

Technical Joint Cross-Service Group

Summary of Selection Process

Introduction

The Director, Defense Research and Engineering, chaired the Technical Joint Cross-Service Group (TJCSG). The TJCSG principals included senior members from each Military Department and the Joint Staff. The TJCSG was chartered to review the following DoD technical functions: Research; Development and Acquisition; and Test and Evaluation (RDAT&E). As required, the TJCSG formally coordinated its work with the other joint cross-service groups to consider outdoor ranges, medical research, some intelligence functions, and headquarters functions.

Responsibilities and Strategy

The TJCSG evaluated DoD installations that performed the RDAT&E functions. The research function included basic research, exploratory development, and advanced development. The development/acquisition function included system development and demonstration, systems modifications, experimentation and concept demonstration, product/in-service life-cycle support and acquisition. The test and evaluation function included the formal developmental test and evaluation (DT&E) and the formal operational test and evaluation (OT&E).

To guide its analysis and recommendation development, the TJCSG established two principles and an overarching strategic framework. The two principles were:

- Provide efficiency of operations by consolidating technical facilities to enhance synergy and reduce excess capacity, and
- Maintain competition of ideas by retaining at least two geographically separated sites, each of which would have similar combination of technologies and functions. This would also provide continuity of operations in the event of an unexpected disruption.

Consistent with these two principles, the TJCSG used the strategic framework to establish multifunctional and multidisciplinary technical (RDAT&E) Centers of Excellence which should provide the scientific and technical advances to enable the Department to develop capabilities and weapons that are technologically superior to those of potential adversaries into the future. The multifunctional and multidisciplinary nature of the Centers of Excellence should allow more rapid transition of technology and enhance integration of multiple technologies. The Centers of

Excellence will be complemented by the Department's existing technical facilities that have a disciplinary focus.¹

The TJCSG also recognized that to effectively accomplish the Department's RDAT&E functions, key partners outside of the Department of Defense are essential, and include other government organizations, industry, universities, and the international community. Finally, the rapidly changing and uncertain environment of the 21st century required that the TJCSG analysis and recommendations ensure that surge capability would be available for the future Defense RDAT&E infrastructure.

TJCSG recommendations provide the Department Centers of Excellence in the following three areas: Defense Research Laboratories; RDAT&E Centers; and Integrated Command, Control, Communications, and Computers and Intelligence, Surveillance, and Reconnaissance (C4ISR) Centers.

Analytical Process

To organize its efforts, the TJCSG established five subgroups, each of which took responsibility for evaluating a set of technical activities. The subgroups are: Command, Control, Communications, Computers, Intelligence, Surveillance, Reconnaissance (C4ISR); Air, Land, Sea, and Space Systems (ALSS); Weapons and Armaments (W&A); Innovative Systems (IS); and Enabling Technology (ET). As directed by the TJCSG, the subgroups conducted the detailed analysis for capacity, military value, scenario development and analysis, and finally, the development and evaluation of candidate recommendations for review by the ISG. At each stage of the analysis, the TJCSG reviewed the subgroups findings and provided oversight and direction that shaped subsequent analysis. A Capability Integration Team (CIT) and an Analytical Team also supported the efforts of the subgroups. The TJCSG also coordinated with the other JCSGs. The most frequent coordination was with the Education and Training (E&T) JCSG, the Headquarters and Support Activity (H&SA) JCSG, the Medical JCSG, and the Intelligence (Intel) JCSG.

The TJCSG further delineated its RDAT&E functions by using the FY 2003 Defense Technical Area Plan (DTAP) to identify discrete technical facilities that could be appropriately compared to one another throughout the analysis. The DTAP has twelve technical capability areas. The TJCSG expanded this to thirteen technical capability areas because it was analytically useful to divide the single "land and sea vehicles" DTAP area into separate technical capability areas.

The 13 technical areas are: air platforms; battlespace environments; biomedical; chemical and biological defense; ground vehicles; human systems; information systems; materials and processes; nuclear technology; sea vehicles; sensors, electronics, and electronic warfare; space platforms; and weapons and armaments. The result of this approach was the creation of 39

¹ Multifunction refers to those activities that perform more than one function (research, development and acquisition, and test and evaluation). Thus, a center that performs research and development and acquisition (RD&A) is multifunctional. Multidisciplinary refers to activities that operate in more than one technical discipline. For example, a center that conducts electronics, materials, and human factors research is a multidisciplinary research center. The BRAC recommendations enhance the multidisciplinary nature of the research laboratories.

technical facility categories defined as “a collection of people and physical infrastructure that performs a technical function (or functions) in a specific technical capability area at a specific location.”

The TJCSG performed a detailed analysis of technical capacity for each of these 39 technical facility categories. The TJCSG considered current capacity, surge capacity estimates, and future capacity estimates that may be imposed by possible force structure changes or other unknown causes. The group generated questions, issued standardized data calls to installations, and created a DoD database for comparative analyses of responses to the data call. A similar analysis was performed for military value. The TJCSG generated different questions and expanded the database to accommodate final BRAC 2005 Selection Criteria. For both the military value and capacity analyses, the general attributes of people, physical environments, physical structures and equipment, operational impact, and synergy were used to characterize the capacity and military value of technical functions.

The TJCSG subgroups identified strategy-driven scenarios that were analyzed using military value and the technical capacity required to meet current and future needs, and presented them to the TJCSG principals for deliberation and approval. After approval, the subgroups applied final BRAC 2005 Selection Criteria 5-8 to each scenario using BRAC standard procedures. The TJCSG deliberated and approved all assumptions prior to conducting analyses.

Through its deliberative process the TJCSG generated over 100 ideas and from these, developed 69 declared scenarios. Through further analysis, the group narrowed this to 23 candidate recommendations. In the recommendation coordination process, nine candidate recommendations associated with closures or other proposed actions were transferred to the Military Departments or other JCSGs for inclusion in their recommendations. One candidate recommendation was disapproved at the IEC level. This report summarizes the 13 approved TJCSG recommendations. These recommendations provide the Department Centers of Excellence in the following three areas:

- Defense Research Laboratories, whose functions include, but are not limited to, basic and applied research. Combined research laboratories are inherently multidisciplinary.
- Integrated Research (R), Development and Acquisition (D&A), and Test and Evaluation (T&E) Centers across DoD technology areas that are involved with maturing platforms and capabilities. This includes Land, Maritime, Air, and Space platforms; Weapons and Armaments; and Chemical-Biological Defense Systems.
- Integrated Command, Control, Communications, and Computers and Intelligence, Surveillance, and Reconnaissance (C4ISR) Centers intended to enable advances to joint battlespace awareness capability with a joint program management office and RDAT&E domain centers for land, maritime, air and space. This infrastructure should enable a future joint management structure.

The recommendations contained herein detail the changes to the Department's technical infrastructure necessary to create these Centers of Excellence.

The recommendations approved by the Secretary of Defense follow:

Recommendations and Justifications

Co-locate Extramural Research Program Managers

Recommendation: Close the Office of Naval Research facility, Arlington, VA; the Air Force Office of Scientific Research facility, Arlington, VA; the Army Research Office facilities, Durham, NC, and Arlington, VA; and the Defense Advanced Research Project Agency facility, Arlington, VA. Relocate all functions to the National Naval Medical Center, Bethesda, MD. Realign Fort Belvoir, VA, by relocating the Army Research Office to the National Naval Medical Center, Bethesda, MD. Realign the Defense Threat Reduction Agency Telegraph Road facility, Alexandria, VA, by relocating the Extramural Research Program Management function (except conventional armaments and chemical biological defense research) to the National Naval Medical Center, Bethesda, MD.

Justification: This recommendation co-locates the managers of externally funded research in one campus. Currently, these program managers are at seven separate locations. The relocation allows technical synergy by bringing research managers from disparate locations together to one place. The end state will be co-location of the named organizations at a single location in a single facility, or a cluster of facilities. This “Co-Located Center of Excellence” will foster additional coordination among the extramural research activities of OSD and the Military Departments. Further it will enhance the Force Protection posture of the organizations by relocating them from leased space onto a traditional military installation.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is \$153.5M. The net of all costs and savings to the Department during the implementation period is a savings of \$107.1M. Annual recurring savings to the Department after implementation are \$49.4M with a payback expected in 2 years. The net present value of the costs and savings to the Department over 20 years is a savings of \$572.7M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 193 jobs (122 direct jobs and 71 indirect jobs) over the 2006-2011 period in the Durham, NC, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment. The aggregate economic impact of all recommended actions on this economic region of influence was considered and is at Appendix B of Volume I.

Community Infrastructure Assessment: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: An Air Conformity determination may be required at National Naval Medical Center, Bethesda, MD. This recommendation has no impact on cultural, archeological, or tribal resources; dredging; land use constraints or sensitive resource areas; marine mammals, resources, or sanctuaries; noise; threatened and endangered species or critical habitat; waste management; water resources; or wetlands. This recommendation will require spending

approximately \$0.5M for environmental compliance activities. This cost was included in the payback calculation. This recommendation does not otherwise impact the costs of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Consolidate Air and Space C4ISR Research, Development & Acquisition, Test & Evaluation

Recommendation: Realign Wright-Patterson Air Force Base, OH, Maxwell Air Force Base, AL, and Lackland Air Force Base, TX, by relocating Air & Space Information Systems Research and Development & Acquisition to Hanscom Air Force Base, MA. Realign Eglin Air Force Base, FL, by relocating Air & Space Sensors, Electronic Warfare & Electronics and Information Systems Test & Evaluation to Edwards Air Force Base, CA.

Justification: This recommendation will reduce the number of technical facilities engaged in Air & Space Sensors, Electronic Warfare, and Electronics and Information Systems RDT&E from 6 to 2. Through this consolidation, the Department will increase efficiency of RDT&E operations resulting, in a multi-functional center of excellence in the rapidly changing technology area of C4ISR.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is \$254.4M. The net of all costs and savings to the Department during the implementation period is a cost of \$115.3M. Annual recurring savings to the Department after implementation are \$36.2M with a payback expected in 8 years. The net present value of the costs and savings to the Department over 20 years is a savings of \$238.0M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 2,250 jobs (1,262 direct jobs and 988 indirect jobs) over the 2006-2011 period in the Dayton, OH, Metropolitan Statistical Area, which is 0.44 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 384 jobs (220 direct jobs and 164 indirect jobs) over the 2006-2011 period in the Fort Walton Beach-Crestview-Destin, FL, Metropolitan Statistical Area, which is 0.32 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 3,254 jobs (1,971 direct jobs and 1,283 indirect jobs) over the 2006-2011 period in the Montgomery, AL, Metropolitan Statistical Area, which is 1.6 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 212 jobs (110 direct jobs and 102 indirect jobs) over the 2006-2011 period in the

San Antonio, TX, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

The aggregate economic impact of all recommended actions on these economic regions of influence was considered and is at Appendix B of Volume I.

Community Infrastructure Assessment: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: This recommendation has the potential to impact air quality at Hanscom and Edwards. Additional operations at Hanscom and Edwards may impact archeological sites, which may constrain operations. This recommendation may require building on constrained acreage at Hanscom. Additional operations on Edwards may impact threatened and endangered species and/or critical habitats. The hazardous waste program at Hanscom will need modification. Additional operations may impact wetlands at Hanscom, which may restrict operations. This recommendation has no impact on dredging; marine mammals, resources, or sanctuaries; noise; waste management; or water resources. This recommendation will require spending approximately \$0.5M cost for waste management and environmental compliance activities. This cost was included in the payback calculation. This recommendation does not otherwise impact the costs of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Consolidate Ground Vehicle Development & Acquisition in a Joint Center

Recommendation: Realign Redstone Arsenal, Huntsville, AL, by relocating the joint robotics program development and acquisition activities to Detroit Arsenal, Warren, MI, and consolidating them with the Program Executive Office Ground Combat Systems, Program Executive Office Combat Support and Combat Service Support and Tank Automotive Research Development Engineering Center. Realign the USMC Direct Reporting Program Manager Advanced Amphibious Assault (DRPM AAA) facilities in Woodbridge, VA, by relocating the Ground Forces initiative D&A activities to Detroit Arsenal, Warren, MI.

Justification: This recommendation consolidates those USMC and Army facilities that are primarily focused on ground vehicle activities in development and acquisition (D&A) at Detroit Arsenal in Warren, MI, to increase joint activity in ground vehicle development & acquisition. The D&A being consolidated is centered on manned and unmanned ground vehicle program management. In Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF), effectiveness in combat depends heavily on "jointness," or how well the different branches of our military can communicate and coordinate their efforts on the battlefield. This collection of D&A expertise will not only foster a healthy mix of ideas, but will increase the ground vehicle community's ability to develop the kinds of capabilities that can position us for the future as well

as adapt quickly to new challenges and to unexpected circumstances. The ability to adapt is critical where surprise and uncertainty are the defining characteristics of the new threats.

The Joint Center for Ground Vehicle D&A located at Detroit Arsenal will be the Department of Defense's premier facility for ground vehicle D&A. Detroit Arsenal is located in southeastern Michigan where the Research and Development headquarters reside for General Motors, Ford, Chrysler, General Dynamics Land Systems, Toyota-North America, Nissan-North America, Hino, Hyundai, Suzuki, Visteon, Delphi, Johnson Controls, Dana, and many others. The synergies gained from having a critical mass located in southeastern Michigan, and being able to leverage the world's intellectual capital for automotive/ground vehicle Research and Development & Acquisition, will ensure the Department is prepared to meet the future demands.

The end state of this recommendation is to consolidate Department of Defense expertise in Ground Vehicle D&A activities at Detroit Arsenal. It promotes jointness, enables technical synergy, and positions the Department of Defense to exploit a center-of-mass of scientific, technical, and acquisition expertise with the personnel involved in ground vehicle Research, Development & Acquisition that currently resides at Detroit Arsenal.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is \$3.8M. The net of all costs and savings to the Department during the implementation period is a cost of \$1.9M. Annual recurring savings to the Department after implementation are \$1.9M with a payback expected in 2 years. The net present value of the costs and savings to the Department over 20 years is a savings of \$17.1M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 56 jobs (32 direct jobs and 24 indirect jobs) over the 2006-2011 period in the Washington-Arlington-Alexandria, DC VA-MD-WV Metropolitan Division, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 135 jobs (77 direct jobs and 58 indirect jobs) over the 2006-2011 period in the Huntsville, AL, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

The aggregate economic impact of all recommended actions on these economic regions of influence was considered and is at Appendix B of Volume I.

Community Infrastructure Assessment: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: This recommendation has no impact on air quality; cultural, archeological, or tribal resources; dredging; land use constraints or sensitive resource areas; marine mammals, resources, or sanctuaries; noise; threatened and endangered species or critical habitat; waste management; water resources; or wetlands. This recommendation will require

spending approximately \$0.1M for National Environmental Policy Act documentation at the receiving installation. This cost was included in the payback calculation. This recommendation does not otherwise impact the cost of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Consolidate Maritime C4ISR Research, Development & Acquisition, Test & Evaluation

Recommendation: Realign Washington Navy Yard, DC, by disestablishing the Space Warfare Systems Center Charleston, SC, detachment Washington Navy Yard and assign functions to the new Space Warfare Systems Command Atlantic Naval Amphibious Base, Little Creek, VA.

Realign Naval Station, Norfolk, VA, by disestablishing the Space Warfare Systems Center Norfolk, VA, and the Space Warfare Systems Center Charleston, SC, detachment Norfolk, VA, and assign functions to the new Space Warfare Systems Command Atlantic Naval Amphibious Base, Little Creek, VA.

Realign Naval Weapons Station Charleston, SC, as follows: relocate Surface Maritime Sensors, Electronic Warfare, and Electronics Research, Development & Acquisition, and Test & Evaluation of the Space Warfare Center to Naval Surface Warfare Center Division, Dahlgren, VA; relocate Subsurface Maritime Sensors, Electronic Warfare, and Electronics Research, Development & Acquisition, and Test & Evaluation of the Space Warfare Center to Naval Station Newport, RI; and relocate the Command Structure of the Space Warfare Center to Naval Amphibious Base, Little Creek, VA, and consolidate it with billets from Space Warfare Systems Command San Diego to create the Space Warfare Systems Command Atlantic, Naval Amphibious Base, Little Creek, VA. The remaining Maritime Information Systems Research, Development & Acquisition, and Test & Evaluation functions at Naval Weapons Station Charleston, SC, are assigned to Space Warfare Systems Command Atlantic, Naval Amphibious Base, Little Creek, VA.

Realign Naval Base Ventura County, CA, Naval Surface Warfare Center Division, Dahlgren, VA, and Naval Station Newport, RI, by relocating Maritime Information Systems Research, Development & Acquisition, and Test & Evaluation to Naval Submarine Base Point Loma, San Diego, CA, and consolidating with the Space Warfare Center to create the new Space Warfare Systems Command Pacific, Naval Submarine Base Point Loma, San Diego, CA.

Realign Naval Submarine Base Point Loma, San Diego, CA, as follows: relocate Surface Maritime Sensors, Electronic Warfare, and Electronics Research, Development & Acquisition, and Test & Evaluation of the Space Warfare Center to Naval Surface Warfare Center Division, Dahlgren, VA; relocate Subsurface Maritime Sensors, Electronic Warfare, and Electronics Research, Development & Acquisition, and Test & Evaluation of the Space Warfare Center to Naval Station Newport, RI; disestablish Space Warfare Systems Center Norfolk, VA, detachment San Diego, CA, and assign functions to the new Space Warfare Systems Command Pacific, Naval Submarine Base Point Loma, San Diego, CA; disestablish Naval Center for

Tactical Systems Interoperability, San Diego, CA, and assign functions to the new Space Warfare Systems Command Pacific, Naval Submarine Base Point Loma, San Diego, CA; and disestablish Space Warfare Systems Command San Diego, CA, detachment Norfolk, VA, and assign functions to the new Space Warfare Systems Command Atlantic, Naval Amphibious Base, Little Creek , VA.

Realign Naval Air Station Patuxent River, MD, by relocating Subsurface Maritime Sensors, Electronic Warfare, and Electronics Research, Development & Acquisition, and Test & Evaluation of the Naval Air Warfare Center, Aircraft Division to Naval Station Newport, RI.

Realign Naval Air Station Jacksonville, FL, by disestablishing the Space Warfare Systems Center Charleston, SC, detachment Jacksonville, FL.

Realign Naval Air Station Pensacola, FL, by relocating the Space Warfare Systems Center Charleston, SC, detachment Pensacola, FL, to Naval Weapons Station Charleston, SC.

Realign Naval Weapons Station Yorktown, VA, by relocating the Space Warfare Systems Center Charleston, SC, detachment Yorktown, VA, to Naval Station Norfolk, VA, and consolidating it into the new Space Warfare Systems Command Atlantic detachment, Naval Station Norfolk, VA.

Justification: These recommended realignments and consolidations provide for multifunctional and multidisciplinary Centers of Excellence in Maritime C4ISR. This recommendation will also reduce the number of technical facilities engaged in Maritime Sensors, Electronic Warfare, & Electronics and Information Systems RDAT&E from twelve to five. This, in turn, will reduce overlapping infrastructure increase the efficiency of operations and support an integrated approach to RDAT&E for maritime C4ISR. Another result would also be reduced cycle time for fielding systems to the warfighter.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is \$106.1M. The net of all costs and savings to the Department during the implementation period is a savings of \$88.6M. Annual recurring savings to the Department after implementation are \$38.7M with a payback expected in 1 year. The net present value of the costs and savings to the Department over 20 years is a savings of \$455.1M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 74 jobs (28 direct jobs and 46 indirect jobs) over the 2006-2011 period in Charleston-North Charleston, SC, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 81 jobs (34 direct jobs and 47 indirect jobs) over the 2006-2011 period in Jacksonville, FL, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 78 jobs (34 direct jobs and 44 indirect jobs) over the 2006-2011 period in the Lexington Park, MD, Micropolitan Statistical Area, which is 0.2 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 286 jobs (127 direct jobs and 159 indirect jobs) over the 2006-2011 period in the Oxnard-Thousand Oaks-Ventura, CA, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 278 jobs (102 direct jobs and 176 indirect jobs) over the 2006-2011 period in the Pensacola-Ferry Pass-Brent, FL, Metropolitan Statistical Area, which is 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 4 jobs (2 direct jobs and 2 indirect jobs) over the 2006-2011 period in Providence-New Bedford-Fall River, RI-MA, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 88 jobs (44 direct jobs and 44 indirect jobs) over the 2006-2011 period in the San Diego-Carlsbad-San Marcos, CA, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 211 jobs (87 direct jobs and 124 indirect jobs) over the 2006-2011 period in the Virginia Beach-Norfolk-Newport News, VA-NC, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 302 jobs (172 direct jobs and 130 indirect jobs) over the 2006-2011 period in the Washington-Arlington-Alexandria, DC-VA-MD-WV, Metropolitan Division, which is less than 0.1 percent of economic area employment.

The aggregate economic impact of all recommended actions on these economic regions of influence was considered and is at Appendix B of Volume I.

Community Infrastructure Assessment: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: Naval Undersea Warfare Center, Newport is in serious non-attainment for Ozone (1hr) and proposed to be in serious non-attainment for Ozone (8hr). San Diego is in attainment for all criteria pollutants. Naval Surface Warfare Center, Dahlgren, VA, is in

attainment for all criteria pollutants with the exception of 8 hour and 1 hour O₃ and Pb, which are Unclassifiable. Naval Amphibious Base Little Creek, VA, Naval Station Norfolk, VA, and Naval Weapons Station Charleston, SC, are in attainment for all Criteria Pollutants. It is in a proposed non-attainment for Ozone (1 hour). Archeological and historical sites have been identified on Dahlgren that may impact current construction or current operations. Norfolk has potential archeological restrictions to future construction. Threatened and endangered species are present at Newport and have delayed or diverted testing. There is a potential impact regarding the bald eagle at Dahlgren. This recommendation has the potential to impact the hazardous waste and solid waste program at Dahlgren. Newport, Dahlgren, Little Creek, Charleston, Norfolk, and San Diego all discharge to impaired waterways, and groundwater and surface water contamination are reported. This recommendation has no impact on dredging; land use constraints or sensitive resource areas; marine mammals, resources, or sanctuaries; noise; waste management; water resources; or wetlands. This recommendation will require spending approximately \$0.1M for waste management and environmental compliance activities. This cost was included in the payback calculation. This recommendation does not otherwise impact the costs of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Consolidate Navy Strategic Test & Evaluation

Recommendation: Realign Patrick Air Force Base, Cape Canaveral, FL, by relocating Nuclear Test and Evaluation at the Naval Ordnance Test Unit to Strategic Weapons Facility Atlantic, Kings Bay, GA.

Justification: This recommendation realigns the stand-alone east coast facility working in full-scale Nuclear Test & Evaluation at Cape Canaveral into a fully supported Navy nuclear operational site at Kings Bay to gain synergy in security (Anti-Terrorism Force Protection-ATFP), Fleet operational support and mission support infrastructure. Since 1956, the Fleet Ballistic Missile (FBM) Program, in support of the TRIDENT (D-Series) Missile, has executed land-based (pad) as well as sea-based (SSBN) test launches supported by the Naval Ordnance Test Unit (NOTU) at Cape Canaveral, FL. This facility provided both the launch support infrastructure as well as docking for sea-based pre- and post-launch events. Recent changes in ATFP requirements, the recent establishment of the Western Test Range in the Pacific, and the programmatic decision to no longer require land based (pad) launches at Cape Canaveral all lead to the realignment/relocation of this function to Kings Bay. This action aligns nicely with the overall Weapons and Armaments strategy to move smaller activities at remote sites into larger facilities to realize a significant synergy in support functions and costs while maintaining mission capability.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is \$86.4M. The net of all costs and savings to the Department during the implementation period is a cost of \$76.7M. Annual recurring savings to the Department after

implementation are \$13.4M with a return on investment expected in 7 years. The net present value of the costs and savings to the Department over 20 years is a savings of \$61.4M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 1,013 jobs (571 direct jobs and 442 indirect jobs) over the 2006-2011 period in Palm Bay-Melbourne-Titusville, FL, Metropolitan Statistical Area which is 0.4 percent of economic area employment. The aggregate economic impact of all recommended actions on this economic region of influence was considered and is at Appendix B of Volume I.

Community Infrastructure Assessment: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: This recommendation has the potential to impact cultural, archeological, or tribal resources; land use constraints or sensitive resource areas; marine mammals, resources, or sanctuaries; threatened and endangered species or critical habitat; water resources; and wetlands at Kings Bay. This recommendation has no impact on air quality; dredging; or noise. This recommendation will require spending approximately \$0.1M on environmental compliance activities. This cost was included in the payback calculation. This recommendation does not otherwise impact the costs of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Consolidate Sea Vehicle Development & Acquisition

Recommendation: Realign Detroit Arsenal, MI, by relocating Sea Vehicle Development and Acquisition to Naval Surface Warfare Center Carderock Division, Bethesda, MD, and Program Management and Direction of Sea Vehicle Development and Acquisition to Naval Sea Systems Command, Washington Navy Yard, DC.

Justification: This recommendation positions technical sites for jointness through co-location with functions at the receiving locations. It also increases efficiency by consolidating program management of Sea Vehicle Development and Acquisition (D&A) from three sites to two principal sites; the Naval Sea Systems Command (NAVSEASYSCOM) at the Washington Navy Yard (WNY), DC, and the Naval Surface Warfare Center (NSWC) Carderock Division, Bethesda, MD.

The consolidation and co-location leverages existing concentration of research, design and development, and acquisition support capabilities residing within the US Navy Headquarters and Warfare Center RD&A infrastructure. Program management for D&A will be at the Naval Sea Systems Command, Washington Navy Yard. In support of joint and transformational initiatives, this recommendation relocates management and direction of Theater Support Vessels (TSV) and

other Sea Vehicle/Watercraft programs for US Army to the Naval Sea Systems Command, Washington Navy Yard. Consolidation of all program management of Sea Vehicle Programs at the Naval Sea Systems Command, Washington Navy Yard co-locates these functions and aligns with related program offices supporting Sea Vehicle Weapons and Combat systems, Hull Mechanical and Electrical, C4I integration and related sea vehicle equipment and support functions. This also places it near the principal technical direction and development agent for sea vehicles located at Naval Surface Warfare Center Carderock Division in Bethesda, MD. This recommendation is consistent with the existing partnership collaboration between the USA and the USN on Theater Support Vessels as reflected in a Memorandum of Understanding between the US Army Program Executive Office (PEO) for Combat Support and Combat Service Support (PEO CS & CSS) and the US Navy PEO for Ships Systems.

The recommendation will enhance synergy by consolidating Sea Vehicle functions to major sites, preserve healthy competition, leverage existing infrastructure, minimize environmental impact, and effect reasonable homeland security risk dispersal. The recommendation will increase efficiency by making a robust acquisition organization available to all DoD Sea Vehicle and watercraft program requirements and will increase efficiency by reducing overall manpower requirements.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is \$1.5M. The net of all costs and savings to the Department during the implementation period is a cost of \$0.1M. Annual recurring savings to the Department after implementation are \$0.2M with a payback expected in 7 years. The net present value of the costs and savings to the Department over 20 years is a savings of \$2.0M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 57 jobs (36 direct jobs and 21 indirect jobs) over the 2006-2011 period in the Detroit-Livonia-Dearborn, MI, Metropolitan Division, which is less than 0.1 percent of economic area employment. The aggregate economic impact of all recommended actions on this economic region of influence was considered and is at Appendix B of Volume I.

Community Infrastructure Assessment: A review of community attributes indicates no issues regarding the ability of the community's infrastructure to support missions, forces, and personnel.

Environmental Impact: This recommendation has no impact on air quality; cultural, archeological, or tribal resources; dredging; land use constraints or sensitive resource areas; marine mammals, resources, or sanctuaries; noise; threatened and endangered species or critical habitat; waste management; water resources; or wetlands. This recommendation does not impact the costs of environmental restoration, waste management, and environmental compliance activities.

Create a Naval Integrated Weapons & Armaments Research, Development & Acquisition, Test & Evaluation Center

Recommendation: Realign Naval Surface Warfare Center Crane, IN, by relocating all Weapons and Armaments Research, Development & Acquisition, and Test & Evaluation, except gun/ammo, combat system security, and energetic materials to Naval Air Weapons Station China Lake, CA.

Realign Naval Surface Warfare Center Indian Head, MD, by relocating all Weapons and Armaments Research, Development & Acquisition, and Test & Evaluation, except gun/ammo, underwater weapons, and energetic materials, to Naval Air Weapons Station China Lake, CA.

Realign Naval Air Station Patuxent River, MD, by relocating all Weapons and Armaments Research, Development & Acquisition, and Test & Evaluation, except the Program Executive Office and Program Management Offices in Naval Air Systems Command, to Naval Air Weapons Station China Lake, CA.

Realign Naval Base Ventura County, Point Mugu, CA, by relocating all Weapons and Armaments Research, Development & Acquisition, and Test & Evaluation to Naval Air Weapons Station China Lake, CA.

Realign Naval Weapons Station Seal Beach, CA, by relocating all Weapons and Armaments Research, Development & Acquisition, and Test & Evaluation, except underwater weapons and energetic materials, to Naval Air Weapons Station China Lake, CA.

Realign Naval Surface Warfare Center, Yorktown, VA, by relocating all Weapons and Armaments Research, Development & Acquisition, and Test & Evaluation to Naval Surface Warfare Center Indian Head, MD.

Realign Naval Base Ventura County, Port Hueneme, CA, by relocating all Weapons and Armaments Research, Development & Acquisition, and Test & Evaluation, except weapon system integration, to Naval Air Weapons Station China Lake, CA.

Realign Fleet Combat Training Center, CA (Port Hueneme Detachment, San Diego, CA), by relocating all Weapons and Armaments weapon system integration Research, Development & Acquisition, and Test & Evaluation to Naval Surface Warfare Center Dahlgren, VA.

Realign Naval Surface Warfare Center Dahlgren, VA, by relocating all Weapons & Armaments Research, Development & Acquisition, and Test & Evaluation, except guns/ammo and weapon systems integration to Naval Air Weapons Station China Lake, CA.

Justification: This recommendation realigns and consolidates those facilities working in Weapons & Armaments (W&A) Research, Development & Acquisition, and Test and Evaluation (RDAT&E) into a Naval Integrated RDAT&E center at the Naval Air Warfare Center, China Lake, CA. Additional synergistic realignments for W&A was achieved at two receiver sites for specific focus. The Naval Surface Warfare Center, Dahlgren, VA, is a receiver specialty site for

Naval surface weapons systems integration and receives a west coast site for consolidation. This construct creates an integrated W&A RDAT&E center in China Lake, CA, energetics center at Indian Head, MD, and consolidates Navy surface weapons system integration at Dahlgren, VA. All actions relocate technical facilities with lower overall quantitative Military Value (across Research, Development & Acquisition and Test & Evaluation) into the Integrated RDAT&E center and other receiver sites with greater quantitative Military Value.

Consolidating the Navy's air-to-air, air-to-ground, and surface launched missile RD&A, and T&E activities at China Lake, CA, would create an efficient integrated RDAT&E center. China Lake is able to accommodate with minor modification/addition both mission and life-cycle/sustainment functions to create synergies between these traditionally independent communities.

During the other large scale movements of W&A capabilities noted above, Weapon System Integration was specifically addressed to preserve the synergies between large highly integrated control system developments (Weapon Systems Integration) and the weapon system developments themselves. A specialty site for Naval Surface Warfare was identified at Dahlgren, VA, that was unique to the services and a centroid for Navy surface ship developments. A satellite unit from the Naval Surface Warfare Center, Port Hueneme, San Diego Detachment will be relocated to Dahlgren.

The Integrated RDAT&E Center at China Lake provides a diverse set of open-air range and test environments (desert, mountain, forest) for W&A RDAT&E functions. Synergy will be realized in air-to-air, air-to-ground, and surface launched mission areas.

This recommendation enables technical synergy, and positions the Department of Defense to exploit center-of-mass scientific, technical and acquisition expertise with weapons and armament Research, Development & Acquisition that currently resides at 10 locations into the one Integrated RDAT&E site, one specialty site, and an energetics site.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is \$358.1M. The net of all costs and savings to the Department during the implementation period is a cost of \$148.7M. Annual recurring savings to the Department after implementation are \$59.7M with a payback expected in 7 years. The net present value of the costs and savings to the Department over 20 years is a savings of \$433.4M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 375 jobs (258 direct jobs and 117 indirect jobs) over the 2006-2011 period in the Martin County, IN, economic area, which is 4.4 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 543 jobs (258 direct jobs and 285 indirect jobs) over the 2006-2011 period in the Lexington Park, MD, Micropolitan Statistical Area, which is 1.0 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 5,012 jobs (2,250 direct jobs and 2,762 indirect jobs) over the 2006-2011 period in the Oxnard-Thousand Oaks-Ventura, CA, Metropolitan Statistical Area, which is 1.2 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 97 jobs (47 direct jobs and 50 indirect jobs) over the 2006-2011 period in the San Diego-Carlsbad-San Marcos, CA, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 76 jobs (45 direct jobs and 31 indirect jobs) over the 2006-2011 period in the Santa Ana-Anaheim-Irvine, CA, Metropolitan Division, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 142 jobs (61 direct jobs and 81 indirect jobs) over the 2006-2011 period in the Virginia Beach-Norfolk-Newport News, VA-NC, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 91 jobs (52 direct jobs and 39 indirect jobs) over the 2006-2011 period in the Washington-Arlington-Alexandria, DC-VA-MD-WV, Metropolitan Division, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 333 jobs (155 direct jobs and 178 indirect jobs) over the 2006-2011 period in the King George County, VA, economic area, which is 2.4 percent of economic area employment.

The aggregate economic impact of all recommended actions on these economic regions of influence was considered and is at Appendix B of Volume I.

Community Infrastructure Assessment: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: This recommendation has the potential to impact air quality at Indian Head and China Lake. Archeological and historical sites exist on NSWC Dahlgren, which may impact current construction and operations. This recommendation has the potential to impact land use constraints or sensitive resource areas at Indian Head and China Lake. This recommendation has no impact on dredging; marine mammals, resources, or sanctuaries; noise; threatened and endangered species or critical habitat; waste management; water resources; or wetlands. This recommendation will require spending approximately \$0.2M for waste management activities and \$1.1M for environmental compliance activities. These costs were included in the payback calculation. This recommendation does not otherwise impact the costs

of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Create an Air Integrated Weapons & Armaments Research, Development & Acquisition, Test & Evaluation Center

Recommendation: Realign Hill Air Force Base, UT, by relocating Weapons and Armaments In-Service Engineering Research, Development & Acquisition, and Test and Evaluation to Eglin Air Force Base, FL. Realign Fort Belvoir, VA, by relocating Defense Threat Reduction Agency National Command Region conventional armament Research to Eglin Air Force Base, FL.

Justification: Eglin is one of three core integrated weapons and armaments RDAT&E centers (with China Lake, CA, and Redstone Arsenal, AL) with high MV and the largest concentration of integrated technical facilities across all three functional areas. Eglin AFB has a full spectrum array of Weapons & Armaments (W&A) Research, Development & Acquisition, and Test & Evaluation (RDAT&E) capabilities. Accordingly, relocation of Hill AFB and DTRA NCR W&A capabilities will further complement and strengthen Eglin as a full spectrum W&A RDAT&E Center.

The overall impact of this recommendation will be to: increase W&A life cycle and mission related synergies/integration; increase efficiency; reduce operational costs; retain the required diversity of test environments; and facilitate multiple uses of equipment, facilities, ranges, and people. Hill AFB and DTRA NCR technical facilities recommended for relocation have lower quantitative MV than Eglin AFB in all functional areas.

This recommendation includes Research, D&A, and T&E conventional armament capabilities in the Air Force and DTRA NCR. It consolidates armament activities within the Air Force and promotes jointness with DTRA NCR. It also enables technical synergy, and positions the DoD to exploit center-of-mass scientific, technical, and acquisition expertise within the RDAT&E community that currently resides as DoD specialty locations. This recommendation directly supports the Department's strategy for transformation by moving and consolidating smaller W&A efforts into high military value integrated centers, and by leveraging synergy among RD&A, and T&E activities. Capacity and military value data established that Eglin AFB is already a full-service, integrated W&A RDAT&E center. Relocation of W&A D&A In-Service Engineering (ISE) from Hill AFB to Eglin AFB will increase life cycle synergy and integration. ISE encompasses those engineering activities that provide for an "increase in capability" of a system/sub-system/component after Full Operational Capability has been declared. ISE activities mesh directly with on-going RDAT&E at Eglin AFB.

Relocation of DTRA NCR W&A technical capabilities will increase life cycle synergy and integration at Eglin AFB. Conventional armament capabilities possessed by DTRA NCR directly complement on-going RDAT&E at Eglin AFB. Cost savings from the relocation of DTRA NCR to Eglin AFB will accrue largely through the elimination of the need for leased

space, and by virtue of the fact that Eglin AFB can absorb the DTRA NCR (and Hill AFB) functions without the need for MILCON.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is \$2.7M. The net of all costs and savings to the Department during the implementation period is a savings of \$4.9M. Annual recurring savings to the Department after implementation are \$1.4M with payback expected in 2 years. The net present value of the costs and savings to the Department over 20 years is a savings of \$17.9M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 64 jobs (33 direct jobs and 31 indirect jobs) over the 2006-2011 period in the Ogden-Clearfield, UT, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 114 jobs (67 direct and 47 indirect jobs) over the 2006-2011 period in the Washington-Arlington-Alexandria, DC-VA-MD-WV, Metropolitan Division, which is less than 0.1 percent of economic area employment.

The aggregate economic impact of all recommended actions on these economic regions of influence was considered and is at Appendix B of Volume I.

Community Infrastructure Assessment: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: Additional operations may impact archeological sites at Eglin AFB and restrict operations. Additional operations may compound the need for explosive safety waivers at Eglin AFB. Additional operations may further impact threatened and endangered species and/or critical habitats at Eglin AFB. Modification of Eglin AFB's treatment works may be necessary. This recommendation may impact wetlands at Eglin AFB. This recommendation has no impact on air quality; dredging; marine mammals, resources, or sanctuaries; noise; or water resources. This recommendation will require spending approximately less than \$0.05M for environmental compliance activities. This cost was included in the payback calculation. This recommendation does not otherwise impact the costs of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Create an Integrated Weapons & Armaments Specialty Site for Guns and Ammunition

Recommendation: Realign the Adelphi Laboratory Center, MD, by relocating gun and ammunition Research and Development & Acquisition to Picatinny Arsenal, NJ.

Realign Naval Surface Warfare Center Division Crane, IN, by relocating gun and ammunition Research and Development & Acquisition to Picatinny Arsenal, NJ.

Realign the Fallbrook, CA, detachment of Naval Surface Warfare Center Division Crane, IN, by relocating gun and ammunition Research and Development & Acquisition to Picatinny Arsenal, NJ.

Realign Naval Surface Warfare Center Division Dahlgren, VA, by relocating gun and ammunition Research and Development & Acquisition to Picatinny Arsenal, NJ.

Realign the Louisville, KY, detachment of Naval Surface Warfare Center Division Port Hueneme, CA, by relocating gun and ammunition Research and Development & Acquisition to Picatinny Arsenal, NJ.

Realign Naval Air Warfare Center Weapons Division China Lake, CA, by relocating gun and ammunition Research and Development & Acquisition to Picatinny Arsenal, NJ.

Realign Naval Surface Warfare Center Division Indian Head, MD, by relocating gun and ammunition Research and Development & Acquisition to Picatinny Arsenal, NJ.

Realign Naval Surface Warfare Center Division Earle, NJ, by relocating weapon and armament packaging Research and Development & Acquisition to Picatinny Arsenal, NJ.

Justification: This recommendation realigns and consolidates those gun and ammunition facilities working in Weapons and Armaments (W&A) Research (R), Development & Acquisition (D&A). This realignment would result in a more robust joint center for gun and ammunition Research, Development & Acquisition at Picatinny Arsenal, NJ. This location is already the greatest concentration of military value in gun and ammunition W&A RD&A.

Picatinny Arsenal is the center-of-mass for DoD's Research, Development & Acquisition of guns and ammunition, with a workload more than an order of magnitude greater than any other DoD facility in this area. It also is home to the DoD's Single Manager for Conventional Ammunition. Movement of all the Services' guns and ammunition work to Picatinny Arsenal will create a joint center of excellence and provide synergy in armament development for the near future and beyond, featuring a Joint Packaging, Handling, Shipping and Transportation (PHS&T) Center, particularly important in this current time of high demand for guns and ammunition by all the services. Technical facilities with lower quantitative military value are relocated to Picatinny Arsenal.

This recommendation includes Research, Development & Acquisition activities in the Army and Navy. It promotes jointness, enables technical synergy, and positions the Department of Defense to exploit center-of-mass scientific, technical, and acquisition expertise within the weapons and armament Research, Development & Acquisition community that currently resides at this DoD specialty location.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is \$116.3M. The net of all costs and savings to the Department during the implementation period is cost of \$81.2M. Annual recurring savings to the Department after implementation are \$11.3M with a payback expected in 13 years. The net present value of the costs and savings to the Department over 20 years is a savings of \$32.6M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 11 jobs (5 direct jobs and 6 indirect jobs) over the 2006-2011 period in Bakersfield, CA, Metropolitan Statistical Area which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 83 jobs (43 direct jobs and 40 indirect jobs) over the 2006-2011 period in the Bethesda-Frederick-Gaithersburg, MD, Metropolitan Division, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 421 jobs (289 direct jobs and 132 indirect jobs) over the 2006-2011 period in Martin County, IN, economic area, which is 4.9 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 126 jobs (67 direct jobs and 59 indirect jobs) over the 2006-2011 periods in the Edison, NJ, Metropolitan Division, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 506 jobs (296 direct jobs and 210 indirect jobs) over the 2006-2011 periods in the Louisville, KY-IN, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 302 jobs (146 direct jobs and 156 indirect jobs) over the 2006-2011 periods in the San Diego-Carlsbad-San Marcos, CA, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 76 jobs (43 direct jobs and 33 indirect jobs) over the 2006-2011 periods in the Washington-Arlington-Alexandria, DC-VA-MD-WV, Metropolitan Division, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 202 jobs (93 direct jobs and 109 indirect jobs) over the 2006-2011 periods in the King George County, VA, economic area, which is 1.4 percent of economic area employment.

The aggregate economic impact of all recommended actions on these economic regions of influence was considered and is at Appendix B of Volume I.

Community Infrastructure Assessment: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: This recommendation is expected to impact air quality at Picatinny, which is in severe non-attainment for Ozone. This recommendation may have a minimal effect on cultural resources at Picatinny. Additional operations may further impact threatened/endangered species at Picatinny, leading to additional restrictions on training or operations. This recommendation has no impact on dredging; land use constraints or sensitive resource areas; marine mammals, resources, or sanctuaries; noise; waste management; or wetlands. This recommendation will require spending approximately \$0.3M for environmental compliance activities. This cost was included in the payback calculation. This recommendation does not otherwise impact the costs of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Defense Research Service Led Laboratories

Recommendation: Close the Air Force Research Laboratory, Mesa City, AZ. Relocate all functions to Wright Patterson Air Force Base, OH.

Realign Air Force Research Laboratory, Hanscom, MA, by relocating the Sensors Directorate to Wright Patterson Air Force Base, OH, and the Space Vehicles Directorate to Kirtland Air Force Base, NM.

Realign Rome Laboratory, NY, by relocating the Sensor Directorate to Wright Patterson Air Force Base, OH, and consolidating it with the Air Force Research Laboratory, Sensor Directorate at Wright Patterson Air Force Base, OH.

Realign Air Force Research Laboratory, Wright Patterson Air Force Base, OH, by relocating the Information Systems Directorate to Hanscom Air Force Base, MA.

Realign Army Research Laboratory Langley, VA, and Army Research Laboratory Glenn, OH, by relocating the Vehicle Technology Directorates to Aberdeen Proving Ground, MD.

Realign the Army Research Laboratory White Sands Missile Range, NM, by relocating all Army Research Laboratory activities except the minimum detachment required to maintain the Test and Evaluation functions at White Sands Missile Range, NM, to Aberdeen Proving Ground, MD.

Justification: This recommendation realigns and consolidates portions of the Air Force and Army Research Laboratories to provide greater synergy across technical disciplines and functions. It does this by consolidating geographically separate units of the Air Force and Army Research Laboratories.

A realignment of Air Force Research Laboratory Human Factors Division from Brooks City Base, TX, research to Wright Patterson AFB was initially part of this recommendation, and still exists, but is presented in the recommendation to close Brooks City Base, TX.

This recommendation enables technical synergy, and positions the Department of the Defense to exploit a center-of-mass of scientific, technical, and acquisition expertise.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is \$164.6M. The net of all costs and savings to the Department during the implementation period is cost of \$45.0M. Annual recurring savings to the Department after implementation are \$41.1M, with a payback expected in 4 years. The net present value of the costs and savings to the Department over 20 years is a savings of \$357.3M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 465 jobs (237 direct jobs and 228 indirect jobs) over the 2006-2011 period in the Phoenix-Mesa-Scottsdale, AZ Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 362 jobs (201 direct jobs and 161 indirect jobs) over the 2006-2011 period in the Utica-Rome, NY Metropolitan Statistical Area, which is 0.2 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 362 jobs (225 direct jobs and 137 indirect jobs) over the 2006-2011 period in the Cambridge-Newton-Framingham, MA Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 92 jobs (50 direct jobs and 42 indirect jobs) over the 2006-2011 period in the Cleveland-Elyria-Mentor, OH Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 382 jobs (186 direct jobs and 196 indirect jobs) over the 2006-2011 period in the Las Cruces, NM Metropolitan Statistical Area, which is 0.5 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 118 jobs (50 direct jobs and 68 indirect jobs) over the 2006-2011 period in the Virginia Beach-Norfolk-Newport News, VA-NC Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

The aggregate economic impact of all recommended actions on these economic regions of influence was considered and is at Appendix B of Volume I.

Community Infrastructure Assessment: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: An Air Conformity Analysis and a New Source Review and permitting effort is required at Aberdeen. This recommendation may impact cultural resources and threatened and endangered species at Aberdeen. Additional operations at Hanscom and Kirtland may impact cultural sites, which may constrain operations. This recommendation may require building on constrained acreage at Hanscom. Additional operations at Wright Patterson may further impact the Indiana Bat, a threatened and endangered species. Additional operations at Hanscom, Kirtland, and Wright Patterson may impact wetlands, which may restrict operations. This recommendation has no impact on air quality; dredging; land use constraints or sensitive resource areas; marine mammals, resources, or sanctuaries; noise; waste management; or water resources. This recommendation requires spending approximately \$0.4M for waste management and environmental compliance activities. This cost was included in the payback calculation. This recommendation does not otherwise impact the costs of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Establish Centers for Fixed Wing Air Platform Research, Development & Acquisition, Test & Evaluation

Recommendation: Realign Tinker Air Force Base, OK, Robins, Air Force Base, GA, and Hill Air Force Base, UT, by relocating fixed wing related Air Platform Development and Acquisition to Wright Patterson Air Force Base, OH.

Realign Wright Patterson Air Force Base, OH, by relocating fixed wing related Live Fire Test and Evaluation to Naval Air Weapons Station China Lake, CA.

Justification: This recommendation completes the consolidation of all Fixed Wing Air Platform RDAT&E, begun during the previous BRAC rounds, at two principal sites: Naval Air Station (NAS) Patuxent River, MD, and Wright-Patterson Air Force Base (AFB), OH, while retaining several specialty sites. Research and Development & Acquisition will be performed at NAS Patuxent River and Wright-Patterson AFB. Lakehurst will be retained as a dedicated RDAT&E facility for Navy Aircraft Launch and Recovery Equipment and Aviation Support Equipment.

This recommendation includes Research, Development & Acquisition and Test & Evaluation activities in Fixed Wing Air Platforms across the Navy and Air Force. The planned component moves will enhance synergy by consolidating to major sites, preserve healthy competition, leverage existing infrastructure, minimize environmental impact, and effect reasonable homeland security risk dispersal. The relocation of Fixed Wing Air Platform Research was previously accomplished in response to the S&T Reliance Agreements resulting in the consolidation at

Wright Patterson AFB with the maritime related Fixed Wing Air Platform Research consolidated at NAS Patuxent River.

This recommendation consolidates Air Force Development & Acquisition functions currently resident at Logistic Centers (Hill AFB, Tinker AFB, and Robbins AFB) at Wright-Patterson AFB. These moves will increase efficiency by creating RD&A centers with all attendant support activity and a robust acquisition organization available to all Air Force Fixed Wing Air Platform D&A functions.

The consolidation of all Fixed Wing Air Platform Survivability Live Fire T&E at China Lake is driven by the inefficiencies that currently exist between the two sites (Wright Patterson AFB and China Lake), and the potential savings afforded by establishing a single live fire test range for fixed wing air platforms. China Lake has this capability and has been doing similar work related to weapons lethality for many years. This action will increase efficiency by reducing overall manpower requirements while also reducing redundancies that exist across the Live Fire Testing domain.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is \$17.7M. The net of all costs and savings to the Department during the implementation period is a cost of \$7.9M. Annual recurring savings to the Department after implementation are \$2.7M with a payback expected in 9 years. The net present value of the costs and savings to the Department over 20 years is a savings of \$17.9M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 43 jobs (22 direct jobs and 21 indirect jobs) over the 2006-2011 period in the Ogden-Clearfield, UT, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 33 jobs (15 direct jobs and 18 indirect jobs) over the 2006-2011 period in the Oklahoma City, OK, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 67 jobs (41 direct jobs and 26 indirect jobs) over the 2006-2011 period in the Warner Robins, GA, Metropolitan Statistical Area, which is 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 1 job (3 direct jobs lost and 2 indirect jobs gained) over the 2006-2011 period in the Dayton, OH, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

The aggregate economic impact of all recommended actions on these economic regions of influence was considered and is at Appendix B of Volume I.

Community Infrastructure Assessment: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel.

Environmental Impact: A conformity analysis is required at Wright-Patterson. An initial analysis indicates a conformity determination is not required. Additional operations may impact archeological or historic areas, which may restrict operations. Additional operations at Wright Patterson may further impact the Indiana Bat, a threatened and endangered species. The hazardous waste program at Wright-Patterson will require modification. Additional operations at Wright Patterson may impact wetlands, which may restrict operations. This recommendation has no impact on dredging; land use constraints or sensitive resource areas; marine mammals, resources, or sanctuaries; noise; or water resources. This recommendation will require spending approximately \$0.2M for waste management and environmental compliance activities. This cost was included in the payback calculation. This recommendation does not otherwise impact the costs of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Establish Centers for Rotary Wing Air Platform Development & Acquisition, Test & Evaluation

Recommendation: Realign Wright Patterson Air Force Base, OH, by relocating Air Force Materiel Command V-22 activities in rotary wing air platform development and acquisition to Patuxent River, MD. Realign the Naval Air Engineering Station Lakehurst, NJ, by relocating activities in rotary wing air platform development, acquisition, test and evaluation to Patuxent River, MD. Realign Ft. Rucker, AL, by relocating the Aviation Technical Test Center to Redstone Arsenal, AL, and consolidating it with the Technical Test Center at Redstone Arsenal, AL. Realign Warner-Robins Air Force Base, GA, by relocating activities in rotary wing air platform development and acquisition to Redstone Arsenal, AL.

Justification: This Air Land Sea & Space (ALSS) recommendation realigns and consolidates those activities that are primarily focused on Rotary Wing Air Platform activities in Development, Acquisition, Test and Evaluation (DAT&E). This action creates the Joint Center for Rotary Wing Air Platform DAT&E at the Redstone Arsenal, Huntsville, AL, and enhances the Joint Center at the Naval Air Warfare Center Aircraft Division (NAWCAD), Patuxent River, MD. The end state of this recommendation builds upon existing rotary wing air platform technical expertise and facilities in place at the two principal sites and provides focused support for future aviation technological advances in rotorcraft development.

The planned component moves enhance synergy by consolidating rotary wing work to major sites, preserving healthy competition, and leveraging climatic/geographic conditions and existing infrastructure, minimize environmental impact. These consolidations co-locate aircraft and aircraft support systems with development and acquisition personnel to enhance efficiency and effectiveness of rotary wing air platform design and development activities.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is \$49.4M. The net of all costs and savings to the Department during the implementation period is a cost of \$40.2M. Annual recurring savings to the Department after implementation are \$2.8M with a payback expected in 26 years. The net present value of the costs and savings to the Department over 20 years is a cost of \$11.8M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 108 jobs (59 direct jobs and 49 indirect jobs) over the 2006-2011 period in the Dayton, OH, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment;

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 24 jobs (13 direct jobs and 11 indirect jobs) over the 2006-2011 period, in the Edison, NJ, Metropolitan Division, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 607 jobs (327 direct jobs and 280 indirect jobs) over the 2006-2011 period, in the Enterprise-Ozark, AL, Micropolitan Statistical Area, which is 1.3 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 82 jobs (50 direct jobs and 32 indirect jobs) over the 2006-2011 period in the Warner Robins, GA, Metropolitan Statistical Area, which is 0.1 percent of economic area employment.

The aggregate economic impact of all recommended actions on these economic regions of influence was considered and is at Appendix B of Volume I.

Community Infrastructure Assessment: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel.

Environmental Impact: This recommendation may have a minimal impact on cultural, archeological, and tribal resources and threatened and endangered species at both Patuxent River and Redstone Arsenal. Increased noise from aviation operations may result in operational restrictions on Redstone. Further evaluation is required. This recommendation has no impact on air quality; dredging; land use constraints or sensitive resource areas; marine mammals, resources, or sanctuaries; waste management; water resources; or wetlands. This recommendation will require spending approximately \$0.5M for environmental compliance activities. The payback calculation includes this cost. This recommendation does not otherwise impact the costs of environmental restoration, waste management, or environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Navy Sensors, Electronic Warfare, and Electronics Research, Development & Acquisition, Test & Evaluation

Recommendation: Realign Naval Air Warfare Center, Weapons Division, Point Mugu, CA. Relocate the Sensors, Electronic Warfare (EW), and Electronics Research, Development, Acquisition, Test & Evaluation (RDAT&E) functions to Naval Air Warfare Center, Weapons Division, China Lake, CA.

Justification: Consolidating the Sensors, EW, and Electronics RDAT&E functions at China Lake will eliminate redundant infrastructure between Point Mugu and China Lake and provide for the more efficient use of the remaining assets including the Electronic Combat Range and other integration laboratories at China Lake.

Payback: The total estimated one-time cost to implement this recommendation is \$72.7M. The net of all costs and savings to the Department of Defense during the implementation period is a cost of \$50.9M. Annual recurring savings to the Department after implementation are \$6.7M with a payback expected in 12 years. The net present value of the costs and savings to the Department over 20 years is a savings to the Department of \$16.9M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 1,075 jobs (479 direct jobs and 596 indirect jobs) over the 2006-2011 period in the Oxnard-Thousand Oaks-Ventura, CA, Metropolitan Statistical Area economic area, which is 0.3 percent of economic area employment. The aggregate economic impact of all recommended actions on this economic region of influence was considered and is at Appendix B of Volume I.

Community Infrastructure Assessment: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: An air conformity determination will be needed. Industrial waste management permits may need to be amended and additional water resources may be necessary at China Lake to accommodate new mission. This recommendation has no impact on cultural, archeological, or tribal resources; dredging; land use constraints or sensitive resource areas; marine mammals, resources, or sanctuaries; noise; threatened and endangered species or critical habitat; waste management; or wetlands. This recommendation will require spending approximately less than \$0.04M for waste management and environmental compliance activities. These costs were included in the payback calculation. This recommendation does not otherwise impact the costs of environmental restoration, waste management, or environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.