (TPF). All functions for major and secondary item management, both reparables and consumables, are currently performed by the item manager for the major item and are cataloged to support that structure. The BRAC proposal would require separation of those functions. It is also important to note that many CSLA consumables are controlled items due to their sensitivity and require special handling and demilitarization prior to disposal. CSLA currently uses the Logistics Modernization Program (LMP) software package, which has been extensively customized to meet the unique requirements for COMSEC management and accountability. Potential transition to another logistics management system will require software changes to ensure NSA-mandated accountability. Item Managers also participate in the creation and evaluation of contracts for replacement equipment and COMSEC spares. Segregation would splinter current efforts.

COMSEC National Maintenance Point

CSLA is a COMSEC National Maintenance Point, providing Cataloging and Provisioning, Maintenance Planning and Data Collection, Depot Workloading and Demilitarization, LMP System Administration, Publications Development and Maintenance, management of the COMSEC Reset Program and Electronic Commerce Program (as mandated by NSA). The National Maintenance Point supports the item manager functions for major and secondary item management. Separation will detract from the current cooperative existence of those functions.

COMSEC New Equipment Training (NET)

CSLA provides Static and mobile training team for COMSEC fieldings, training course documentation and development, certification of Army COMSEC Maintenance Technicians as required by NSA and gap training as required prior to sustainment training being established. This function requires not only administrative office space for the instructors, but also a minimum of three fully equipped electronics/networked classrooms, fully equipped electronics bench areas with electronic racks to enable the setting up of training networks to enable trouble shooting of training equipment and facilitate customer assistance and storage facilities for training equipment.

9. In unclassified terms, please name and describe all laboratory, test and certification facilities. Please note specifically: estimated time to newly construct each of those facilities to include time to achieve any required certifications; any certifications required; estimated cost to newly construct; length of time that old and new facilities would need to be co-operational before old facility could be "turned off".

FORT BELVOIR

At Fort Belvoir, CERDEC has 46 laboratory, test and certification facilities. These facilities are listed on the enclosed excel spreadsheet entitled, "Facility Excel Spreadsheet Question 9 – CERDEC Fort Belvoir." The detail for each facility listed on the spreadsheet is on a word file entitled, "BRAC Commission Question 9 – CERDEC Fort Belvoir." This word file is available at https://www.kc.us.army.mil/cecomlib.nsf/f655f072fc21d6a085256b57004d9234/d9dff60a6a857630852570350056d36b?OpenDocument . Use your AKO username and password to access this file.

FORT MONMOUTH

At Fort Monmouth, CERDEC has 64 laboratory, test and certification facilities. These facilities are listed on the enclosed excel spreadsheet entitled, "Facility Excel Spreadsheet Question 9 – CERDEC Fort Monmouth." For each facility listed on the spreadsheet, there is another file (Word, Powerpoint, Adobe Acrobat) that provides in-depth details. One of the facilities included on the Fort Monmouth spreadsheet is the C4ISR Testbed located at Fort Dix/McGuire AFB/Lakehurst Naval AES. These files are available at https://www.kc.us.army.mil/cecomlib.nsf/f655f072fc21d6a085256b57004d9234/d9dff60a6a857630852570350056d36b?OpenDocument . Use your AKO username and password to access these files. **In addition to the CERDEC facilities, the below facilities are also located at Fort Monmouth:**

Pulse Power Building

The Pulse Power Building/Star Wars Laboratory/Special Projects Office/Bldg 2702 was constructed under a now declassified "Black Program" and may cost $50M+ and require 2.5 years to reconstruct. It is a classified high bay, shielded facility designed to support and advance high voltage applications and pulsed power technologies, and to advance microwave, laser system and plasma technologies. Properly equipped, this facility could support joint, Army, Navy and Air Force, high voltage and pulsed power and sensitive radio integration laboratory needs. Further, with its close proximity to Navy and Air Force installations, it is uniquely positioned geographically to do so, and the base realignment effort creates an opportunity to establish this laboratory, in addition to its current functions, as a focal point for problems common to each service such as Blue Force Tracking (the subject of a recent Congressional study), Joint Network Node, Joint Tactical Radio System and systems integration and testing of other net-centric warfare key enablers. This unique facility is in full-time active use supporting sensitive communications radio integration, product improvement and digitization of systems deployed and deploying to OEF/OIF, systems performance and behavior studies and analysis, and other Global War on Terrorism efforts; and it includes a C130 aircraft hull to support initial airframe platform integration and testing. It also supports Homeland Security, Joint Service Experimentation, Future Combat Systems and other Objective Force Initiatives. In addition, it is a 24/7 Operations Center for Blue Force Tracking, which feeds current Global Positioning System (GPS) tracked deployed unit location information to the U.S. Joint Global Command and Control System Network for distribution to command centers world wide; [redacted]

[redacted] 24/7 Operations Center capable facility to support intense real-world deployments to provide a technical and logistical contact point for deployed PEO C3T elements and supported units and an On Line Cross Domain Secure Operating System (CDSOS) help desk and troubleshooting facility to support fielded CDSOS installations at CJTF 76, Afghanistan, deployed mobile Theater Support Vessel, and other potential CDSOS installations world wide. It is an online backup capability for CJTF 76 and provides a means to replicate and resolve network problems and display multiple secure network data from SIPR, CENTCOM CENTRIX, NATO FOUR EYES Networks; a Lab facility reconfigurable to support multiple Joint or Army technical or experimental exercises, to include recent connectivity or operations with SPAWAR, San Diego, NRL Washington, D.C., ESC Hanscom AFB, MCTSSA Camp Pendleton, CTSF Ft Hood, and other subscribers to the Defense Research Engineering Network (Secure); and an IC Data Center responsible to back up the CTSF primary tactical army addressing database and software initialization capability. The facility houses the Initialization Capability Data Center (ICDC), a secure database and web server to allow field units worldwide to update address book and initialization database information for deployed tactical systems. The system runs on SIPRNet and is a hot backup for the main system running at CTSF, Ft Hood. The system also provides the units with information dissemination of the data product updates. If a new facility is constructed, it must be certified prior to operational use. Certifications take up to one year to complete and are required by NSA and DISA. This facility will be challenging to move from a standpoint of time, expense and manpower resources. As indicated above, approximately 2.5 years reconstruction time is required. Once construction is complete, there will be a period of overlapping infrastructure costs. Further, because a number of functions are under 24/7 operation, both facilities will have an operational overlap and there will be a potential doubling of manpower requirements during the two year certification period (six months have been added as time required to prepare the new facility for certification, and another six months to resolve problems identified by the certification agencies.) In addition, the surge in manpower requirements will continue during the transfer of operations period, potentially another six months. 65 engineers and other essential personnel are employed at this facility today, a comparable overlapping staff would be required at Aberdeen during a two (to possibly three) year co-operations period. Therefore, assuming no loss of personnel, it would take a minimum of 4.5 to 5 years to re-establish this laboratory and its operations at a new location

Software Engineering Laboratory and Test Facilities

The Software Engineering Center (SEC) has approximately 65,000 square feet of laboratory and test facilities requirements. These facilities give the SEC the ability to support current operations as well as provide support to future systems development. This is possible as a result of the realistic equipment configurations established in the facilities, thereby creating an environment where field problems may be duplicated and "fixes" tested and where interoperability may be tested for Joint systems. The SEC laboratory and test facilities are varied in terms of the nature of the capabilities and systems that are resident in each laboratory. Each facility is a secure area, with open storage of classified material.

- Integrated Command, Control and Communications (C3) Lab. The SEC Integrated C3 Laboratory, completed in 2002, houses a testing center equipped with systems and software representative of those used by Warfighters. Personnel in the SEC annex will simulate actual communications problems reported from the field, develop fixes, and test proposed solutions. It is populated with equipment representative of communications and command and control systems deployed to the Warfighter on a worldwide basis. This facility is being used to provide software maintenance support for fielded systems, and participate in interoperability testing to ensure that fielded systems can communicate with each other. This facility is approximately 19,000 square feet.
- Integrated Avionics Lab. The Avionics Laboratory provides the resources for SEC software engineers to simulate actual avionics problems reported from the field, develop fixes, and test proposed solutions. It is carefully populated with equipment representative of the systems deployed to the Warfighter on a worldwide basis. This facility is being used to provide software maintenance support for fielded systems, and participate in interoperability testing to ensure that fielded systems can communicate with each other. Avionics systems provide command and

control for Army aircraft and the communications essential for interoperability on the battlefield. This facility is approximately 3,500 square feet.

- Integrated Electronic Warfare Lab. The Integrated Electronic Warfare Lab provides the resources for SEC software engineers to perform Post Production Software Support for the Common Ground Station (CGS), Joint Tactical Terminal (JTT) and Commanders Tactical Terminals which are deployed to Military Intelligence Battalions, Brigades, Corps and Echelons-Above-Corps, as well as to Joint Service users. PPSS entails not only actions performed on the operational software to correct deficiencies, but also includes modifications made to change features already present and provide additional features requested by the Warfighter. This, of course, requires close coordination with the field units. In addition to the Post Production Software Support efforts, SEC provides system upgrades in support of the Program Manager, Distributed Common Ground System – Army (DCGS-A). An on-going example of a Program Manager-supported upgrade to the CGS is the Service Based Architecture (SBA) initiative. The SBA capability disseminates intelligence information between systems without altering their baseline software. This SBA technology can display the information on the consumer system's native graphic user interface along with consumer system data. The implications of SBA software can be far-reaching and facilitate improved Force Protection through "actionable intelligence." This SBA approach can also be implemented in various intelligence and battle command systems to provide improved capability to commanders on the ground. This facility is approximately 5,000 square feet.

- Integrated Intelligence and Electronic Warfare Lab. The SEC Integrated Intelligence and Electronic Warfare Lab provides the resources for SEC software engineers to simulate actual electronic warfare and signal intelligence problems reported from the field, develop fixes, and test proposed solutions. It is carefully populated with equipment representative of the systems deployed to the Warfighter on a worldwide basis. This facility is being used to provide software maintenance support for fielded systems, and participate in interoperability testing to ensure that fielded systems can communicate with each other. It also provides a support environment for the Army Reprogramming Analysis Team (ARAT) efforts in support of the rapid reprogramming of Army target sensing systems that provide force protection against changes in enemy radar and laser threat signatures which target Army fixed wing and rotary aircraft. This facility is approximately 4,000 square feet.

- Integrated Satellite Communications Lab. The SEC Integrated Satellite Communications Lab provides software engineering support for the Defense Satellite Communications System, which is comprised of strategic earth terminals, planning, monitoring, and control systems. These systems are deployed at worldwide operation centers and earth terminal locations. Personnel provide evaluation and analysis of software problems, the software development, testing and fielding of new software releases to support user missions. Earth terminal and control software are also part of the network that provides the "reach-back" capability from deployed units to CONUS locations through large earth terminals. Some of the users of DSCS are the Defense Information System Network, the White House Communications Agency, Combatant Commanders, and other secure communications sites. This facility is approximately 5,000 square feet.

- Integrated Sensors Lab. The SEC Integrated Sensors Lab provides the resources for SEC software engineers to perform Post Production Software Support (PPSS) for the Guardrail Common Sensor Systems. The facilities allow experts in this domain to simulate actual Guardrail problems reported from the field, develop fixes, and test proposed solutions. Guardrail Common Sensor Systems are deployed to Aerial Exploitation Battalions in support of various Task Forces, Corps and Echelons-Above-Corps. The facility is carefully populated with equipment representative of the systems deployed to the Warfighter on a worldwide basis. This facility is being used to provide software maintenance support for fielded systems, and participate in interoperability testing to ensure that fielded systems can communicate with each other.

Guardrail provides near real-time computer assisted enemy situational awareness including intercept, identification, precision location and analysis of communications and electronic intelligence emitters. In addition to the PPSS efforts, the Guardrail Branch provides system upgrades in support of the Program Manager, Airborne Common Sensor. An on-going example of a Program Manager-supported upgrade to the GUARDRAIL is the Embedded Training Project. The Embedded Training Project requires SEC to develop a database-driven, Web-Based Training suite that the units can use to provide a warehouse for all training materials, courseware, and Electronic Technical Manuals. Electronic Technical Manuals provide an enhanced simulation capability, the Scenario-Based Trainer, which permits the Warfighter to have hands-on practice with the systems without the necessity of having to actually fly the aircraft. This facility is approximately 5,000 square feet.

- Integrated Communication & Interoperability Lab. – The SEC Integrated Communication and Interoperability Lab is the central location for Replication, Distribution, Installation and Training (RDIT) for software products. This function includes providing software/firmware and data products and services such as battlefield software, digitized maps, software interoperability fielding coordination, version, configuration, and distribution tracking, and software readiness assistance to the soldier on the battlefield, when and where needed. This laboratory supports the physical replication of the media and documents, the packaging of the products (to include paper, media, cables, etc.), and the distribution of these items to the field users. This facility also supports the software loading and configuration of computer equipment that is distributed to the field. This facility is approximately 11,000 square feet.

In addition to these existing facilities, the SEC has identified requirements for new laboratories to support emerging mission requirements. These facilities have been presented to the appropriate personnel at the Aberdeen Proving Ground and will be included in the planned new construction. These future facilities requirements are identified below.

- Logistics Modernization Program (LMP) / Joint Computer-Aided Logistics Systems (JCALS) Integration Lab. This facility requirement is estimated at approximately 6,500 square feet.

- Battle Command Software (S/W) Integration Lab. This facility requirement is estimated at approximately 2,500 square feet.

- Joint Tactical Radio System (JTRS) S/W Integration Lab. This facility requirement is estimated at approximately 1,500 square feet.

- Electronic Key Management System (EKMS) Testing Lab. EKMS is a high priority Joint program that provides the structure for electronic cryptographic key generation as well as the accountability of all COMSEC devices and materials. This facility requirement is estimated at approximately 1,000 square feet.

- Joint Network Node (JNN) Test Lab. JNN is a state-of-the-art, mission-critical communications systems (high speed, high capacity) to provide secure, highly reliable voice, data and video information exchange supporting both NIPRNET and SIPRNET throughout the tactical theater with support for network management and information assurance. This facility requirement is estimated at approximately 1,000 square feet.

SEC laboratory, test and certification facilities encompass the equipment and infrastructure needed to provide the software sustainment and development support required to keep C4ISR joint service equipment and technologies and associated missions operational. The total space requirement for those facilities is approximately 65,000 square feet. The total estimated replacement cost is between $16M and $17M. New construction time will be entirely dependent upon a milestone schedule which would include architectural design, contract award, and construction phases. Given the scope of this

effort, we would estimate that it would take 12-18 months to construct new facilities at Aberdeen Proving Ground to meet these requirements.

Given our requirement to provide 24/7 support to current operations, SEC would require laboratory facility (as described above) and equipment redundancy during the transitional period. During that time, we would need a dual operating capability to provide uninterrupted support services. We expect that redundant operations would be required for an estimated period of 3-6 months.

10. In unclassified format, what support to legacy systems or technology will need to be reconstituted in Aberdeen?

Hardware, software and technology support to every C4ISR system in the Army inventory will need to be reconstituted in Aberdeen – over 51,000 nationally stock numbered items, including 6,000 major end items. As these systems are in constant use in Iraq, Afghanistan and around the world, reconstitution of the Team C4ISR mission at Aberdeen must be accomplished with no lapse in support to C4ISR legacy systems and technology and at a level sufficient to support current operating levels. Further, support for current operations must be maintained from the time the BRAC recommendations are finalized until the mission is reestablished at Aberdeen, despite the anticipated drain to intellectual capital anticipated as soon as the BRAC recommendations are finalized. **Lapses in support will result in lost lives of Warfighters and/or reduced effectiveness of our fighting forces.**

11. In unclassified format, please note and discuss any unique features of the Ft. Monmouth installation itself, to include any support to outside organizations or agencies. Is the impact to these organizations discussed in the recommendation? If not, please describe any impacts like relocation or potential continued operation in place.

Fort Monmouth has three unique, non-DoD tenants that are impacted by the recommendation:

- Federal Emergency Management Agency (FEMA). [redacted] FEMA Region II serves the federal emergency management needs of the State of New York, the State of New Jersey, the Commonwealth of Puerto Rico and the Territory of the U.S. Virgin Islands. Region II employs 67 full-time employees and can draw on a cadre of over 700 Disaster Temporary Employees (DTEs) or "reservists" during a Presidential Disaster Declaration. [redacted] The location of this FEMA entity was based upon several factors: proximity to New York City; accessibility by automobile, train, ferry, boat and helicopter; security provided by gate and building controlled access; and communication resources provided by Fort Monmouth and Team C4ISR. These resources include the Defense Switched Network/Federal Switch Network, Secure Voice and Video Teleconference and Satellite Capabilities. FEMA recognized the value of co-locating with Team C4ISR in order to leverage resources, technology and know-how. [redacted]

[redacted]

- Federal Bureau of Investigation. Fort Monmouth is home to the FBI's Information Technology Center, a secured facility. The nature of its work is so sensitive that the Bureau is unwilling to openly disclose its function entirely. The impact to this organization is not discussed in the recommendation. Subject to the resolution of funding, property acquisition and security issues, the FBI could potentially continue its operation in place.
- Veteran's Administration. Fort Monmouth is home to a VA Health Facility that handles in excess of 10,000 patients annually. This "Community-Based Outpatient Clinic" delivers primary, preventative and mental health care services to veterans. The Fort Monmouth location provides veterans with "one-store" appointments and improves access to an under-served veteran population, reducing long distance travel for elderly and disabled veterans. The impact to this organization is not discussed in the recommendation. Subject to the resolution of funding, property acquisition and security issues, this clinic could potentially continue its operation in place.

Because of Fort Monmouth's strategic proximity to New York City and our excellence in C4ISR, our technologies have been applied to Homeland Defense applications, beginning with the immediate support of the efforts in response to the terrorist attacks on the World Trade Center and the Pentagon. Our close proximity to New York City has resulted in Fort Monmouth's designation as a "Contingency of Operations Point" by the Department of Homeland Security. Additionally, through the use of Cooperative Research and Development Agreements, Team C4ISR is assisting the City of New York, the National Guard Bureau, the Port Authority of New York/New Jersey, Army Corps of Engineers and the State of New Jersey by bringing C4ISR expertise to bear in support of efforts to protect critical infrastructure from terrorist attacks. One key project involves design and demonstration of a scalable, extendable network for Chemical, Biological, Radiological, and Nuclear Environment (CBRNE). This networking involves the ability to execute intelligent and time responsive information sharing, based on sensor data and multiple information sources, between diverse Government Agencies throughout this region, and is intended to serve as a National model. Elements of this are being demonstrated in NORTHCOM's current Coalition Warrior Interoperability Demonstration (CWID) and will lead to a larger scale Pilot Demonstration at the end of 2005. The Pilot is providing interoperable solutions involving the Port Authority of New York and New Jersey, appropriate State organizations in New York and New Jersey, and Federal Agencies. Other projects involve communications, networking, sensor, and security system design and enhancements for local government and regional entities where these entities are involving the CERDEC in order to leverage military experience with an "honest broker" perspective, responsive to the local/regional entities rather than a marketing department's desire to sell hardware. The proximity of the expertise has been of significant value, enabling ready coordination and timely, relatively inexpensive participation. The value of the role is clearly demonstrated in the current CWID results. **The impact of relocating Team C4ISR to these Homeland Defense customers was not discussed in the recommendation.** The loss of intellectual capital (see response to question number 13) and the increased distance to these customers will severely detriment Team C4ISR's capability to continue to provide Homeland Defense support.

The Fort Monmouth installation has a unique relationship with a nearby community, Hoboken, NJ where Stevens Institute of Technology is located. The Stevens Campus is just 50 miles from Fort Monmouth and serves as our Urban Test Bed for wireless networks. Hoboken is a densely populated city situated on the western bank of the Hudson River overlooking New York City. The small Stevens Campus is within this urban environment, is aligned with mid Manhattan, and has direct line-of-sight of Manhattan from the George Washington Bridge to the Verrazano-Narrows Bridge. In this environment, we experience a difficult electromagnetic environment to include the radiation from the radio and television antennas on the Empire State Building, from literally millions of cell phones, micro-waves and computers, from the commercial communications systems that service the thousands of businesses in the area, and from the communications and power handling equipment of a nearby transportation center (a major hub for electric trains, light rail, ferries, and busses). We use this environment to evaluate and

develop new ideas in wireless communication that are able to function in this difficult environment. Our relationship with Stevens spans many decades and there is considerable synergy among our staffs; a significant number of our professional staff have Ph.D, MS, and BS Engineering degrees from there.

- For the past three years, we have had a joint program with their WinSec lab where we have been evaluating several networks in a Homeland Security setting. Together, we equipped New York Ferries and campus police cars with satellite communications and wireless LAN, respectively and placed passive infrared sensors and remotely controllable video cameras around the campus. We integrated the input from all these systems into a display that shows ferry location, police car location, sensor location, and sensor activity on either a street map or satellite photo of the area. The user has the ability to "drill down" on an activated sensor to receive a video stream of the sensor area. The display is portable as its connection to the rest of the system is via the internet. We have widely demonstrated this system to agencies concerned with Homeland Security, e.g., the Port Authority, with the result that concepts that we have developed are being adopted in other systems.
- A second project is to set up a network of 50 sensors, being built under a Small Business Innovative Research (SBIR), in the Urban Test Bed. Stevens has many buildings and access to several around Hoboken which we will use for rooftop operations. The Stevens students view this as an opportunity; it is rare that they can leave their simulation world and work with such a large number of actual network nodes in a controlled environment.
- A third joint project with the Stevens Davidson Laboratory and the WinSec Laboratory is to network sensors that are measuring characteristics of the Hudson River, a project supported by the Office of Naval Research. Here we are applying the results of several of our SIBR programs that are developing energy efficient and relatively inexpensive sensor/network units. The idea is that the lower cost and improved performance would allow the project to make finer grained measurements of the river's characteristics.
- A fourth project is to determine the performance to the Solder Radio Waveform in the Urban Test Bed environment. We use portable equipment to evaluate temporal spectral occupation to monitor interference that may occur during the test, so that we may relate test results with actual interference.

The location of Stevens, being so close to Fort Monmouth, enhances the ability of the students, graduate students, professors, engineers and scientists to collaborate and achieve the desired results with more focused project research. Staff from the government as well as Stevens can easily travel between Stevens, NYC, and Fort Monmouth in trips that take less than a day. This test bed will still be necessary and would either need to be relocated or result in significantly increased TDY expenses for engineers to travel to Stevens, and for their staff to travel to CERDEC. Owing to its unique situation, in proximity to NYC, the test bed would probably not be relocated since its usefulness would be reduced significantly. Therefore, **moving from the Fort Monmouth location will cause cost inefficiencies from increased TDY costs and less focused and responsive project execution.**

The Applied Communications and Information Networking (ACIN) program, which began in FY01, is a partnership between Drexel University, Sarnoff Corporation and CERDEC. The top-level goal is to empower the Army and DoD to capitalize on wireless technology emerging from the commercial and consumer communications and networking industries by leveraging advances and influencing development efforts. The ACIN program consists of a series of one-year projects that investigate specific emerging commercial technologies, which would benefit and have applications to both the commercial sector and DoD. CERDEC/Space and Terrestrial Communications Directorate (S&TCD) is the Executive Agent for the DoD and provides funding and cost sharing, guidance and direction to the selection and execution of projects as well as the selection of emerging high technology firms. The ACIN program is managed by the Center for Telecommunications and Information Networking at Drexel University. Sarnoff Corporation, Princeton, New Jersey, is the major subcontractor.

Currently, there are ongoing efforts which include the following:

- Information Assurance and Network Integrity for Secure Mobile Agents Frameworks – Development of interoperable and secure mobile agents incorporated in PDA platforms and suitable for DoD and commercial applications.
- High Power Wide Band Amplifiers – Development of a wide band power amplifier for the Joint Tactical Radio System (JTRS) Cluster I program.
- Ultra-Wide Band (UWB) Characterization – Characterize the state-of-the-practice of the implementation of Commercial Off-The–Shelf (COTS) UWB products and of UWB technologies, and evaluate the performance and the potential performance of UWB in DoD applications.
- Communications for Subterranean and Urban Environments – Develop a prototype of an ad hoc deployable communication system, based on small, low-cost voice and data communication relay nodes, to enable communications in critical situations in which there are particularly challenging non-line of sight links.
- Modeling and Simulation in support of Communications Planner - Develop an open software platform. The communications planner framework will be designed to interface with a 3D visualization tool and a predictive module, which in turn, interfaces with a real-time simulation model of battlefield scenarios.
- Productization of Subsystems: Productize existing prototype Ka-band up-converter, down-converter and solid-state power amplifier for production.

In determining the FY05 program, STCD is working closely with CERDEC Management and several PMs to ascertain what projects would best serve their needs for emerging major acquisition programs to support FCS and the Future Force. The planned FY05 efforts include additional research in the following areas:

- Position/Navigation for Situational Awareness – Leverage existing government and industry efforts in non-Global Positioning System (GPS)-based location systems by integration and gap-filling development to create an end-to-end system for deployment to the dismounted Land Warrior
- Air-Ground Unmanned Vehicle Collaboration – For multiple, simultaneous unmanned ground and air vehicles, create a dynamic real-time tasking and collaborative control system that achieves multiple mission objectives in a single "meta-mission".
- Real Time Change Detection – Leverage developed systems to acquire aerial image data, process the data and distribute the results in real time to convoy leaders on the move.
- On the move Pop Up Target Detection Using Distributed Aperture Sensors – Provide the Warfighter in an urban environment with the ability to assess the environment within the confines of an armored vehicle before engagement.
- Sense Through-the-Wall Information Integration & Communications – Technologies are being developed to provide the Warfighter with the location of moving and near stationary personnel before a building is breached.

In addition to the R&D efforts, the ACIN program has created a Center for Entrepreneurship (ACIN Center) located in Camden, New Jersey. The ACIN Center will nurture and assist small emerging technology companies, helping them grow as commercial firms. It is a full service emerging technology incubator/accelerator, operated by Drexel University. The primary goal of the ACIN Center is to enable communications and networking businesses that utilize information technology (IT) developed in ACIN R&D projects to be incubated and accelerated onto a rapid commercialization track. As a result of the ACIN efforts, several companies have joined the center fostering relationships with the Air Force, FAA, DISA, TSA, Coast Guard and Nav Sea. These government agencies have provided funding to support the companies' ACIN projects.

Funding for ACIN has been provided to Fort Monmouth as a result of special congressional action initiated and encouraged by a group of elected representatives from the area of Camden, NJ and Fort Monmouth. The congressional interest is based on the synergy of local industry and academia coupled with the proximity of Fort Monmouth and its high tech PM and Research, Development, and Engineering

activities. **While it is not impossible for CERDEC to continue its leadership and partnership in the Camden centered ACIN, it is unlikely that the current congressional interest would be maintained with the loss of Fort Monmouth from the partnership.**

12. In unclassified format, describe the relationship between Ft. Monmouth, Ft. Dix, Lakehurst NAS and Willow Grove. Include descriptions of acreage, facilities, current Ft. Monmouth usage of that location, and average yearly hours or days of Ft. Monmouth use of that facility. How do recommendations regarding Willow Grove impact Ft. Monmouth activities?

Please note this question should address "Warren Grove" Bombing Range, New Jersey, not "Willow Grove", Pennsylvania. The BRAC recommendation to close Willow Grove, Pennsylvania has no impact on Fort Monmouth activities.

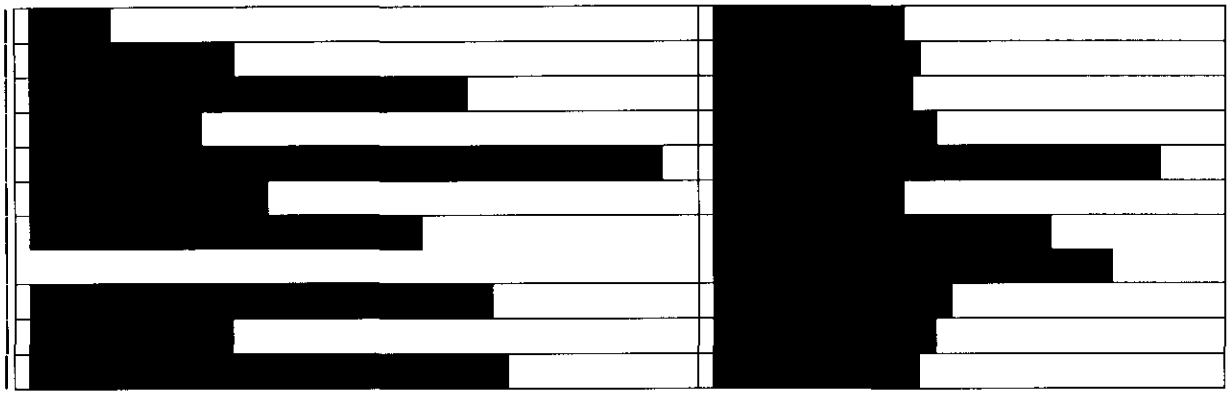
The C4ISR On-the Move (OTM) Testbed at Fort Dix/Lakehurst Naval AES/McGuire Air Force Base and Warren Grove Bombing Range was established in August 2001 by the Deputy Assistant Secretary of the Army, Acquisition, Logistics and Technology (ASAALT) to support the Army's Transformation to the Future Force. The cornerstone of Army Transformation is our ability to achieve enhanced lethality and survivability through the effective use of C4 On-the-Move, supported by robust intelligence, surveillance and reconnaissance, and beyond line-of-sight fires. Using End-to-End C4ISR Modeling and Hardware-in-the-loop, the Testbed established a flexible C4ISR government integration center (GIC) and an engineering hardware Testbed to experiment and examine the integrated capabilities of emerging technologies and systems in a System of Systems construct.

The GIC is an integration hub for virtual simulation as well as live experimentation. With its extensive unclassified and secure network connectivity, the GIC is used to connect the Warfighter with the technologist. Extensive collaboration is done between academia, industry, Army RDECs and war fighting labs; other services' engineering centers and labs, as well as other federal entities. The GIC is the Government Counterpart to the Boeing Integration Center (BIC) and Joint Forces Command (JFCOM) Simulation Center.

The proximity to Ft. Dix, Lakehurst Naval AES, McGuire Air Force Base and Warren Grove Bombing Range affords the engineers and scientists access to approximately 42,000 acres of land and over 200 miles of controlled restricted air space. Ft. Dix is "Headquarters" to the Testbed. Facilities include the Instrumentation Center, Sensor Fusion Center, Integration/Expo Center, Network Operation Center, Live/Virtual/Constructive Facility, Maintenance Facility, Weapons Vaults, Military Operations in Urban Terrain Facility and a Maneuver Area which features open terrain, wooded areas and rolling hills. Lakehurst Naval AES houses the CERDEC Flight Activity and provides 24/7 airfield operational capability and Visual and Instrumented Flight Rules (VFR/IFR) between 1,000 and 25,000 feet. In addition to flight operations, facilities include laser ranges and access to remote testing areas for air and ground communication projects. McGuire Air Force Base provides Air Traffic Control and facilities for large aircraft and has been utilized over the past two years in our efforts with the Air Force's Command and Control Constellation Testbed utilizing the Paul Revere aircraft. Warren Grove Bombing Range is utilized to extend the maneuver areas of Fort Dix an additional 40 km. It provides a unique capability to experiment with Joint Fire Concepts allowing complete "sensor-to-shooter" live fire scenarios to be executed.

A unique requirement of C4ISR experimentation is **spectrum availability**. Since the inception of the Testbed, we have been successful in receiving frequency approvals for all the radios that include frequencies from [redacted]. This is a very wide spectrum. The table below provides an indication of the typical types of C4ISR systems used in at the Testbed, for which frequency authorizations are processed:

[redacted]	[redacted]



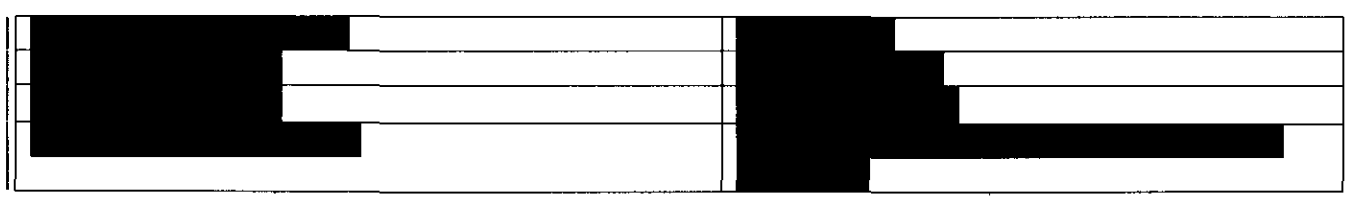
The Testbed operates year-round and culminates with a capstone experiment in the fall. Planning for the year is accomplished in the first quarter of the new fiscal year, at which time the System of Systems hypotheses are developed. During the second quarter, study areas are refined and test execution begins with the determination of technology and system availability to support the test hypotheses. The third quarter focuses on one- or two-day events with a predetermined script with each technology and system to insure performance and capabilities of the simulations and hardware are understood. This concludes with end-to-end evaluations over multiple day events that examine the performance of the entire C4ISR architecture prior to operational employment. The end-to-end effort will focus on the execution of a series of mission threads to ensure capability of system-of-systems to meet expected requirements. Finally, Operational Assessment is conducted in the fourth quarter. Typically, this includes thirteen days for record trial runs that require the units of focus to employ the provided C4ISR system-of-systems in a realistic, free-play operational environment.

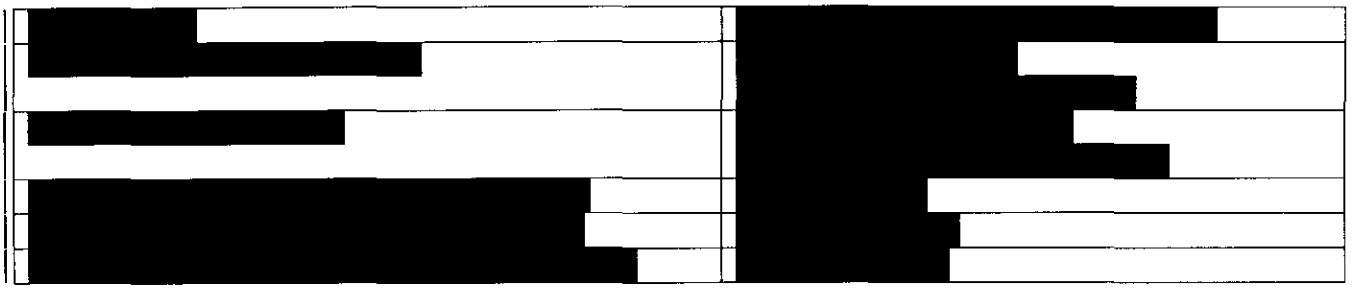
The Testbed operates with approximately 50 or more engineers and scientists on site for 230 days out of the year preparing for the experimentation event. During the months of April through October, approximately 200 engineers and scientists are on site at Fort Dix. In addition to the Government and Contractor workforce, over 100 Reserve/Guard Soldiers are involved with the experiment during the Operational Assessment Phase which takes place in August and September.

The Testbed is currently resourced through FY11.

We anticipate that with the increased need for Airborne communications relays there will be increased usage of the testbed. The testbed affords us the varied terrain to emulate many operational conditions being experienced in our Global fights, available airspace to fly up to 10,000 feet and frequency clearance to test a wide variety of emitters and radios. This includes support of fixed wing, rotary wing and lighter-than-air airships (blimps). Lakehurst Naval AES also provides appropriate sized hangers to store and service the aircraft, especially the blimp which requires considerable space. Fort Dix, Lakehurst Naval AES and McGuire AFB collocation make it very convenient to conduct Joint exercises. We have been able to do joint experiments utilizing the Air Force Paul Revere aircraft which was serviced out of McGuire AFB while our ground forces were operating in the Fort Dix ranges. Lakehurst Naval AES is adjacent to Fort Dix and McGuire AFB which allows us to perform exercises over a large range without having to interfere with commercial entities. It also provides us the distances and frequency clearances to test airborne range extension and coverage.

The following C4ISR systems will be included at the OTM demonstrations at Fort Dix, Lakehurst Naval AES, McGuire AFB and Warren Grove during the September 2005 C4ISR demo:





The Northeastern region is quite congested due to all sorts of communication activities from commercial airlines to Air Force, Navy and Army. Nevertheless, we have been able to receive frequency approvals for all requested experimental test cases.

Additionally, an FAA Certificate of Agreement (CA) allows Team C4ISR to fly UAVs in National (non-military) **Airspace** from Lakehurst Naval AES. By virtue of this CA, we have access not only to Restricted Area 5001 A/B (Fort Dix, Army), but also 5002 A/B/C/D/E (Warren Grove, Air Force). This gives us the ability to operate over approximately 500 square miles of restricted airspace, versus the approximately 120 square miles Aberdeen has, by virtue of being able to operate from a single base by flying through National Airspace between the areas. It also enables us to conduct joint exercises, operations and R&D very efficiently.

The reason we have been able to obtain this approval from the FAA is twofold; first, the area is sparsely populated, being situated over the Pine Barrens. Second, extensive work has been done to document the consequences of potential loss-of-control incidents. For instance, the Aerial Common Extender Program, which uses a remotely controlled dirigible, has a panel that blows out and allows the blimp to gradually settle to the ground. All other UAVs have similar provisions, ranging from an automated return to base and landing, to shutting the engine off and letting it crash.

While Aberdeen can operate UAVs within their own Restricted area, R4001, some of that is under the Baltimore TCA, and even if they could get permission to fly through adjacent National Airspace, which is highly doubtful given the traffic volume in the area, there are no Air Force or Navy facilities adjacent to duplicate the work we do with other services. For instance, USSOCOM has designated Lakehurst Naval AES their Center of Excellence for UAVs and has chosen the CERDEC Flight Activity as their operations and support organization for their A160 R&D efforts.

13. There has been significant mention of the loss of intellectual capital. Given the current Ft. Monmouth workforce, on average, how many years of experience do senior system personnel have with that system? How long does it take, and what kind of training or education is required for someone to be considered a "system expert"? Is there any way to quantify the impact of the loss of this experience upon a system and the soldier?

The average years of service for Team C4ISR at Fort Monmouth civilian employees is 18.3. This statistic reflects the fact that most senior system personnel at Fort Monmouth have many years of experience in their field, including extensive formal and on-the-job training. A breakout of the workforce by age will provide further illustration:

60+ - 11%
50-59 - 34%
40-49 - 34%
30-39 - 10%
20-29 - 11%

With 45% of the workforce at age 50+, a move to another commuting area will have a devastating effect. Given that the current average retirement age is 62, a move out of the commuting area will accelerate

not only regular retirements, but significantly increase early retirements. The 30-49 age group has been impacted by a decade of DOD downsizing in the 90s (particularly the 30-39 group, which accounts for its relatively low percentage of the total work force). However, it is typically from this group that most relocations would come. Typically, the 20-29 age group has the least investment in the organization and experiences a significant level of attrition - and this would only be exacerbated under a relocation scenario.

Most Team C4ISR personnel who are hired from college spend two to three years in a formal training program, taking classes and gaining experience that will allow them to perform with relative independence at the completion of the program. However, many years beyond this formal training program are required to develop an expert in an area like acquisition, logistics, or the many technology areas that our scientists and engineers are engaged in. We can and have successfully recruited top graduates with degrees in electronics/computer engineering, but these graduates come to us without any education in the domain areas, such as sensors and electronic warfare. This knowledge is developed over many years and is critical to ensuring the interoperability of systems under development. Typically, a systems expert has achieved at least level II certification under the Defense Department Acquisition, Logistics and Technology Workforce (ALTWF) training and certification requirements. This level of certification typically requires at least two years (and preferably four years) of specialized acquisition experience and completion of numerous mandatory training courses in a given specialty area, such as acquisition logistics management, reliability and maintainability, contract administration, systems engineering, etc. In the engineering field, many of our systems experts have advanced degrees (33% of our engineers and scientists currently have advanced degrees). For employees who enter the workforce directly from or shortly after college, in addition to the two to three years required to complete the formal entry-level training program, another four to six years are typically required to reach the systems expert level. For individuals who enter the work force in mid-career, there is still a significant training requirement because much of the knowledge these individuals must develop are in Army or Defense-specific domains, such as information warfare. We estimate that even mid-career hires require four to six years of experience before they have achieved the level of systems expert.

Although we have no reliable way to quantify the impact of the loss of this experience upon a system and soldier, we can say that based on the high percentage of retirement eligibles in the Team C4ISR at Fort Monmouth work force (62% of the work force will be eligible for optional or early retirement by 2009), and the portability of the retirement system (Federal Employee Retirement System or FERS) that our younger workers are under, **we expect no more than 20% of the current work force to transfer to Aberdeen Proving Ground.** The percentage of systems experts and senior leaders relocating to Aberdeen Proving Ground would most likely be even lower, since this group is more experienced and older than the overall work force. The average age of our systems experts and senior leaders is 48.3; their average years of service is 20.5. The requirement to hire at least 80% of the work force (approximately 3,100 employees) will seriously degrade support to C4ISR systems and the soldier for more than ten years. We base this estimate not only on the amount of time it takes to develop a systems expert (six to nine years for employees hired directly from or shortly after college; four to six years for employees hired in mid-career), but also on the amount of time it will take to hire about 3,100 new employees. Such a massive hiring effort would have to take place over at least four years. In addition, we anticipate that we would lose a significant portion of our employees who have direct experience supporting the soldier and Warfighter in various deployments such as Operation Desert Shield and Desert Storm, Operation Enduring Freedom, and Operation Iraqi Freedom. For example, over the last year, more than 125 civilian employees from Team C4ISR at Fort Monmouth have deployed in support of the soldier and Warfighter. Most of that invaluable and irreplaceable experience will be lost if Team C4ISR at Fort Monmouth relocates to Aberdeen Proving Ground.

In addition to the impact to C4ISR systems and the soldiers/Warfighters they support, **there is a cost associated with hiring new employees**. Such costs include recruitment expenses, administrative processing costs, applicant screening, basic new employee orientation, lost productivity, etc. Research by highly regarded **Human Resources consulting firms such as the Saratoga Institute and Hewitt**

Associates estimates this cost at 100 to 150% of annual salary for technical and white collar workers. Based on this estimate, the total cost to replace our projected losses would range from $256,488,000 to $384,732,000. In addition, a Naval Research Lab study estimates formal training costs for replacement staff at 33% of annual salary over a three year period. This would impose an additional cost of approximately $253,923,000. Finally, hiring approximately 3,100 new employees over a four year period would put a tremendous additional strain on an already strained remaining work force, since there would be very few employees available to train the new employees. The Aberdeen, Maryland area has a good labor pool of qualified college graduates and mid-career candidates to fill these jobs, but as we point out above, a long period of formal and on-the-job training is required to produce a systems expert, regardless of the quality or number of job candidates available. The lack of experienced employees to train new employees would further delay the establishment of a viable Team C4ISR work force at Aberdeen Proving Ground.

14. Are any of the organizations in leased facilities on Ft. Monmouth? If so, name the organization and leased building.
There are no organizations in leased facilities on Fort Monmouth.

15. How many engineering labs (Army) are there? How do they work with sister Service labs?
The total number of Army engineering labs will need to be answered by HQ Army. Team C4ISR Labs at Fort Monmouth and Fort Belvoir are fully described in our response to question 9, above.

16. What is unique about the Ft. Monmouth installation itself?
Because of Fort Monmouth's strategic location near New York City and our excellence in C4ISR, our technologies have been applied to Homeland Defense applications, beginning with the immediate support of the efforts in response to the terrorist attacks on the World Trade Center. Additionally, through the use of Cooperative Research and Development Agreements, Team C4ISR is assisting the City of New York, the National Guard Bureau, the Port Authority of New York/New Jersey, Army Corps of Engineers and the State of New Jersey by bringing C4ISR expertise to bear in support of efforts to protect critical infrastructure from terrorist attacks.

[redacted] FEMA Region II serves the federal emergency management needs of the State of New York, the State of New Jersey, the Commonwealth of Puerto Rico and the Territory of the U.S. Virgin Islands. Region II employs 67 full-time employees and can draw on a cadre of over 700 Disaster Temporary Employees (DTEs) or "reservists" during a Presidential Disaster Declaration. [redacted] The location of this FEMA entity was based upon several factors: proximity to New York City; accessibility by automobile, train, ferry, boat and helicopter; security provided by gate and building controlled access; and communication resources provided by Fort Monmouth and Team C4ISR. These resources include the Defense Switched Network/Federal Switch Network, Secure Voice and Video Teleconference and Satellite Capabilities. FEMA recognized the value of co-locating with Team C4ISR in order to leverage resources, technology and know-how. [redacted]

[redacted]

Fort Monmouth is strategically located in the heart of an Information Technology area and has a ready, well-trained labor force. Local firms such as Lucent, Telcordia, ITT, Sarnoff and Lockheed Martin support the Team C4ISR mission. During the downsizing of the information technology industry, Fort Monmouth was able to hire valuable personnel from these nearby firms, bringing a fresh perspective to the design of Army Communications, Intelligence and Electronic Warfare Systems. The NJ Institute of Technology, Stevens Institute of Technology, Monmouth University, Rutgers University, Princeton University, University of Pennsylvania and Drexel University are also located nearby. Team C4ISR has established training and education agreements with many of these universities resulting in a curriculum that is focused on the Team's mission-specific needs. For example, these local universities hold on a regular basis, short courses in specialized communications, intelligence and electronic warfare areas which have been attended by engineers and scientists from Fort Monmouth. These courses provide an opportunity to learn state-of-the-art applications being used by academia and industry with applications to military systems. The cost to participate in these courses is minimal and typically there is no travel cost associated. Many employees from Fort Monmouth hold advanced degrees and are professors, teaching students during evening classes in their area of expertise. The relationship with academia and industry has allowed Fort Monmouth to develop a high level of technical synergy that enables the exploitation of research activities as well as optimizes the ability to meet manpower surge requirements in support of rapid responses to crises.

Our close proximity to Fort Dix/McGuire AFB/Lakehurst NAES ("joint base") provides Fort Monmouth ready access to experimentation facilities and a diverse pool of reserve unit soldiers to support our efforts. Only 35 miles away, this "joint base" provides virtually unlimited airspace for airframe and air-to-ground testing of our systems and deep draft ports for watercraft.

17. Can the test bed area here be recreated at Aberdeen?

Aberdeen Test Center (ATC) provides for Direct Fire, Live Fire and a variety of testing associated with installed performance testing of equipment in vehicles. **ATC is a customer reimbursable facility. It is not well suited for system-of-systems experimentation.** Several key factors drive this.

Range Terrain, Instrumentation and Availability:

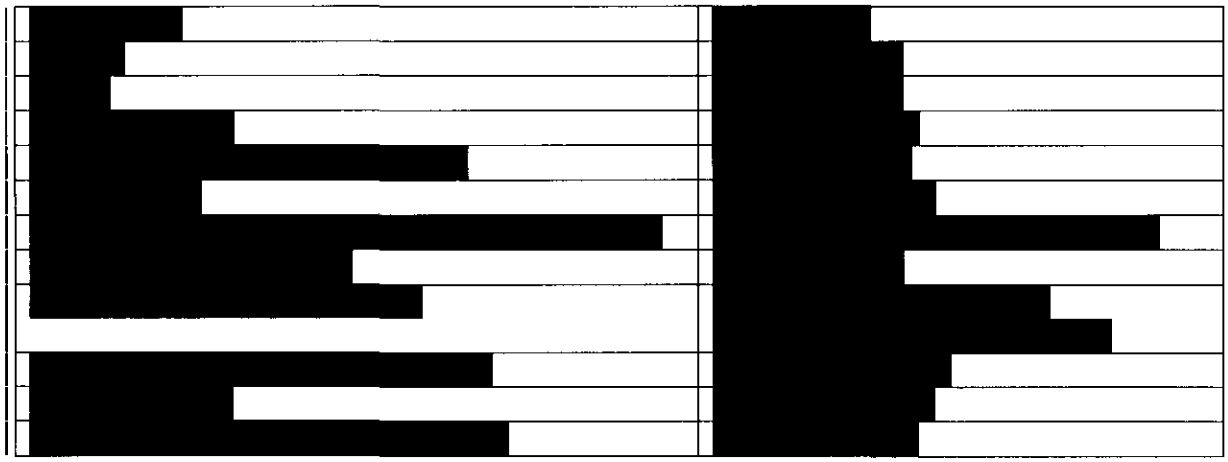
As a Major Range and Test Facility Base, Aberdeen poses significant challenges in conducting system-of-systems experimentation. Aberdeen is currently instrumented for live fire and equipment testing in accordance with Developmental Test (DT) requirements. The terrain features of Aberdeen are limited to open terrain which does not provide an austere environment in which to test sensor and communications technologies and systems. Three types of military relevant terrain (wooded, rolling hills and open terrain) are required to allow for rigorous testing. Sensor and communication challenges are present in the heavily wooded areas of test ranges. Testing in only open terrain such as Aberdeen would not allow for sensor and communication system assessments at the outer envelops of system performance. This is extremely important to our work with the Soldier Battle Lab at Fort Gordon as much of the risk reduction testing is accomplished at the C4ISR Testbed located at Fort Dix/McGuire AFB/Lakehurst Naval AES prior to hand-off to the Army's Experimental Force. Fort Gordon has a similar military relevant terrain as Fort Dix. Furthermore, a capital investment is required to instrument the ranges for the monitoring and data collection of various C4ISR system performances. An ATM DS3 connection from Fort Monmouth to Range 3 at Fort Dix is a permanent virtual circuit supplied by Verizon. Ranges 1 through 4 are connected utilizing the existing communications equipment located there for multiple testing and training needs. Sprint has a point of presence on range three.

As a DT Facility, significant schedule challenges for use of the ranges exist. The C4ISR Testbed operates year round and culminates with a capstone experiment in the fall. It provides early and

continuous live experimentation with current/future concepts and systems focused on integrated C4ISR capabilities exploring identified C4ISR challenges, expanding the understanding of existing and conceptual requirements and capabilities, and determining challenges associated with integration of emerging technologies with current force capabilities. Planning for the year is accomplished in the first quarter of the new fiscal year at which time the System of Systems hypotheses are developed. During the second quarter, study areas are refined and test execution begins with the determination of technology and system availability to support the test hypotheses. The third quarter focuses on one or two day events with a predetermined script with each technology and system to ensure performance and capabilities of the simulations and hardware are understood. This concludes with end-to-end evaluations over multiple day events that examine the performance of the entire C4ISR architecture prior to operational employment. The end-to-end effort will focus on the execution of a series of mission threads to ensure capability of system of systems to meet expected requirements. Finally, Operational Assessment is conducted in the fourth quarter. Typically, this includes thirteen days for record trial runs that require the units of focus to employ the provided C4ISR system-of-systems in a realistic, free play operational environment.

Spectrum Availability:

The proximity of Aberdeen to the Baltimore and Washington, DC metropolitan areas will provide a significant challenge in securing spectrum use to test C4ISR systems. Since the inception of the C4ISR Testbed, we have been successful in receiving frequency approvals for all the radios that include frequencies from [redacted]. This is a very wide spectrum. The table below provides an indication of the typical types of C4ISR systems used in at the Testbed, for which frequency authorizations are processed:



Radio towers and antennas on trailers /Mobile RF nodes that currently exist provide connectivity and access to the enhanced network infrastructure. [redacted]

Air Space Availability:

The C4ISR network consists of airborne and space borne assets which provide for tiered communications and intelligence, surveillance and reconnaissance sensing systems. During Testbed experimentation, a wide range of airborne assets are required and a large air space is needed to support the test and evaluation of these systems. The Washington Air Defense Identification Zone (ADIZ) begins 9 miles south of Phillips Army Airfield. This area expands to the southeast and southwest. No Visual Flight Rules (VFR) testing or Instrumented Flight Rules (IFR) loitering is allowed from the surface to 18,000 ft above ground level. Less than fifty miles to the west is protected airspace over Camp David with no flights allowed at all. Typical R&D tests profiles (hover at altitude, figure 8 patterns or test runs)

could not be performed at any substantial standoff distance starting 180 degrees south of Aberdeen to 310 degrees to the northwest. This is especially crucial to the testing of stand-off sensing systems such as Guardrail. The Philadelphia Class "B" airspace starts 29 miles northeast of Aberdeen. That also expands to the northeast and northwest. Beyond 29 miles, no typical R&D tests could be performed at any substantial standoff distance starting 30 degrees north to 095 degrees east. A flight just east of the airfield (inside their Restricted Airspace) is limited due to active range (live fire) tests. The restricted area extends 10 miles to the east and up to 20 miles to the south up to 10,000 ft above ground level. Local airspace is congested and choke areas occur by general aviation aircraft attempting to avoid Prohibited, Restricted and Class "B' airspace as well as the Washington Air Defense Identification Zone.

UAV Testing

Team C4ISR has FAA authorization to operate UAV testing over approximately 500 square miles of restricted airspace at the Fort Dix/McGuire AFB/Lakehurst Naval AES while Aberdeen has approximately 120 square miles. While Aberdeen can operate UAVs within their own Restricted area, R4001, some of that is under the Baltimore TCA, and it is doubtful they could get permission to fly through adjacent national airspace due to the traffic volume in the area.

Close Proximity to Fort Monmouth
Today, engineers and scientist can conduct test in the laboratories at Fort Monmouth and bring technology and equipment to Fort Dix/McGuire AFB/Lakehurst Naval AES within 30 minutes to conduct live experimentation. If the C4ISR Testbed remains at Fort Dix/McGuire AFB/Lakehurst Naval AES and the E&S population is at Aberdeen, this would not be possible. The Testbed operates with approximately 50 or more engineers and scientists on site for 230 days out of the year preparing for the experimentation event. During the months of April through October, approximately 200 engineers and scientists are on site at Fort Dix/McGuire AFB/Lakehurst Naval AES. Because of the proximity to Fort Monmouth, there are no TDY costs accrued.

18. How do you (Ft. Monmouth) deal with technology transfers?

Here at Fort Monmouth we deal with many aspects of technology transfer and our approach varies with the situation.

Technology Transfer Into the Government
If our goal is to transfer technology into Fort Monmouth from the private sector or academia, we will generally do so by one of five mechanisms: the use of appropriate technical data and computer software requirements in Federal Acquisition Regulation (FAR)-based contracts coupled with the use of standard and specially drafted data rights clauses; the use of Other Transaction Agreements (OTAs) (contractual arrangements outside the FAR and the Defense FAR Supplement) generally awarded to non-traditional defense contractors coupled with the utilization of specially drafted non-DFARS data rights clauses; the use of Cooperative Research and Development Agreements (CRADAs), wherein the Government obtains information from its CRADA partners without providing monetary reimbursement; use of the Army Venture Capital Initiative to attempt to locate, support, and transfer new technologies, typically from companies which have little or no previous experience with the DOD; and the use of mandatory licensing provisions in traditional FAR-based contracts, whereby the Government may not get access to the information but where we provide the information directly to the contractor(s) of our choice.

By way of quantification, by far the greatest number of arrangements for technology transfer into the Government are FAR-based contracts. Fort Monmouth awards approximately 180 R&D contracts per year (approximately 200, counting those awarded using simplified acquisition procedures), all of which provide for delivery of technical information to the Government. Beyond that, many of our non-R&D contracts, of which approximately another 180 are awarded per year (approximately 930, counting those awarded using simplified acquisition procedures), call for data deliveries. The technical data and

computer software purchased enhances our technology base and that of those contractors doing business with us who subsequently receive the information pursuant to conducting that business.

OTA vehicles number around four or five per year. Since these contracts fall outside the requirements of the FAR and DFARS, they allow a greater degree of flexibility and can sometimes be used to induce companies that are generally unwilling to deal with the Government because of the extensive regulatory structure involved, to participate in Government procurement. From the Government's side, such arrangements allow us to acquire technologies not otherwise available to us.

We enter into approximately fourteen CRADAs per year, many of which provide for multiple tasking arrangements. Like procurement contracts, these vehicles are closed out after their purpose is achieved and Fort Monmouth activities currently participate in about forty-six active CRADAs. These agreements are entered into pursuant to the Federal Technology Transfer Act and are used extensively to transfer technology both into and out of the laboratories and to obtain synergistic effects when the participants exchange that information. We find this to be a very useful mechanism to foster the infusion of laboratory technology into systems being developed by contractors under contracts managed by Program Manager (PM) offices.

The Army Venture Capital Initiative is an ongoing program wherein unique statutory authority permitted the Army to establish, through an OTA, a single, self-perpetuating, investment fund with the dual objective of capital growth and technology infusion into the Army. While oversight responsibility rests at the Department of the Army level, C-E LCMC was selected to solicit, negotiate and manage the program. The current technology objective is to increase portable power for the dismounted soldier. The fund is currently invested in several promising technologies: products developed as a result of the fund's investments have been transitioned and deployed. [redacted]

Another means of transferring technology into our C4ISR programs and capabilities is through the Small Business Innovative Research (SBIR) Program. The SBIR program was established to provide small businesses and research institutions with opportunities to participate in government-sponsored research and development. DOD SBIR investments result in a technology product, or service, that the government can potentially use, and that the small business can commercialize. An example of a successful Team C4ISR SBIR program is with Austin Information Systems who has developed an intelligent information search and retrieval tool which is now commercially available and was recently selected as the Situation Understanding Package for the Army's Future Combat Systems. Team C4ISR has an excellent SBIR program and has been referred to as a model for others to follow. To date, in FY05, we have realized a 450% return on our investment into the SBIR program. Since the inception of the SBIR Phase II Quality Awards, Team C4ISR has won nine annual awards.

Mandatory licensing of technology is a device used by C-E LCMC to ensure the transfer of whatever portions of a given technology might be needed by individual recipients of the technology, who form a recipient pool. Each member of this pool may need a different aspect of the technology in question. The approach allows for the transfer of the latest required information directly from an originating third party, without the government needing to serve as the data repository for the entire data base. This approach was employed most recently on the Joint Tactical Radio System program.

Technology Transfer Out of the Government

If the circumstance is such that our program goal is to transfer technology out of the Government, a goal mandated by the Federal Technology Transfer Act, the most frequently used vehicle to accomplish such transfer is a CRADA. The work performed under these agreements ranges from testing and suggesting changes to commercial equipment, through providing ideas and processes developed in Fort Monmouth Laboratories to the private sector to enhance commercial products for potential military use and application, to assisting in the design and development of items for use on contracts where the contractor

is supplying a product to sister services, or, as in the case of the Future Combat Systems program, where the end item will be used by the Army. As alluded to above, when used as in this last example, this vehicle allows us to insert technology developed by our laboratories into systems managed by Government PEOs and PMs without the need for that PM to take the contractual risk of directing such use. The CRADA vehicle is also used to allow for our laboratories and CRADA partners to cooperatively test and jointly refine components and systems which are candidates for military use in our C4ISR Testbed located at Fort Dix/McGuire AFB/Lakehurst Naval AES, New Jersey. Such early collaborative effort reduces development time and cost and promotes operational compatibility among a plurality of systems leading to a seamless interaction of all C4ISR elements, ultimately providing the battle commander with a decisive advantage.

Another aspect of our program to transfer technology out of the government is that related to our work in the area of Homeland Defense. Due in part to our proximity to New York City, in part to the assistance we provided after 9/11 and in part to our demonstrated expertise in computer security, sensor systems and communications, we have been approached by, and established CRADA relationships with the State of New Jersey and the Port Authority of New York and New Jersey. The Army Corps of Engineers is also a party to some of these efforts which are directed at providing port, bridge and water security to the New York City environs; enhancing their communications capability; and providing computer security to New Jersey's defense apparatus. Our efforts in these areas have been successful to date and our involvement is ongoing and growing. We have been able to provide assistance ***now*** in areas where the Department of Homeland Security has yet to establish significant expertise or methodology.

A final aspect of our outgoing technology transfer efforts is that associated with our patent program. Although the lack of a marketing staff limits the extent of our licensing efforts, several patented inventions have been licensed over the years, most recently last year to the largest magnet manufacturer in the United States. Beyond patent licensing, however, many Fort Monmouth patents have been cited extensively by the United States Patent and Trademark Office for the purpose of teaching those inventions to other applicants for patent, thereby broadening the knowledge base of the inventive community by disseminating technology developed here, while at the same time, reducing the government's future exposure to costly patent litigation.

19. Why were the facilities at Natick and Adelphi not brought into an Army C4ISR recommendation?
This is a question for HQ Army to answer.

20. Was Homeland Security/Homeland Defense taken into consideration as part of the Ft. Monmouth closure recommendation? If so, how? If not, why not?
This is a question for HQ Army to answer.

21. What were the first and second choice locations ahead of Aberdeen? Why were they rejected? How was Aberdeen deemed the best facility?
This is a question for HQ Army to answer.

22. In looking at the Technical recommendations, there are many joint C4ISR facilities, but no land C4ISR center. Why is there no such recommendation, and how does the recommendation to close Ft. Monmouth fit in with that rationale?
This is a question for HQ Army to answer.