OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE
RDT&E/ Defense Wide BA# 7	**0607828D8Z - Joint Integration and Interoperability**

Cost ($ in Millions)	FY 2006 Actual	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total Program Element (PE) Cost	0.000	51.629	53.892	49.490	48.565	48.177	48.810	49.497
P818 Joint Integration and Interoperability	0.000	51.629	53.892	49.490	48.565	48.177	48.810	49.497

A. Mission Description and Budget Item Justification: The FY 2005 National Defense Authorization Act (NDAA) directed the transfer of USJFCOM RDT&E funding of joint warfare experimentation and training programs from Navy accounts to new Defense Wide RDT&E accounts beginning in FY 2007. Funding to support the Joint Integration and Interoperability (JI&I) Program in FY 2006 and prior were "exploiting discovery" (Customer: OSD) reflected in the Navy's RDT&E Program under PE 0305118N.

The Unified Command Plan 2004 assigned USJFCOM with the mission as the Joint Force Integrator for interoperability and integration of future and fielded capabilities critical to Joint, Multi-National, and Interagency warfighting operations. In addition, Management Initiative Decision (MID) 912 signed by the Deputy Secretary of Defense (DEPSECDEF) 7 January 2003 expanded the USJFCOM JI&I role to increase operational through tactical level joint integration of the following capabilities: Common Operational and Tactical Pictures; Combat Identification; Situational Awareness; Adaptive Mission Planning and Rehearsal; Interoperability among Service/Agency intelligence systems; Interoperable Joint Fires, Maneuver, and Intelligence; and Integrated Joint Battle Management Command and Control. In support of these missions, the outcome of USJFCOM JI&I program is to:

-- identify, assess and develop mission capable solutions for COCOM interoperability and integration capability shortfalls;
-- provide Combatant Commanders with interoperable combat identification and situational awareness capabilities among United States Forces, Interagencies, and Allied and Coalition Forces in support to the Global War on Terrorism operations;
-- develop joint requirements supporting specific joint missions identified in MID 912 (Joint Close Air Support, Joint Fires, etc.);
-- develop joint integrated architectures that guide service capability mapping to achieve joint interoperability; and,
-- establish joint data standards and cross domain solutions to facilitate future system interoperability and integration.

The Quadrennial Defense Review (QDR) and follow-on Strategic Planning Guidance emphasized the need to continue building upon the Department's capability-based planning and management initiatives. To promote this shift and better integrate joint capability development across the Department's requirements, acquisition and resource allocation processes, the Deputy's Advisory Working Group (DAWG) chaired by the DEPSECDEF appointed the CDRUSJFCOM as the designated Joint Command and Control (JC2) Capability Portfolio Manager (CPM). The JC2 CPM has appointed the USJFCOM, J8 as the Command's Joint Capability Developer (JCD), charged with responsibility for day-to-day execution of CPM roles and responsibilities. The outcome of the JCD as the working management arm of the JC2 CPM is to develop courses of action to source, acquire, and develop Doctrine, Organization, Training, Material, Leadership, Personnel, Facilities (DOTMLPF) JC2 capabilities in conjunction and coordination with the Combatant Commanders, Services and Agencies.

The primary outputs include:
-- Orchestrate development and delivery of JC2 capabilities to address Warfighting capability area gaps and shortfalls, and
-- Provide systems engineering expertise (JC2 Communities of Interest (COIs) and appropriate architectures) on JC2 portfolio capabilities development.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE
RDT&E/ Defense Wide BA# 7	**0607828D8Z - Joint Integration and Interoperability**

B. Program Change Summary	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	0.000	66.906	53.270	49.848
Current BES/President's Budget (FY 2008/2009)	0.000	51.629	53.892	49.490
Total Adjustments	0.000	-15.277	0.622	-0.358
Congressional Program Reductions		-15.277		
Congressional Rescissions				
Congressional Increases				
Reprogrammings			2.200	1.000
SBIR/STTR Transfer				
Other			-1.578	-1.358

FY 2007: Congressional reduction ($15.3M) for program growth.

FY 2008/2009: Program increase (FY 2008: $2.2M; FY 2009: $1.0M) provides funding for Recognition of Combat Vehicles (ROC-V) to extend the training tool for visual identification for friendly and enemy vehicles to include air to ground and maritime environment identification.

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
08						

Comment: Performance of Joint Integration and Interoperable systems is measured by successful delivery of systems solutions to Combatant Commands by required delivery dates.

OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDT&E/ Defense Wide BA# 7	**0607828D8Z - Joint Integration and Interoperability**	**P818**

Cost ($ in Millions)		FY 2006 Actual	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
P818	Joint Integration and Interoperability	0.000	51.629	53.892	49.490	48.565	48.177	48.810	49.497

A. Mission Description and Project Justification: The FY 2005 National Defense Authorization Act (NDAA) directed the transfer of USJFCOM RDT&E funding of joint warfare experimentation and training programs from Navy accounts to new Defense Wide RDT&E accounts beginning in FY 2007. Funding to support the Joint Integration and Interoperability (JI&I) Program in FY 2006 and prior were "exploiting discovery" (Customer: OSD) reflected in the Navy's RDT&E Program under PE 0305118N.

The Unified Command Plan 2004 assigned USJFCOM with the mission as the Joint Force Integrator for interoperability and integration of future and fielded capabilities critical to Joint, Multi-National, and Interagency warfighting operations. In addition, Management Initiative Decision (MID) 912 signed by the Deputy Secretary of Defense (DEPSECDEF) 7 January 2003 expanded the USJFCOM JI&I role to increase operational through tactical level joint integration of the following capabilities: Common Operational and Tactical Pictures; Combat Identification; Situational Awareness; Adaptive Mission Planning and Rehearsal; Interoperability among Service/Agency intelligence systems; Interoperable Joint Fires, Maneuver, and Intelligence; and Integrated Joint Battle Management Command and Control. In support of these missions, the outcome of USJFCOM JI&I program is to:

-- identify, assess and develop mission capable solutions for COCOM interoperability and integration capability shortfalls;
-- provide Combatant Commanders with interoperable combat identification and situational awareness capabilities among United States Forces, Interagencies, and Allied and Coalition Forces in support to the Global War on Terrorism operations;
-- develop joint requirements supporting specific joint missions identified in MID 912 (Joint Close Air Support, Joint Fires, etc.);
-- develop joint integrated architectures that guide service capability mapping to achieve joint interoperability; and,
-- establish joint data standards and cross domain solutions to facilitate future system interoperability and integration.

The Quadrennial Defense Review (QDR) and follow-on Strategic Planning Guidance emphasized the need to continue building upon the Department's capability-based planning and management initiatives. To promote this shift and better integrate joint capability development across the Department's requirements, acquisition and resource allocation processes, the Deputy's Advisory Working Group (DAWG) chaired by the DEPSECDEF appointed the CDRUSJFCOM as the designated Joint Command and Control (JC2) Capability Portfolio Manager (CPM). The JC2 CPM has appointed the USJFCOM, J8 as the Command's Joint Capability Developer (JCD), charged with responsibility for day-to-day execution of CPM roles and responsibilities. The outcome of the JCD as the working management arm of the JC2 CPM is to develop courses of action to source, acquire, and develop Doctrine, Organization, Training, Material, Leadership, Personnel, Facilities (DOTMLPF) JC2 capabilities in conjunction and coordination with the Combatant Commanders, Services and Agencies.

The primary outputs include:
-- Orchestrate development and delivery of JC2 capabilities to address Warfighting capability area gaps and shortfalls, and
-- Provide systems engineering expertise (JC2 Communities of Interest (COIs) and appropriate architectures) on JC2 portfolio capabilities development.

OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDT&E/ Defense Wide BA# 7	**0607828D8Z - Joint Integration and Interoperability**	**P818**

B. Accomplishments/Planned Program:

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Joint Airborne Communications Capability (JACC)	0.000	8.600	9.300	9.400

Primary OUTCOME (objective) for this effort is to enhance Joint Force Commanders ability to exercise Operational and Tactical Command and Control. JACC was initiated in response to OEF/OIF Lessons Learned, COCOM command and control (C2) requirements, joint warfighter urgent operational needs and as a result of USJFCOM Hurricane Katrina disaster assistance.

JACC is programmed to provide Joint Force Commanders with a deployable communications network that connects joint edge users to each other and to the Global Information Grid (GIG) using existing radios. JACC serves as the relay and makes dissimilar data and voice radios interoperable on the ground, at sea, or in the air. The four-year project under sponsorship of USJFCOM and USSTRATCOM will leverage the capabilities developed by the US Air Force sponsored Battle Field Airborne Communications Node (BACN), the USJFCOM Rapid Attack Information Dissemination Execution Relay/Joint Translator Forwarder (RAIDER/JxF) and DUSD(AS&C) Adaptive Joint C4ISR Node (AJCN) initiatives and transform them into a single "joint" capability.

The primary outputs and efficiencies to be realized are: 1) Increased interoperability between tactical data links. 2) Increased access to net-centric functionality for edge users. 3) Expansion of wideband connectivity for the joint warfighter. Objective capability efficiencies are:
-- Establishing 100% connectivity to all tactical data links and voice systems that have access to JACC;
-- Extending the range to 100% of all line of sight (LOS)-constrained systems within the 300 nautical miles JACC footprint
-- Including 100% of battlespace nodes through networking capabilities
-- Providing net-centric data storage and on-demand access to JACC users

FY 2007 Planned Output:
Integrate JACC capability in existing Service aircraft as an interim platform to perform operational evaluations within CENTCOM, PACOM, and NORTHCOM areas of responsibility. The interim JACC capability will be evaluated in support of ongoing theater operations and exercises. Complete Joint Initial Capability Document (ICD) to support the concept decision and Milestone A. Currently, the USAF way-ahead plans for the leasing and modification of a Gulfstream G550 with JACC technology is scheduled for flight test in 2nd quarter. Additionally, STRATCOM is investigating the feasibility and operational utility of installing JACC on the Navy E-6 Mercury aircraft to provide airborne IP networking and C2 relay for both strategic, conventional and disaster relief missions.

FY 2008 Planned Output:
Conduct system engineering integration of JACC capability on USN and USAF Unmanned Aerial Systems. Conduct prototype unmanned system evaluation in Joint Expeditionary Force Experiment (JEFX-08). Complete Joint Capability Development Document (CDD) to support program initiation at Milestone B.

FY 2009 Planned Output:
Begin transition to USAF Gateway and Unmanned Aerial Systems programs of record. Complete Joint Capability Production Document to support Milestone C achievement.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Joint Blue Force Situational Awareness (JBFSA)	0.000	3.225	8.300	3.700

OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDT&E/ Defense Wide BA# 7	**0607828D8Z - Joint Integration and Interoperability**	**P818**

Primary OUTCOME (objective) for this effort is to improve overall warfighting effectiveness and to develop solutions that reduce the potential for fratricide. Blue Force Tracking (BFT) Beyond Line-of-Sight/Non-Line-of-Sight Mission Needs Statement (BFT BLOS/NLOS MNS) (Apr 02) and subsequent Joint Requirements Oversight Council Memorandum (JROCM) 128-03, and Combatant Command Joint Urgent Operational Need (JUON) statements / requirements validated the need for an outcome that produced a joint, integrated, interoperable BFT / JBFSA air / ground / maritime operations capability. JROCM 076-05 endorsed specific approaches and actions identified by US Joint Forces Command (USJFCOM) in response to Operation Iraqi Freedom (OIF) Lessons Learned Report on preventing friendly fire incidents (fratricide prevention). To synchronize disparate and disjointed BFT efforts, the Joint Requirements Oversight Council (JROC) chartered the Combat Identification (CID) - BFT / JBFSA Executive Steering Committee (CID-BFT / JBFSA ESC), co-chaired by USJFCOM J8 and Joint Staff VJ2.

Primary outputs can be characterized by the development and presentation of specific BFT / JBFSA solutions / recommendations that, upon implementation, will improve overall warfighter combat effectiveness and reduce the potential for fratricide (JROCM 276-05). These BFT / JBFSA developmental efforts are key to achieving the necessary milestones that will ultimately lead to the desired outcome of full capability development and integration within the force.

The primary outputs and efficiencies to be realized are: 1) Increased development and integration of common data formats and the modification of supporting software / architectures in order to allow Position Location Information (PLI)/Situational Awareness (SA) data to flow freely among U.S., NATO and coalition forces. 2) Increased capability and capacity for Data Dissemination through the establishment of net-centric integrated services that allows for seamless access to BFT / JBFSA information to prosecute operations in a bandwidth limited environment by all warfighting echelons; 3) Increased / improved Joint Air - Ground Situational Awareness Sharing capacity / capability through technical solutions, Concepts of Operation, Tactics, Techniques and Procedures (TTP) delivery, along with the development, integration, testing, production, and deployment of airborne BFT / JBFSA capabilities; 4) Improved and increased force capability for Battlefield Deconfliction / Fratricide Avoidance, by increasing interoperability of systems through BFT / JBFSA data exchange standardization; and 5) Increased integration and availability of BFT and JBFSA data between tactical and logistics support forces.

FY 2007 Planned Output:
Plan, develop, and integrate Mission Management Center (MMC) and Network Operations Center (NOC) functionality to provide near-term capabilities to resolve validated Combatant Command BFT interoperability shortfalls. Incorporate BFT / JBFSA capability to improve tactical level visibility efficiencies by 50 percent by building an initial capability that integrates a NATO interface through the MMC in March 2007 and enhancement by November 2007. Improve data interoperability through a common data interface capability. Develop common BFT / JBFSA data exchange standard through BFT Community of Interest (COI) with initial demonstration for COI Milestone 2 by March 2007, Milestone 3 by July 2007. Continue to converge systems of records through assessment of key legacy systems to recommend integration or phase out - reduce number of systems by 10 percent. Complete re-engineering of echelon-shared time-sensitive target data to a web-enabled and net-centric environment, and extension to Coalition Common Operating Picture (COP) / Common Tactical Picture (CTP). Continue friendly force visual / thermal signatures development and supporting training tools to improve overall capability efficiencies by 33 percent through enhancements to small boat, personnel modules, and combat identification (CID) marking systems. Fully transition MMC test bed capability into MMC and overarching BFT architecture, to include an initial capability to support coalition architectures.

FY 2008 Planned Output:
Develop Extensible Markup Language (XML) schemas and message translators to permit interoperability and display of blue force tracks on COP/Common Tactical Picture (CTP). Improve disadvantaged user visibility on CTP by 20 percent through airborne BFT reporting and dissemination capability. Migrate net-centric adaptors into the overall architecture. Improve interoperability between air-to-ground SORs and data links. Develop and improve Battlefield Visualization tools. Begin blue force logistics integration into COP. Transition BFT COI data standards into 60 percent of applicable SORs.

FY 2009 Planned Output:
Develop deployable light-weight, open-source, low cost hardware/software capability on existing C2 systems. Transition existing capabilities to Programs of Record (PORs)/SORs. Continue blue force logistics integration into a COP. Begin developing, red, grey, and neutral data dissemination capability. Complete Army - Marine Corps convergence effort and begin developing the fielding solution.

OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDT&E/ Defense Wide BA# 7	**0607828D8Z - Joint Integration and Interoperability**	**P818**

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Joint Command and Control (JC2) Capabililty Portfolio Manager (CPM)	0.000	15.749	23.880	25.368

[Long Title] Joint Command and Control (JC2) Capabililty Portfolio Manager (CPM)/Test & Assessment and Joint Battle Management Command and Control (JBMC2) Joint Mission Thread Development

Primary OUTCOME (objective) for this effort is to establish an interoperable Joint Command and Control (JC2) environment that creates JC2 capabilities that are "born joint" not "made joint". The CPM outcome is to provide domain-wide visibility of requirements, resources, and capabilities that empower the Department to make the hard decisions needed to ensure that joint needs are being adequately addressed within fiscal constraints and at an acceptable degree of risk.

According to the QDR, the key role of interoperability is to improve warfighting capability and effectiveness. In FY 2006 and 2007, the Joint Battle Management Command and Control (JBMC2) Program developed a repeatable process for executing that key role. It created a unique partnership between joint warfighters and engineering, policy, acquisition and budget communities that successfully worked together to assess and resolve joint operational capability and interoperability gaps. For example, the initial pilot, the Joint Close Air Support (JCAS) Joint Mission Thread Assessment (JMT), made significant progress in interoperability by baselining the state of digital interoperability in Immediate Close Air Support, and developed potential solutions sets that will save lives, dramatically increase warfighting efficiency and effectiveness, and save an estimated $38M over the program life of current legacy capability plans.

In accordance with QDR 2006 direction and DepSecDef designation of CDRUSJFCOM as the Department's Joint Command and Control (JC2) Capability Portfolio Manager (CPM), JBMC2 will be assimilated into the JC2 Portfolio in FY 2007. This assimilation will absorb the existing processes of JBMC2 while refining the mission focus areas and expediting the timeline. The initial JBMC2 Joint Mission Thread - Joint Close Air Support (JCAS) will wrap up and bring to maturity the proposed solution products initiated through static and technical assessments to date. The successfully proven methodology used to assess the Joint Close Air Support Mission Thread will be used by the CPM as a basis or model in assessing other C2 programs and associated Mission Threads to determine which functions/systems/applications delivered by portfolio programs of record should be continued, converged or eliminated to improve warfighter capability and interoperability. The CPM will also focus on the identification and resolution of C2 capability gaps and shortfalls.

These processes and relationships in the Joint Capability Area (JCA) of C2 will be leveraged by the JC2 CPM and are instrumental in successfully accomplishing the objectives of portfolio management; balanced, optimized mix of portfolio capabilities given risk and fiscal realities.

The Joint Battle Management Command and Control (JBMC2) program and processes, now part of the JC2 CPM portfolio, have and will continue to produce the following products: capability/interoperability requirements (e.g., turning concept/capability documentation into enforceable technical requirements the Services and/or Agencies like DISA can design and build to; validated system of system architectures; standards and protocol technical recommendations, cross-Service coordinated and mission-specific tactics, techniques and procedures (TTP); operational assessments and proof of concept demonstrations for Joint solution sets.

The primary outputs and efficiencies to be realized as part of an overall JBMC2/JC2 CPM approach: 1) Improved, integrated, interoperable, and networked joint force; 2) Reduction in duplicative C2 systems/programs across the DoD portfolio; 3) Improved portfolio decisions and recommendations regarding investment strategies and development efforts; 4) Associated benefits to warfighter efficiency and effectiveness:

* Reduced fratricide, increased availability of close air support for troops under fire, more effective coordination of air assets, increased weapon accuracy;
* Common shared situational awareness;
* Fused, precise, and actionable intelligence;
* Coherent, coordinated operations, distributed and dispersed, including forced entry into anti-access or area-denial environments;

OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDT&E/ Defense Wide BA# 7	**0607828D8Z - Joint Integration and Interoperability**	**P818**

* Information superiority enabling more agile, more lethal, and survivable joint operations;
* Real-time offensive and defensive fires while minimizing fratricide;
* Transition from legacy, platform-centric systems to a net-centric environment focused on plug-and-play interoperability and application-independent data flow.

FY 2007 Output:
Technical and operational follow-on assessments in the areas of Deployment Planning, Collaborative Information Environment, Deployable C2 Capability, Common Operational Picture, Situational Awareness / Blue Force Tracking to assess gaps/ redundancies and provide basis for CPM programmatic decisions. This includes assessment of: digital Joint Close Air Support capability and interoperability from Terminal Attack Controller through Theater Air Ground Network; continued development and assessment of conforming Services digital Joint Close Air Support solution prototypes that have matured out of JCAS Joint Mission Thread Assessment Events 1 and 2; establishment of Joint Systems Engineering Working Group; development of reusable Joint Test Threads in conjunction with the Services; desktop analysis of Joint Task Force (JTF) C2 Joint Mission Thread Assessment, and development of DoD C2 Roadmap called for in DoDD 5100.30 in collaboration with OSD (NII)/DoD CIO and USSTRATCOM. JCAS JMT Assessment will be completed by September 2007.

FY 2008 Output:
JC2 CPM directed studies, analyses and operational assessments for the development of JC2 Portfolio capability solutions necessary to satisfy warfighting requirements and/or strategic direction in the area of C2. Includes JCA Tier II and III development; analytic tools and authoritative JC2 CPM data repositories; C2 policy and direction; DoD C2 Roadmap. Decisions and recommendations regarding investment strategies for FY2010-2015.

FY 2009 Output:
JC2 CPM directed studies, analyses and operational assessments for the development of JC2 Portfolio capability solutions necessary to satisfy warfighting requirements and/or strategic direction in the area of C2. Includes JCA Tier II and III development; analytic tools and authoritative JC2 CPM data repositories; C2 policy and direction; DoD C2 Roadmap. Decisions and recommendations regarding investment strategies for FY2011-2015.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Coalition Combat Identification (CCID) Advanced Concept Technology Demonstration (ACTD)	0.000	5.500	0.500	0.000

Primary OUTCOME (objective) for this effort is to enhance Coalition Combat Identification Capabilities. The Coalition Combat Identification Advanced Concept Technology Demonstration (CCID ACTD) assessed the military utility of emerging combat identification technologies in a series of operational demonstrations conducted during 2003-2005. The technologies assessed provide a cooperative target identification capability enabling both ground forces and aircrew to identify friendly forces via query/response. During the course of the ACTD, international participation, with both technologies and forces, grew from an original three nation partnership to a coalition team of nine nations collaborating in the final operational demonstration, Exercise Urgent Quest (September-October 2005, United Kingdom's Salisbury Plain Training Area). Following the conclusion of Exercise Urgent Quest, the Coalition Military Utility Assessment (CMUA) was produced and presented, along with system cost estimates, to U.S. service investment decision-makers. The service authorities accepted the ACTD's conclusions and recommendations and are converged on implementing joint acquisition strategies for two of the ACTD four core technologies, the Battlefield Target Identification Device (BTID) and Radio Based Combat Identification (RBCI).

During April 2006 DUSD(AS&C), JFCOM and the Services concurred in the extension of the ACTD through FY 2008. The outcome of the Extension of the CCID ACTD is to assess the military utility of the designated non-cooperative target identification (NCTI) technologies for coalition operations and further inform U.S. and allied investment in the optimal combat identification capability. In order to achieve this outcome, the candidate technologies will be demonstrated under conditions designed to replicate coalition operations. The assessment of NCTI technologies will consider, as required, other relevant fielded or emerging devices in the Combat Identification-Blue Force Tracking/Joint Blue Force Situational Awareness (CID-BFT/JBFSA) family of systems. However, the Coalition Military Utility

OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDT&E/ Defense Wide BA# 7	**0607828D8Z - Joint Integration and Interoperability**	**P818**

Assessment (CMUA) will focus on the ACTD's NCTI technologies rather than systems that have been previously assessed or fielded.

The extension will leverage recent joint and service Air-Ground CID studies in the definition and application of measures of effectiveness and performance to the CMUA process. These metrics include but are not limited to the following as assessed under conditions representative of operations (e.g. daylight, terrain, obscurants, target aspects):
-- Effectiveness
-- Enemy targets engaged
-- Fratricide risk reduction
-- Operational tempo (ground and air)
-- Operator/staff workload
-- Rules of Engagement (ROE) enhancement
-- Integration with platforms and other systems
-- Performance
-- Correctness of ID
-- Timeliness of ID
-- Range to ID
-- Accuracy
-- Interoperability

JFCOM will assume management responsibility, to include a designated Extension Transition Manager from the JFCOM staff, to coordinate the planning, updating and execution of transition of these Air-Ground technologies. ACC/A8SA will provide the Transition Management (XM) for the NCTI technologies to be assessed. A significant USN role in the USAF-led NCTI transition planning and execution will be required to ensure an effective joint acquisition strategy for strike platforms.

Transition of the CCID ACTD Extension capabilities will be via a two-pronged approach consisting of an Extended User Evaluation (EUE) and Follow-On Development, Production and Sustainment efforts. The first prong is the FY 2008 EUE, during which the Operational Manager (OM) will finalize the CCID ACTD Extension CONOPS/TTPs, training package, DOTMLPF recommendations, and capabilities documentation via results from ongoing operational use and periodic joint and coalition exercises. Synthetic Aperture Radar/Aided Target Recognition (SAR/ATR) and Laser Target Imaging Program (LTIP) will be the primary capabilities provided during this period. Other cooperative technologies may be included (e.g., Blue Tracking Identification (BTID)). The second prong, which is coincident but separate from the CCID ACTD Extension, includes the follow-on System Development and Demonstration (SDD), Production and Sustainment phases in FY 2008 and beyond. The primary products for transition include the SAR/ATR and the LTIP technologies. CCID ACTD will be completed in 2008.

FY 2007 Planned Output:
Refined CONOPS and operational demonstration of proposed technologies to be concluded during 4th Qtr FY 2007 as the basis for a Coalition Military Utility Assessment.

FY 2008 Planned Output:
Coalition Military Utility Assessment to inform the POM 2010-2015 process regarding the optimal mix of cooperative, non-cooperative and situational awareness systems comprising the Combat Identification capability. Begin transition of proven non-cooperative target identification technologies to designated programs of record.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009

OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDT&E/ Defense Wide BA# 7	**0607828D8Z - Joint Integration and Interoperability**	**P818**

Net-Enabled Command Capability (NECC) Joint Combat Capability Developer (JCCD)	0.000	1.700	7.602	7.602

Primary OUTCOME (objective) for this effort is to develop the capability needs in support of Net-Enabled Command Capability (NECC) for use in the development of the NECC system of C2 solutions. Strategic Planning Guidance (SPG) directed establishment of a transformation path to achieve a joint command and control capability for DoD - "Strengthening joint operations through ... improved joint command and control is an indispensable step forward in transformation." Unified Command Plan (UCP) 06 assigned USJFCOM as the Joint Force Integrator to lead the development of joint command and control doctrine, concepts, requirements and integrated architectures. Furthermore, DoD Directive O-5100.30 (U), 1/5/2006, "Department of Defense (DoD) Command and Control (C2)" established USJFCOM as the advocate for joint command and control in the Department of Defense. Joint Requirements Oversight Council Memorandum 167-03, 22 August 2003 delegated NECC (originally named Joint Command and Control (JC2) Capability) non-Key Performance Parameter (KPP) requirement adjustment approval authority to USJFCOM. NECC Acquisition Decision Memorandum (ADM), 07 March 2006 approved NECC program Milestone (MS) A and authorized entry into the Technology Development (TD) phase. DepSecDef Memorandum of 14 Sep 2006 directed capability portfolio management test-cases and empowered CDR USJFCOM as the C2 Capability Portfolio Manager (C2 CPM). USJFCOM J8 has been designated the Joint Capability Developer (JCD) and execution arm of the C2 CPM portfolio and C2 Capability Integration Board (C2CIB). The JCD takes direction from the CPM and the C2CIB and authority as appropriate and develops courses of action to source, acquire, and develop NECC capabilities in conjunction with the COCOMs and Services.

JFCOM has established the NECC Joint Combat Capability Developer (JCCD) as the organization responsible for all capability needs aspects of the NECC program. These responsibilities include tasking to ensure warfighter needs are met by providing a dynamic capability cradle to grave engagement process for Joint Command and Control (C2) capabilities. Determine, assess, prioritize, document, and communicate joint C2 capability requirements relative to the NECC mission space.

NECC is the Department's new principal command and control program providing C2 capabilities to support the National Military Command Center (NMCC), Joint Force Commanders (JFC), and Service/Functional Components to unit level commanders. NECC is to replace the current Global Command and Control System-Joint (GCCS-J) (to include GCCS Integrated Imagery & Intelligence (GCCS-I3), Service GCCS Family of Systems (FoS) [GCCS-Army (GCCS-A), GCCS-Maritime (GCCS-M), and GCCS-Air Force (GCCS-AF) (to include Theater Battle Management Core System (TBMCS), and other C2 capabilities (Combatant Commanders Integrated Command and Control System (CCIC2S) and adaptive planning tools, etc) on an incremental basis.

The JCCD mission provides a stable and repeatable joint capability needs process. The JCCD Capability Definition Package (CDP) development process, in collaboration with the Combatant Commands, Services, Communities of Interest and Defense Agencies, translates warfighter needs into measurable/testable/"constructable" engineering detail to provide full integration of DOT_LPF aspects of joint C2 capability to deliver complete capabilities to the joint warfighter. As noted in the Analysis of Alternatives (AoA), May 2005, this joint warfighting advocate is critical and must be focused on joint requirements and joint capabilities provisioning (cradle to grave and strategic to tactical levels) to ensure new C2 capabilities are "born joint" from inception and to only transition existing C2 capabilities into NECC that genuinely enhance joint warfighting.

Via the JCCD, NECC evaluations and assessments will be conducted in five categories: operational, system of systems, technical, software, and procedural. These evaluations and assessments are intended to provide supporting metrics for continued development of an NECC capability within the acquisition system.

FY2007 Plans: Technology Development (TD) through Milestone B (System Development and Demonstration) - JCCD develops mapping of Capability Development Document (CDD) (Key Performance Parameters (KPPs)/requirements to CDPs; begins DOT_LPF development and validation; and interoperability demonstrations, technical evaluations and capability warfighter utility assessments. NECC studies/analysis will provide cross-capability correlation, identify capability duplication and provide opportunities for capability trades across the NECC mission area. Begin development and management of the NECC Requirements Integration Document (NRID) and conduct active interface and analysis of COCOM and Service requirements submissions and NECC integration processes. Provides capability prioritization and mid-course realignment recommendations for the pilot (pre-Milestone B/C) capability modules to maximize warfighter utility and programmatic considerations. Develops and validates DOT_LPF products across the NECC spectrum. Begins JCCD evaluations and assessments. Develops, assesses, implements metrics for NECC capability within the acquisition system.

OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDT&E/ Defense Wide BA# 7	**0607828D8Z - Joint Integration and Interoperability**	**P818**

FY2008 Plans: Milestone B (System Development and Demonstration) and pre-Milestone C (Production & Deployment). JCCD continues development and mapping of requirements to Capability Definition Package (CDPs), including emerging requirements and changes for the GCCS Family of Systems (FoS)as capabilities transition and integration to NECC. JCCD will continue development and validation of new and previously delivered DOT_LPF products across the NECC spectrum. Continue NECC evaluations and assessments to provide supporting metrics for continued development of an NECC capability within the acquisition system.

FY2009 Plans: Milestone B (System Development and Demonstration), Milestone C (Production and Deployment). JCCD continues development and mapping of requirements to CDPs, including emerging requirements and engineering changes for the GCCS FoS as capabilities transition and integration to NECC; continues development and management of the NECC Requirements Integration Document (NRID); continues DOT_LPF development and validation; and interoperability demonstrations, technical evaluations and capability warfighter utility assessments. Continues NECC evaluations and assessments to provide supporting metrics for continued development of an NECC capability within the acquisition system. Early assessment of the pilot capabilities modules will be conducted to track and determine if there is a decrease in the number of interoperability fixes required to operationally employ the developed system.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Joint Data Network (JDN)	0.000	1.500	1.090	1.120

Primary OUTCOME (objective) for this effort is an improved information management process that enhances the Commander's decision cycle. The Joint Data Network operational concept, endorsed by PACOM's fully deployable joint warfighting staff JTF 519 and OIF/OEF Lessons Learned, directly addresses the challenges of data management in the JTF HQ C2 Joint Mission Thread. The concept of JDN is to combine the data contained within intelligence, data link, and ground and sensor networks to produce an accurate, timely, complete and unambiguous common tactical picture (CTP) for CJTF use. This common tactical picture becomes the basis for the CJTF's input to the COCOM's Common Operational Picture (COP), which is distributed via GCCS to supported/supporting commands and higher authority.

The primary outputs and efficiencies to be realized are: 1) Improved quality of the common tactical picture in order to enhance Joint Task Force Headquarters Command and Control capabilities. 2) Increased standardization of data management tasks in future C2 systems. 3) Improved/increased automation requirements across future C2 systems. 4) Reduced commander's decision cycle and accelerates process for endgame Course of Action selection (Finish portion of the Find-Fix-Finish engagement chain), as a result of an increase in the commander's overall situational awareness.

FY 2007 Planned Output:
Assist CENTCOM's COMUSNAVCENT with developing a Joint Data Network (JDN) Operations Cell data and network management capability within COMUSNAVCENT Fusion Center to assist them in providing a means to share timely and accurate tactical and operational data with coalition forces. Complete JDN CONOPS and Functional Solutions Analysis (FSA) in establishing the C2 Data Management capabilities requirements and embed these requirements and functionality within future C2 systems (i.e., Net-Enabled Command Capability Capability Production Document (NECC-CPD) and Joint Interface Control Officer (JICO) Support System (JSS). Provide direct support to USJFCOM's Joint Capabilities Integration Process (JCIP) Joint Mission Thread (JMT) assessments. Provide direct support to USJFCOM's Joint Battle management Command and Control (JBMC2) Roadmap in the evaluation and assessment of Joint Mission Threads. Standardize and institutionalize data management processes throughout COCOM's CONPLANs and their respective Components to conduct JDN Operations in order to improve the COCOM Common Operational Picture (COP) situational awareness tool. Define and develop a Joint OPTASK Common Tactical Picture (CTP) to incorporate Intelligence, Joint Force Land Component Command and Joint Special Operations Component Command data.

FY 2008 Planned Output:
Validate Joint OPTASK Common Tactical Picture in CENTCOM and EUCOM. Begin integration of JDN in Allied Command Transformation. Complete JDN Functional Needs Analysis (FNA). Identify candidate C2 fusion devices for interim use as JDN toolsets. Coordinate JDN integration into Service programs, such as JICO Support System spiral in coordination with USAFC2 Intelligence, Surveillance and Reconnaissance Cell (ISRC) (CAOC X) and Cooperative Engagement Capability (CEC) in coordination with USN Program Executive Office (PEO) Integrated Warfare System (IWS) (DDG 1000).

OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDT&E/ Defense Wide BA# 7	**0607828D8Z - Joint Integration and Interoperability**	**P818**

FY 2009 Planned Output:
Complete incorporation JDN operations capability with NATO forces. Begin coordination with NORTHCOM for potential inter-Agency use of JDN Operations Capability and procedures.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Multinational Information Sharing (MNIS) & Cross Domain Solutions (CDS)	0.000	1.200	1.020	1.300

Primary OUTCOME (objective) for this effort is to provide information transparency across multi-national and multi-domain architectures.

The DoD Instruction 8110.1, Multinational Information Networks Implementation; JROCM 131-04, Multinational Information Sharing (MNIS) Transformation Change Package (TCP); JROCM 018-05, MNIS Initial Capabilities Document (ICD); JROCM 042-06 MNIS Way ahead; the DoD & Intelligence Community Unified Cross Domain Management Office (CDMO) Memorandum; and the Unified Command Plan (UCP) 06, all validated the capability need for MNIS and Cross Domain Solutions (CDS).

These efforts combined with the previously established Assured Information Sharing (AIS) Infrastructure team, previously funded by the National Security Agency, have but one overall mission, to enable an information sharing environment where information can be shared with authorized recipients while denying information to users not authorized. USJFCOM will work with the MNIS Executive Agent (EA), the Joint Program Office (JPO) and the new Cross Domain Management Office (CDMO) to establish the standards for information sharing services and applications for the future Global Information Grid enterprise information environment. The MNIS EA (Navy N71) and JPO (DISA) are the leads for MNIS. The CDMO is led by the Director of National Security Agency (DIRNSA); the Office of the Director of National Intelligence (DNI) will serve as the Deputy Director with the Technical Director being the Director of the Intelligence Agency (DIA).

The MNIS/CDS multi-year project under sponsorship of the US Joint Forces Command Joint Integration and Interoperability Board (JIIB) will be conducted in coordination with all MNIS/CDS/AIS efforts of the unified DNI and DOD NII Chief Information Offices.

The primary outputs and efficiencies are: 1) Increased participation in DoD level multi-national forums. 2) Improved prioritization, formulization, and documentation of COCOM Joint Command and Control capability gaps and requirements. 3) Improved technology, prototyping and integration efforts. 4) Expanded to global coverage of coalition C2 solution development. 4) Increased opportunities and venues for information exchange between traditional and non-traditional partners. 5) Reduced time required to obtain certification and accreditation of Information Assurance components in support of controlled information sharing.

FY 2007 Output:
Develop protocol standards for XML schemas that support cross domain and guarding solutions. Plan and coordinate strategy sessions within the Command to facilitate information exchange. Align the MNIS/CDS initiatives to the JTF C2 JMT project to create a nomination, selection, and funding process for MNIS/CDS systems to participate in the JBMC2 Roadmap. Provide multinational perspectives, requirements, and advocacy for the alignment of allied standards, processes, and procedures, to be incorporated into the Joint Close Air Support (JCAS) Joint Mission Thread (JMT) architecture, Network Enabled Command and Control (NECC), and Global Command and Control System Integrated Imagery and Intelligence (GCCS-I3).

FY 2008 Planned Output:
Integration of the Collaborative Information Environment (CIE) chat tool into the Joint Warfighter tool kit for cross domain exchange of textual chat. Planning and execution of cross domain XML and XMPP standards for use within a Joint Warfighter environment. Align the MNIS/CDS initiatives to the JTF C2 JMT project to create a nomination, selection, and funding process for MNIS/CDS systems to participate in the JBMC2 Roadmap. Provide multinational perspectives, requirements, and advocacy for the alignment of allied standards, processes, and procedures, to be incorporated into the Joint Close Air Support (JCAS) Joint Mission Thread (JMT) architecture, Network Enabled Command and Control (NECC), and Global Command and Control System Integrated Imagery and Intelligence (GCCS-I3).

OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDT&E/ Defense Wide BA# 7	**0607828D8Z - Joint Integration and Interoperability**	**P818**

FY 2009 Planned Output:
Begin transition of MNIS and CDS standards for Information Sharing to the Bi-Strategic Command Automated Information System, as well as integration in the U.S. Global Information Grid Architecture. Align the MNIS/CDS initiatives to the JTF C2 JMT project to create a nomination, selection, and funding process for MNIS/CDS systems to participate in the JBMC2 Roadmap. Provide multinational perspectives, requirements, and advocacy for the alignment of allied standards, processes, and procedures, to be incorporated into the Joint Close Air Support (JCAS) Joint Mission Thread (JMT) architecture, Network Enabled Command and Control (NECC), and Global Command and Control System Integrated Imagery and Intelligence (GCCS-I3).

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Joint Awareness Vital Enhancements and Linked Information Network (JAVELIN)	0.000	9.500	0.000	0.000

Primary OUTCOME (objective) for this effort is enhanced and accelerated Joint Fires kill chain. The JAVELIN operational capabilities evolved from Operation Enduring Freedom and Iraq Freedom (OEF) / (OIF) Lessons Learned, Combatant Commander surveys and joint exercises that identified command and control (C2) gaps in Joint Warfighting. Combatant Commands require capability for machine-to-machine transfer of targeting data/engagement orders in the joint fires arena in order to shorten the kill chain and eliminate man-in-the-loop errors associated with manual transmission of targeting assignments.

JAVELIN is a JFCOM J8 initiative designed to enhance Combatant Commander information sharing, management and flow of operational and tactical data between theater command and control (C2) nodes and edge users, using a complete machine-to-machine (M2M) process. JAVELIN's primary outcome is to improve the situational awareness (SA) of Joint Warfighting decision makers during dynamic targeting missions in order to 1) decrease the dynamic targeting timeline, and 2) reduce the potential for fratricide. The following is a brief description for each of the different technologies that JAVELIN incorporates.

RAIDER
Rapid Attack Information Dissemination Execution Relay (RAIDER) is a combination of hardware and software that can disseminate data link messages from C2 nodes to tactical aircraft and other C2 nodes. RAIDER is mounted in a HMMWV or in hardened transit cases so that it can be easily transported and set-up at forward operating bases as necessary.

JADOCS
Joint Automated Deep Operations Coordination System (JADOCS) is a software management tool that allows operators to efficiently coordinate and approve for dynamic targeting missions.

TPG
Target Package Generator (TPG) is a GCCS-J software segment that can process digital target data messages from JADOCS and with minimal human intervention, create and format a digital target package that can be transmitted over various data links to strike aircraft. Additionally, TPG is capable of receiving and compiling digital imagery from a Link-16 network. TPG functionality resides within each RAIDER system.

JXF Gateway
Joint Translator Forwarder (JXF) Gateway is a combination of hardware (servers, and routers) and software that can transmit and receive messages over various data links. Whereas the TPG creates and formats messages for the data links, JXF Gateway physically routes and forwards the messages. Additionally, the
Gateway can remotely control radios.

OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDT&E/ Defense Wide BA# 7	**0607828D8Z - Joint Integration and Interoperability**	**P818**

JBFSA
JAVELIN manages the method by which COCOMs receive Joint Blue Force Situational Awareness (JBFSA) data from the Mission Management Center (MMC) in Colorado. COCOMs are able to receive information from Blue Force Tracking (BFT) devices.

EQUIS-G
Enhanced Quality Imagery Search for GCCS (EQUIS-G) is a GCCS-J software segment that allows users to more easily access, view, and manipulate digital imagery. EQUIS-G automates the imagery search, retrieval and display processes.

SORSER
Special Operations Reconnaissance Software Enhanced Relay (SORSER) is a government-off-the-shelf (GOTS) software executable. SORSER allows the user to convert a standard image file from a digital camera to a National Imagery Transfer Format (NITF) file. The NITF format makes imagery more readily interoperable with DoD imagery handling services including GCCS-J.

FY 2007 Output:
The integrated JAVELIN capabilities are scheduled to be operational in EUCOM in the second quarter of FY 2007 with follow-on fieldings/upgrades to the full JAVELIN capability scheduled for CENTCOM, PACOM, and STRATCOM. The JAVELIN integrated enhancements will complete previous year efforts that delivered the initial capabilities to these Combatant Commanders. During FY 2007 certification/ accreditation, mission thread refinement focused on theater specific CONOPS/TTPs. The JAVELIN capabilities are planned to transition to the GCCS Family of Systems beginning in FY 2008.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Two-Way Iraqi Speech to Speech (2W-S2S)	0.000	4.655	0.000	0.000

Primary OUTCOME (objective) for this effort is an improved tactical translation capability in response to an urgent warfighter need. The 2-Way Free-Form Speech-to-Speech voice translation software is a USJFCOM led initiative that began in response to Commander of Multi-National Security Transition Command-Iraq (MNSTC-I) submission of an Urgent Need Memorandum to JFCOM. This capability was urgently needed to augment the limited number of available translators in order for English speaking coalition forces to conduct Force Protection operations, tactical questioning, training for Iraqi Armed and Police Forces, interactions with Iraqi Civil Affairs officials and to provide medical support.

The 2W-S2S initiative leverages the Language and Speech Exploitation Resources (LASER) ACTD development of speech translation resources, the DARPA TRANSTAC (Tactical Translation) program and the Sequoyah Transition Management Office (STMO). Additionally, JFCOM partnered with the Army and Navy Research Laboratories, Defense Language Institute (DLI), and Combatant Commanders (COCOMs). All technologies developed under this program will transition into the Army SEQUOYAH program of record beginning in FY 2008.

The primary outcome of these speech to speech translation systems is to enable non-linguists to provide basic directions and conduct simple questioning within defined domains. The systems will be provided in a hand portable laptop and PDA devices.

FY 2007 Output:
The 2W-S2S devices developed and evaluated in FY 2006 have resided in ruggedized laptops. The language library while under development has been focused on civil affairs and training domains. During FY 2007, the 2W-S2S initiative will focus on developing, testing, and initially fielding miniaturized hands-free personal data assistant (PDA)-sized devices. The expansion of the IRAQI language domains is also planned to include force protection, human intelligence (HUMIT) and medical. Further expansion of native languages in the CENTCOM AOR is also planned to include Pashto / Farsi for use in Afghanistan. Complete transition of all foreign language capabilities to the Army SEQUOYAH program of record will begin in 2007.

OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDT&E/ Defense Wide BA# 7	**0607828D8Z - Joint Integration and Interoperability**	**P818**

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Recognition of Combat Vehicles (ROC-V)	0.000	0.000	2.200	1.000

The primary outcome for Recognition of Combat Vehicles (ROC-V) is to enhance Air-to-Ground and Maritime combat identification capabilities, thereby reducing the potential for fratricide. Recognition of Combat Vehicles (ROC-V) is a training aid for ground forces, aircrews and ship crews that perform combat identification (CID) by visual identification of detected entities in the operational battlespace. It standardizes realistic Combat Visual Identification (CVI) training that is critical to both combat effectiveness and fratricide prevention. The program currently receives approximately $1.5M per year from the Army and Marines to develop, maintain and distribute a Ground-to-Ground version of ROC-V. Resources provided in this Program Element expand the program to facilitate the development of develop Air-to-Ground and Maritime versions of the training program.

The additional funding will be used in general to expand the ROC-V training program database by adding US, Coalition, and Threat-type vehicles, maritime environment/small boat threats, and all aspect/extended range air-to-ground imagery with emphasis on concurrent development of Coalition releasable products. Additionally, the funding will allow development of a standardized air-to-ground, all aspect and range CVI training program for pilots, aircrew, Joint Terminal Attack Controllers (JTACS), and Unmanned Aerial Vehicle (UAV) operators. It will begin creation of a standardized maritime environment small boat threat CVI training program and begin the development of a deployable/portable CVI training capability. It also supports standardization efforts to incorporate these visual signatures into a Sensor Signatures Database Program for non-cooperative target identification.

Primary Outputs and Efficiencies to be demonstrated:
1) Expansion of data Collection / Range Support for additional combat vehicles and Navy littoral watercraft 2) Improved processing, integration, and design of ROC-V modules for a standardized Joint A-to-G training aid 3) Expansion of personnel capable of supporting data field collection 4) Increased collection of mid-wave (3-5 micron), long-wave (8-12 micron) and short-wave (1-2 micron) thermal images 5) Expansion of Thermal and Daylight Visible images by 85-100 tactical vehicles and littoral watercraft for the A-to-G CVI training aid to include 60°, 45°, 25°, and 15° look-down slant angles at select ranges.

FY 2008 Planned Output:
Begin development of Air-to-Ground and Maritime ROC-V training software modules. Collect 85-100 tactical vehicle and 15-20 small boat thermal and daylight visible images in a controlled range environment. Initiate Model & Simulation development efforts to transition already collected images to 3-D models. Field initial CVI training products to the warfighter.

FY 2009 Planned Output:
Maintain development of Air-to-Ground and Maritime ROC-V training software modules. Collect 20 tactical vehicle and 15-20 small boat thermal and daylight visible images in a controlled range environment. Continue Model & Simulation development efforts to transition already collected images to 3-D models. Continue fielding Air-to-Ground CVI training products to the warfighter.

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)		Date: February 2007
APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 7	PE NUMBER AND TITLE **0607828D8Z - Joint Integration and Interoperability**	PROJECT **P818**

E. Major Performers Not Applicable.

OSD RDT&E COST ANALYSIS (R3)

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY
RDT&E/ Defense Wide BA# 7

PE NUMBER AND TITLE
0607828D8Z - Joint Integration and Interoperability

PROJECT
P818

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0									

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering Support	C-CPFF	MITRE	0	391	1Q	423	1Q	423	1Q	0	1237	0
Subtotal:			0	391		423		423		0	1237	0

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation Support	MIPR	Various	0	7969	1-4Q	16257	1-4Q	17745	1-4Q	0	41971	0
Subtotal:			0	7969		16257		17745		0	41971	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Management Support	MIPR	Various	0	41519	1-4Q	35012	1-4Q	29122	1-4Q	0	105653	0
Management Support	C-CPFF	Various	0	1700	1-4Q	2150	1-4Q	2150	1-4Q	0	6000	0
Travel	MIPR	Various DoD	0	50	1-4Q	50	1-4Q	50	1-4Q	0	150	0
Subtotal:			0	43269		37212		31322		0	111803	0

OSD RDT&E COST ANALYSIS (R3)

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDT&E/ Defense Wide BA# 7	**0607828D8Z - Joint Integration and Interoperability**	**P818**

Project Total Cost:	**0**	**51629**		**53892**		**49490**		**0**	**155011**	**0**

Schedule Detail (R4a Exhibit)

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY
RDT&E/ Defense Wide BA# 7

PE NUMBER AND TITLE
0607828D8Z - Joint Integration and Interoperability

PROJECT
P818

Schedule Detail	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Requirements Validation	1-4Q	1-4Q	1-4Q	1-4Q				
Implementation / Transition	1-4Q	1-4Q	1-4Q	1-4Q				
Campaign Plan Development	1-4Q	1-4Q	1-4Q	1-4Q				
Event Assessments	1-4Q	1-4Q	1-4Q	1-4Q				

Comment:

Exhibit R-2, RDT&E Budget Item Justification							Date: February 2007	
Appropriation/Budget Activity RDT&E Defense-Wide, BA 7				R-1 Item Nomenclature: Information Systems Security Program PE 0303140D8Z				
Cost ($ in millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	12.048	17.654	13.256	13.491	13.708	14.205	14.426	14.649

A. Mission Description and Budget Item Justification:

The NII Information Systems Security Program (ISSP) provides focused research, development, testing and integration of technology and technical solutions critical to the Defense Information Assurance Program (10 USC 2224) through pilot programs and technology demonstration; investment in high leverage, near-term programs that offer immediate Information Assurance (IA) benefit; federal and multi-national initiatives; and short-term studies and research critical to protecting and defending information systems by ensuring their availability, integrity, authentication, confidentiality, and non-repudiation. These efforts focus on Computer Network Defense (CND) and the restoration of information systems by incorporating protection, detection, analysis and reaction and response capabilities; emerging cryptographic technologies; technology transition and IA research capabilities. This program is designed to meet the requirements of 10 USC 2224 (Defense Information Assurance Program), 44 USC 3544, (Federal Information Security Management Act of 2002), OMB Circular A-130, and DoD Directives 8500.1, and 0-8530.1. This program is funded under Budget activity 7, Operational System Development because it integrates technology and technical solutions to the Defense Information Assurance Program.

FY 2006 Accomplishments ($12.048 million):

- Completed development of Enterprise Mission Assurance Support System (eMASS) (v1.0) into a deployed enterprise certification and accreditation management tool and provided as piloted IA Core Enterprise Service. Completed initial development and deployment of a complimentary IA Knowledge Service providing the technical underpinnings of the DoD Information Assurance Security Controls required to support the DoD Certification and Accreditation Process

- Continue refinement of IA architecture, policy and IA capabilities necessary to support and "end-to-end" IA capability for the Global Information Grid (GIG) – including enterprise services such as discovery, collaboration, messaging, mediation, data tagging, etc. Released version 1.1 of the IA Component of the GIG Architecture. Provided IA system engineering support to the Global Information Grid System Engineering effort.

- Leveraging work done in FY2005/06, continued experimentation, technology demonstration, prototype and test of attribution, anomaly detection, trace-back, CND response action tools, with emphasis on DoD enterprise level application. Continued to pilot specific operational capability to identify and characterize intruder behavior in DoD networks.

- Initiated planning and CONOP development to integrate TRICKLER, a passive monitoring tool, on the NIPRNet and SIPRNet to increase situational awareness of vulnerable, misconfigured, and unauthorized systems on the network. Initiated a pilot with the Army to develop and refine the CONOPS and Tactics, Techniques and Procedures through lessons learned by deploying TRICKLER at the installation level.

- Continued the evaluation, selected research, and focused piloting/investigation of various emerging IA capabilities (e.g., cross-domain, vulnerability management, situational awareness technologies, tools and techniques) to improve the IA and CND posture of the Department of Defense and support net-centric development. Began pilot to examine integration of DISA Field Security Operations Security Readiness Review and the Counterintelligence Field Activity (CIFA) Defensive Counterintelligence Assessment (DCA to evaluate the feasibility of conducting SRR blue-team technical assistance visits with the Insider Threat focused DCA identification & evaluation process This integrated review will leverage complementing SRR and DCCA capabilities to provide a more streamlined and comprehensive evaluation of information security practices

- CND Architecture: developed DOD Architectural Framework artifacts for the Computer Network Defense Referenced Architecture that provided input and guidelines to the GIG IA and NETOPS Architectures. These views also provide a baseline for Component CND Architects to integrate and implement an architecture that will provide a cohesive enterprise architecture maximizing the capabilities of the DOD enterprise-wide CND solutions and facilitate Joint Forces Command's CONOPS development. This included: AV - 2 (Integrated Dictionary), OV-5 (Operational Activity Model), OV-7 (Logical Data Model) (SV1 -System Interface Descriptions (for ESSG procured tools).

- Expanded the work on the CND Architecture Logical Data Model to initiate data strategy efforts under a CND Community of Interest (COI). Through this effort the CND Community has started to develop logical data models to include entity definitions, use cases, and relationship diagrams as well as beginning to define a CND ontology to enable improved net-centric information sharing within the CND community.

- Studied and developed a proof of concept to manage, track, and trace CND requirements using standard architectural tools (e.g., DOORS software suite) from a top-down and bottom-up point of view point. This concept allows the

CND community to easily trace and align requirements between the architecture and the immediate requirements in the field as well as supports the DOD JCIDS and NCIDS processes. This effort supports the architecture development specifically for the AV-1, SV-3, SV-5, OV6A, TV-1, TV-2

- Developed Software Assurance (SwA) processes and procedures for implementing the DoD SwA Strategy, including prioritization, engineering-in-depth, supplier assurance, and application of intelligence and security capabilities to counteract and risk manage supply chain threat to the acquisition of critical systems.

- Began pilot of capabilities of web logging and data analysis tool(s) in a coalition sharing environment to collect and aggregate raw log data from any connected data source, analyze that data in real time, set alerts to warn of suspicious/anomalous behavior and store data for on-demand retrieval. Includes assessing ability of commercial tools for (a) real time and historical trend analysis, (b) capability to identify and isolate risks, (c) capability to aggregate high volume data, (d) capability for rapid search and analysis for compliance and threat mitigation, and (e) automating log data archival and providing secure data retention.

.

- Continued development of the DoD IA Portal, including ability to support a variety of enterprise level IA tools, including IA knowledge Service, secure configuration compliance verification and remediation.

FY 2007 Plans: ($17.654 million)

- $2.900 million Congressional Add, Code Assessment & Metholology Project (CAMP) - Reprogramming to NSA.

- Convert eMASS into a Core Enterprise Service information assurance management tool.

- Continue refinement of IA architecture, policy and IA capabilities necessary to support and “end-to-end” IA capability for the GIG – including enterprise services such as discovery, collaboration, messaging, mediation, data tagging, etc. Support technology demonstration, development and pilots focusing functions required in mid-term (2009-2012) increment of the IA Component of the GIG Architecture. Examine technical approaches to improving data at rest protection and addressing data aggregation issues.

- Continue experimentation, technology demonstration, prototype and test evolving CND/situational awareness, vulnerability management, attribution, anomaly detection, trace back and response tools.. Pilot the CNDSP Measure of Effectiveness Program through evaluation of five Components and their CNDSP and upon validation transition the

program to the DOD Blue/Red Teams.

- CND Architecture: Expand the System View (SV-1, SV4) to include emerging CND tools and capabilities (e.g. Host Based Security Suite, TRICKLER, Insider Threat tools): expand the Architecture Views to include the [SV10C (Systems Event-Trace), the SV-3 (Systems-Systems Matrix, the OV -6C (Operational Event-Trace), TV-1, TV-2 (Technical Standards Profile and Forecast)

- Conduct a DoD CND COI Pilot to demonstrate net-centric data sharing in a Service Oriented Enterprise Architecture. The pilot will include DISA, NSA, Army, and AF participation evaluating net-centric sharing and correlation of sensor data (limited platforms in 07), vulnerability data, asset data, patch management data, and incident data. Incorporate the TRICKLER data strategy to integrate TRICKLER into the CND User Defined Operational Picture in order to have real-time situational awareness through visual tools to defend DoD networks.

- Begin implementation of the DoD Software Assurance Strategy by piloting key aspects of the Engineering Support Program to manage software assurance risk, e.g., develop the ability to identify critical subsystems for supplier assurance, determine the key elements of engineering-in-depth. The Software Assurance Strategy is composed of five elements: prioritization of systems, engineering-in-depth, supplier assurance, science and technology for vulnerability detection and industry outreach. The Engineering-in-depth oversight effort will embed a System Assurance Working Integrated Product Team (WIPT) within the most important acquisition programs of the Department to (1) assist the program manager in performing EID (review principal systems engineering documents, designs, etc.); (2) ensure that critical subsystems are identified for supplier assurance and enhanced vulnerability detection; and (3) assist the program manager and Milestone Decision Authority in making risk management decisions involving supplier threat and vulnerability mitigation.

FY 2008 Plans: ($13.256 million)

- Convert eMASS into a Core Enterprise Service information assurance management tool.

- Continue refinement of IA architecture, policy and IA capabilities necessary to support and “end-to-end” IA capability for the GIG – including enterprise services such as discovery, collaboration, messaging, mediation, data tagging, etc. Support technology demonstration, development and pilots focusing functions required in mid-term (2009-2012) increment of the IA Component of the GIG Architecture.

- Further develop and refine engineering-in-depth and vulnerability detection to support the DoD Software Assurance Strategy.

- Continue experimentation, technology demonstration, prototype and test evolving CND/situational awareness, vulnerability management, attribution, anomaly detection, trace back and response tools.

FY 2009 Plans: ($13.491 million)

- Continue refinement of IA architecture, policy and IA capabilities necessary to support and "end-to-end" IA capability for the GIG – including enterprise services such as discovery, collaboration, messaging, mediation, data tagging, etc. Support technology demonstration, development and pilots focusing functions required in mid-term (2009-2012) increment of the IA Component of the GIG Architecture.

- Further develop and refine engineering-in-depth and vulnerability detection to support the DoD Software Assurance Strategy.

- Continue experimentation, technology demonstration, prototype and test evolving CND/situational awareness, vulnerability management, attribution, anomaly detection, trace back and response tools.

B. **Program Change Summary:** (Show total funding, schedule, and technical changes for the program element that have occurred since the previous President's Budget Submission)

	FY 2006	FY 2007	FY 2008	FY 2009
Previous POM/BES	12.347	14.856	13.256	13.491
Current Presidents Budget	12.048	17.654	13.256	13.491
Total Adjustments	-.299	2.798		
Congressional program reductions				
Congressional rescissions, Inflation adjustments	-.299	-.102		
Congressional increases		2.900		
SBIR/STTR Transfer				
Reprogrammings				

Change Summary Explanation:
FY 2006: SBIR -.267 million, STTR -.032 million.
FY 2007: Congressional Add 2.900 million, FFRDC -.035 million, Economic Assumptions -.067 million.
FY 2008: No change.
FY 2009: No change.

C. **Other Program Funding Summary**:

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY2013	Total Cost
O&M, DW (PE0303140D8Z)	18.529	15.696	16.690	18.025	18.133	17.208	17.526	17.841	139.648

D. **Acquisition Strategy**: N/A

E. **Performance Metrics**:

- eMASS fielded and provides data support for FISMA;
- eMASS available as a Core Enterprise Service capability;
- IA Architecture incorporated into supported program plans;
- CND Architecture incorporated into IA Architecture;
- IA Portal prototype fielded and used by DoD IA Community;
- Pilots/technology demonstrations effect IA product development, concepts of operations development, or enterprise license decisions;
- Enterprise licenses for vulnerability patching and operating system wrappers awarded;
- DoD sensors integrated into an Enterprise Sensor Grid;
- Secure data tagging technology advanced;
- CND Response Action tools tested.

Exhibit R-2, RDT&E Budget Item Justification									Date: February 2007	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide (0400), Budget Activity 7				R-1 ITEM NOMENCLATURE 0305125D8Z/CRITICAL INFRASTRUCTURE PROTECTION (CIP)						
COST ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to Complete	Total Cost
Total PE Cost	19.166	13.643	12.667	12.731	13.014	13.162	13.367	13.573	Continues	Continues
Critical Infrastructure Protection Project 125	19.166	13.643	12.667	12.731	13.014	13.162	13.367	13.573	Continues	Continues

A. Mission Description and Budget Item Justification

Homeland Security Presidential Directive 7 (HSPD-7), *Critical Infrastructure Identification, Prioritization, and Protection*, December 17, 2003, assigns two sets of responsibilities to the Department of Defense (DoD). First, as a Federal Department and related specifically to DoD mission critical infrastructure, DoD has the responsibility to "identify, prioritize, and coordinate the protection of critical infrastructure and key resources in order to prevent, deter, and mitigate the effects of deliberate efforts to destroy, incapacitate, or exploit them." Second, HSPD-7 designates DoD as the Sector Specific Agency (SSA) for the Defense Industrial Base (DIB). The Defense Industrial Base (DIB) is the DoD, the U.S. Government, and private sector worldwide industrial complex with capabilities to perform research and development, design, produce, and maintain military weapon systems, subsystems, components, or parts to meet military requirements. As the SSA for the DIB, DoD is responsible for collaborating with all relevant organizations, conducting or facilitating vulnerability assessments, and encouraging risk management strategies to protect against attacks on the DIB.

HSPD-7 focuses on the national plan to secure critical infrastructure. Subsequent documents and strategies issued by DoD have expanded on this baseline to detail DoD critical infrastructure protection (CIP) efforts. The June 2005 *Strategy for Homeland Defense and Civil Support* identifies preparedness and protection of Defense Critical Infrastructure as one of the core capabilities to achieve mission assurance.

The cornerstone of DoD's approach to CIP is DoD Directive (DoDD) 3020.40, *Defense Critical Infrastructure Program (DCIP)*, signed by the Deputy Secretary of Defense in August 2005, which assigns the roles and responsibilities for implementing the DCIP. The Defense Critical Infrastructure Program (DCIP), as defined in DoDD 3020.40, is a DoD risk management program that seeks to ensure the availability of networked assets critical to DoD missions. Activities include the identification, assessment, and security enhancement of assets essential for executing the National Military Strategy.

The DCIP is a DoD-wide effort, involving components from the Office of the Secretary of Defense (OSD), the Joint Staff, the Combatant Commands (COCOMs), the Military Departments and Services, the Defense Agencies and Field Activities, the National Guard Bureau, and the Defense Infrastructure Sector Leads. These DoD components and officials must work together, form partnerships, and integrate activities in order to accomplish the DCIP responsibilities identified in DoDD 3020.40.

The immense scope of infrastructures and the interdependent nature of their environment necessitate a comprehensive risk management effort. Providing complete assurance of every Defense Critical Infrastructure Asset in an all-hazards environment from all conceivable hazards is not feasible. Therefore, DoD will apply risk management practices on Defense Critical Infrastructure.

Risk management practices are applied by first performing a risk assessment to understand (1) what assets are critical to DoD missions, (2) identifying vulnerabilities to those assets, and (3) identifying threats and hazards to those assets.

Decision makers use the results of the risk assessments to determine a risk response. This response may include applying resources to fix identified vulnerabilities, change tactics or procedures, provide asset redundancy, or accept the identified risk. The risk management approach will support the prioritization of scarce resources across DoD and focus resources on these assets critical to DoD missions. From an infrastructure protection perspective, this approach enables the achievement of warfighter operational goals through assured continuity of combat support and core Defense business processes, and assists in the restoration of capabilities should a disruption occur.

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007

B. Program Change Summary:

COST ($ in Millions)	FY 2006	FY 2007	FY 2008	FY2009
Previous President's Budget	12.166	12.422	13.090	13.080
Current BES/President's Budget	19.166	13.643	12.667	12.731
Total Adjustments:				
Congressional program reductions		-0.079	-0.423	-0.349
Congressional rescissions				
Congressional increases	7.000	1.300		
Reprogrammings				
SBIR/SSTR Transfer				
Program Adjustment	19.166	13.643	12.667	12.731

C. Other Program Funding Summary:

COST ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY2012	FY2013
O&M,DW 0902198D8Z	29.579	20.567	18.997	20.053	20.322	19.829	20.233	20.635

D. Acquisition Strategy: N/A

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007

E. Performance Metrics:

FY 2006 Performance Metrics

- Published supporting foundation infrastructure benchmarks for use by assessment programs across the Department of Defense and Defense Industrial Base (DIB) complex..
- Developed DoD DCIP assessment training curriculum
- Published a DCIP Interim Implementation Guidance (IIG) as a bridging document to formal coordination and issuance of a DCIP DoD Instruction (DoDI).
- Established an Integrated Product Team (IPT) to work issues related to drafting and publishing a DCIP DoDI.
- Published a Department of Defense criticality methodology to identify defense critical assets.
- Conducted functional mission decomposition of two Joint Capability Areas (JCAs).
- Institutionalized an inter-agency process to identify authoritative geospatial data sources.
- Developed Knowledge Display and Aggregation System (KDAS) initial operating capability, leveraging the National Geospatial Intelligence Agency's (NGA) Palanterra system.
- Establishing web-services for Defense Sector databases with KDAS/Palanterra.
- Published the DCIP Geospatial Data Strategy.
- Initiated Independent Verification and Validation of Defense databases and tools suites used to conduct defense and commercial interdependency analysis.

FY 2007 Performance Metrics

- Coordinate and publish a DCIP DoD Instruction (DoDI).
- Incorporate DoD DCIP assessment training curriculum into established DoD education and training programs.
- Coordinate and publish the DoD criticality methodology to identify defense critical assets.
- Conduct and maintain commercial infrastructure intra- and inter-dependency analysis on a minimum of 20 DoD critical assets contained on the COCOM Integrated Priority List (IPL).
- Publish the DCIP Risk Assessment Handbook.
- Continue web service integration for remaining Defense Sector databases, Combatant Command, and Military Service databases for visualization of assets in KDAS/Palanterra visualization tool to create a DCIP COP.

FY2008 Performance Metrics

- Conduct and maintain commercial infrastructure intra- and inter-dependency analysis on a minimum of 20 DoD critical infrastructure assets contained on the COCOM Integrated Priority List (IPL).
- Apply risk management methodology to all identified critical assets.
- Develop a prioritization methodology to substantiate investment in risk management recommendations.
- Develop, leverage, maintain, and enhance tools and data sets based on requirements derived from the DCIP community and the output of assessments performed on Defense Industrial Base (DIB) assets.
- Develop protocols and standards to ensure interoperability of Homeland Security Information Network Components and DCIP COP for a HLS/HLD COP and situational awareness.

FY2009– FY 2013 Performance Metrics

- Conduct and maintain commercial infrastructure intra- and inter-dependency analysis on a minimum of 20 DoD critical infrastructure assets per year.
- Apply risk management methodology to all identified critical assets.
- Develop, leverage, maintain, and enhance tools and data sets based on requirements derived from the DCIP community and the output of assessments performed on Defense Industrial Base (DIB) assets.

Exhibit R-2a, RDT&E Project Justification									Date: February 2007	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide (0400), BA 7			PROGRAM ELEMENT 0305125D8Z			PROJECT NAME AND NUMBER Critical Infrastructure Protection (CIP), Project Code 125				
COST ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to Complete	Total Cost
Critical Infrastructure Protection Project 125	19.166	13.643	12.667	12.731	13.014	13.162	13.367	13.573	Continues	Continues

A. Mission Description and Budget Item Justification:

The Defense Critical Infrastructure Program (DCIP) is a Department of Defense (DoD) risk management program that seeks to ensure the availability of networked assets critical to DoD missions, to include DoD and non-DoD, domestic and foreign infrastructures essential to planning, mobilizing, deploying, executing, and sustaining United States military operations on a global basis. Through identifying Defense Critical Assets, assessing them to determine vulnerabilities, incorporating specific threat and hazard information and analysis, and visually displaying relevant infrastructure data and analysis, DoD will be positioned to make risk management decisions to ensure the appropriate infrastructure is available, when needed, to support DoD missions.

Specifically, Combatant Commands (COCOMs) are responsible for identifying the mission capability requirements and coordinating with the Military Departments, Defense Agencies, DoD Field Activities, and Defense Sector Lead Agents to identify and assess Defense Critical Assets. As asset owners and capability providers, the Secretaries of the Military Departments and the Directors of Defense Agencies and DoD Field Activities, coordinate with the COCOMs to identify and prioritize the assets required to support mission-essential functions. Asset owners will also assess identified Defense Critical Assets to identify vulnerabilities and apply appropriate remediation and mitigation measures. The Defense Sector Lead Agents are responsible for identifying the specific functions, systems, assets (DoD and non-DoD owned), and interdependencies within the Defense Sector infrastructure networks supporting the identified critical missions.

Each Defense Sector Lead Agent, as identified in DoDD3020.40.DoD, represents one of ten (10) functional areas that provide support to the Combatant Commanders and asset owners. These functional areas are as follows: defense industrial base (DIB); financial services; global information grid (GIG); health affairs; intelligence, surveillance, and reconnaissance (ISR); logistics; personnel; public works; space; and transportation.

In addition, DCIP manages specific analytic efforts in the identification and maintenance of specific inter- and intra-dependencies DoD has on the foundational commercial infrastructure networks supporting the identified critical missions. Specific analytic efforts are focused within six (6) commercial infrastructure areas: energy (electric power, natural gas); chemicals; transportation; telecommunications; water; and petroleum, oil, lubricants (POL).

Exhibit R-2a, RDT&E Project Justification	Date: February 2007

B. Program Change Summary

	FY 2006	FY 2007	FY 2008	FY 2009
Accomplishment/Subtotal Cost	10.778	2.956	1.542	1.500

DCIP Strategic Partnerships and Enabling Technologies

FY 2006: The program has:

- Institutionalized an inter-agency process to identify authoritative geospatial data sources for use across the DoD, the Federal interagency, and, state and local governments.
- Developed Knowledge Display and Aggregation System (KDAS) initial operating capability, leveraging the National Geospatial Intelligence Agency's (NGA) Palanterra system.
- Established web-services for 5 Defense Sector databases with KDAS/Palanterra for visualization of defense sector assets to provide situational awareness to senior leaders for strategic decision making.
- Published the DCIP Geospatial Data Strategy for the creation and maintenance of a common and comprehensive foundation of homeland infrastructure geospatial data. This effort ensures consistency of information used for display, analysis, and presentation of critical infrastructure in a Common Operational Picture (COP) environment.
- Initiated Independent Verification and Validation of Defense databases and tools suites used to conduct defense and commercial interdependency analysis.
- Developed scenario based, interactive exercise simulations to supplement existing table top, command post, and full scale incident response training and exercise programs.
- Determined emergency remediation infrastructure options for post-disaster reconstitution efforts

FY2007: The program will:

- Establish web services for remaining Defense Sector databases, Combatant Command, and Military Service

databases for visualization of assets in KDAS/Palanterra visualization tool to create a DCIP COP.
- Ingest information from National Labs on consequence assessment and predictive analysis tool suites to support pre-planning and positioning of defense assets.
- Develop capabilities to identify and provide risk management for critical infrastructure system vulnerabilities as a result of cyber based attacks

FY 2008: The program will:
- Develop, leverage, maintain, and enhance tools and data sets based on requirements derived from the DCIP community and the output of assessments performed on Defense Industrial Base (DIB) assets.
- Develop protocols and standards to ensure interoperability of Homeland Security Information Network Components and DCIP COP for a HLS/HLD COP and situational awareness.

FY 2009: The program will:
- Develop, leverage, maintain, and enhance tools and data sets based on requirements derived from the DCIP community and the output of assessments performed on Defense Industrial Base (DIB) assets.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007

	FY 2006	FY 2007	FY 2008	FY 2009
Accomplishment/Subtotal Cost	8.388	10.687	11.125	11.231

DCIP Plans, Programs, and Capabilities Integrated and Implemented at All Levels

FY 2006: The program has:
- Published supporting foundation infrastructure standards and benchmarks for use by assessment programs across the Department of Defense and Defense Industrial Base (DIB) complex.
- Developed, in collaboration with the National Guard Bureau, WV National Guard , US Joint Forces Command and US Army TRADOC, DoD DCIP assessment training curriculum to support incorporation of infrastructure assessment standards and benchmarks into existing assessment programs.

- Published a DCIP Interim Implementation Guidance (IIG) as a bridging document to formal coordination and issuance of a DCIP DoD Instruction (DoDI). The IIG provides detailed implementation guidance, standards, lexicons, definitions for use by Combatant Commanders, Services, and Defense Agencies.
- Established an Integrated Product Team (IPT) to work issues related to drafting and publishing a DCIP DoDI
- Drafted a Department of Defense criticality methodology to identify defense critical assets
- Conducted functional mission decomposition of the Net-Centric Operations and Civil Support Joint Capability Areas (JCAs)
- Responded to mission-focused analysis tasks, quick turn around requests for National Special Security Events, and DCIP community tasks directly supporting the Global War on Terror, Operation Iraqi Freedom and Operation Enduring Freedom., as well as participated in DoD led exercises.

FY2007: The program will:

- Coordinate and publish a DCIP DoD Instruction (DoDI), leveraging the DCIP DoDI IPT, and previously published IIG and lessons learned as the baseline
- Incorporate DoD DCIP assessment training curriculum into established DoD education and training programs
- Coordinate and publish the DoD criticality methodology to identify defense critical assets
- Conduct and maintain commercial infrastructure intra- and inter-dependency analysis on a minimum of 20 DoD critical assets contained on the COCOM Integrated Priority List (IPL)
- Publish the DCIP Risk Assessment Handbook (which features the DCIP Characterization Process, Dependency Analysis Process, Criticality Process, Assessment Process, Threat/Hazard Process, Monitor & Reporting Process and the Risk Analysis Process)
- Respond to mission-focused analysis tasks, quick turn around requests for National Special Security Events, and DCIP community tasks directly supporting the Global War on Terror, Operation Iraqi Freedom and Operation Enduring Freedom., as well as participated in DoD led exercises.

FY 2008: The program will:

- Conduct and maintain commercial infrastructure intra- and inter-dependency analysis on a minimum of 20 DoD critical assets contained on the COCOM Integrated Priority List (IPL)
- Apply risk management methodology to all identified critical assets
- Develop a prioritization methodology to substantiate investment in risk management recommendations
- Perform trend analysis and develop remediation and mitigation options for addressing risks identified as part of the assessment process.
- Develop a prioritization methodology to substantiate investment in risk management recommendations

- Provide technical analysis and recommendations on infrastructure networks, points of service, interdependencies, and priority restoration for pre-event and post-event analysis for manmade or natural disaster incidents, and intelligence relating to possible terrorist threats.

FY 2009: The program will:

- Provide technical analysis and recommendations on infrastructure networks, points of service, interdependencies, and priority restoration for pre-event and post-event analysis for manmade or natural disaster incidents, and intelligence relating to possible terrorist threats.
- Conduct and maintain commercial infrastructure intra- and inter-dependency analysis on a minimum of 20 DoD critical assets contained on the COCOM Integrated Priority List (IPL)
- Apply risk management methodology to all identified critical assets
- Perform trend analysis and develop remediation and mitigation options for addressing risks identified as part of the assessment process.

C. Other Program Funding Summary: DCIP O&M funding is allocated to the Military Services, the Defense Sectors/Defense Agencies, and to OSD DCIP as the Sector Specific Agency (SSA) for the Defense Industrial Base (DIB). O&M funding will be used by these organizations to identify critical assets supporting DoD missions using the standard methodology developed through DCIP, assessing these identified critical assets to identify critical infrastructure support, and the performance of risk management activities associated with these assessed assets.

COST ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
O&M,DW 0902198D8Z	29.579	20.567	18.997	20.053	20.322	19.829	20.233	20.635

D. Acquisition Strategy: N/A

E. Major Performers: N/A

Exhibit R-2, RDT&E Budget Item Justification									Date: February 2007	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide (0400), Budget Activity 7				R-1 ITEM NOMENCLATURE 0305186D8Z - POLICY R&D PROGRAMS						
COST ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to Complete	Total Cost
Total PE Cost	0.0*	0.0*	4.627	4.947	5.137	5.227	5.309	5.389	Continues	Continues
Policy R&D	0.0*	0.0	4.627	4.947	5.137	5.227	5.309	5.389	Continues	Continues

* Note: Not a new start. Consolidates various funded policy programs under this one PE.

A. Mission Description and Budget Item Justification

Continues the development of military tools to overcome global security issues. Since the global environment is dynamic, research is necessary to continue understanding military structures, foreign cultures, and ethnic issues. Examines demographic data, investigates information awareness concerning catastrophic events, and develops links to information and data warehouses.

Continues Congressionally directed technology transfer program to consolidate and coordinate various military endeavors that pass technology and equipment to the private sector.

Continues to build partnership capabilities through analytical projects that counter organizational warfare and develops infrastructure and sanctuary denial options. Blends several disciplines including surveillance, operations, policy, information, training and technology.

Continues the development of the Adaptive Planning Scenarios with a set of software and hardware tools that will replace the current war/contingency planning system (i.e. methodology and software) with one that produces war/contingency plans more rapidly. Provides for a higher level classification of workstations, connectivity, software, licenses, and training. This is a joint effort with the Joint Chiefs of Staff (J-7) and PE 0603832D8Z.

Continues efforts in Irregular Warfare (IW) by developing capabilities to enable sustained counterterrorism and counterinsurgency operations. Leverages ongoing research efforts to analyze, modify, design, and demonstrate enduring counterinsurgency technical and operational capabilities.

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007

B. Program Change Summary: Consolidates various Policy R&D efforts under one program element for clarification to DoD leadership and Congress. Prior efforts in PE 0603942D8Z.

COST ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget	0.00	0.00	0.00	0.00
Current BES/President's Budget	0.00	0.00	4.627	4.947
Total Adjustments:				
Congressional program reductions				
Congressional rescissions				
Congressional increases				
Reprogrammings			+4.627	+4.947
SBIR/SSTR Transfer				
Program Adjustment	0.00	0.00	4.627	4.947

C. Other Program Funding Summary: None

D. Acquisition Strategy: N/A

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007

E. Performance Metrics:

FY 2006 Performance Metrics

- Established network links and consolidation of technology transfer projects.

FY 2007 Performance Metrics

- Prepares the transition of technology transfer programs toward a consolidated environment.

FY2008 Performance Metrics

- Develops software tools in conjunction with the US Pacific Command to more fully understand nation turmoil. Adapts the culture and political environment within the Asia/Pacific area to various scenarios.
- Funds researchers who will develop process tools to promote homeland defense initiatives in other nations and countries and prevent terrorist activity before reaching the US.
- Leverages ongoing irregular warfare research efforts within the Services to better analyze, modify, design, and demonstrate enduring counterinsurgency technical and operational capabilities.
- Prepares the transition of technology transfer programs toward a consolidated environment.
- With funding from PE 0603832D8Z, Defense Information Systems Agency, and the Joint Staff, continues the development of the Adaptive Planning Scenarios with a set of software and hardware tools that will replace the current war/contingency planning system.

FY2009 Performance Metrics

- Expands the development of software tools into a broader focus within the Asia/Pacific area.
- Funds researchers who will begin to integrate process tools within the military and to promote homeland defense initiatives.
- Further develops ongoing irregular warfare research efforts within the Services to better analyze, modify, design, and demonstrate enduring counterinsurgency technical and operational capabilities.
- Prepares the transition of technology transfer programs toward a consolidated environment.
- With funding from PE 0603832D8Z, Defense Information Systems Agency, and the Joint Staff, continues developing Adaptive Planning Scenarios with a set of software and hardware tools that will replace the current war/contingency planning system.

Exhibit R-2a, RDT&E Project Justification									Date: February 2007	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide (0400), BA 7			PROGRAM ELEMENT 0305186D8Z			PROJECT NAME AND NUMBER Policy R&D Programs, Project Code 186				
COST ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to Complete	Total Cost
Policy R&D	0.0*	0.0	4.627	4.947	5.137	5.227	5.309	5.389	Continues	Continues

* Note: Not a new start. Consolidates various funding under this one PE.

A. Mission Description and Budget Item Justification:

Continues the development of military tools to overcome global security issues. Since the global environment is dynamic, research is necessary to continue understanding military structures, foreign cultures, and ethnic issues. Examines demographic data, investigates information awareness concerning catastrophic events, and develops links to information and data warehouses.

Continues Congressionally directed technology transfer program to consolidate and coordinate various military endeavors that pass technology and equipment to the private sector.

Continues to build partnership capabilities through analytical projects that counter organizational warfare and develops infrastructure and sanctuary denial options. Blends several disciplines including surveillance, operations, policy, information, training and technology.

Continues the development of the Adaptive Planning Scenarios with a set of software and hardware tools that will replace the current war/contingency planning system (i.e. methodology and software) with one that produces war/contingency plans more rapidly. Provides for a higher level classification of workstations, connectivity, software, licenses, and training. This is a joint effort with the Joint Chiefs of Staff (J-7) and PE 0603832D8Z.

Continues efforts in Irregular Warfare (IW) by developing capabilities to enable sustained counterterrorism and counterinsurgency operations. Leverages ongoing research efforts to analyze, modify, design, and demonstrate enduring counterinsurgency technical and operational capabilities.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007

B. Program Change Summary

	FY 2006	FY 2007	FY 2008	FY 2009
Accomplishment/Subtotal Cost	1.1	1.1	1.1	1.1

Transfer Technology
In conjunction with outreach program, ensures a successful and balanced transfer of equipment and technology without impeding military readiness. Manages what first responders receive, achieves a balance between first responders and military equipment, and transfers technology through a transitional effort that has dual utility to enhance military readiness. Meets the Congressional intent of the FY 2003 National Defense Authorization Act, Section 1401.

FY 2006: The program has:
- Work developed in other program elements.

FY2007: The program will:
- Work developed in other program elements.

FY 2008: The program will:
- Prepares the transition of technology transfer programs toward a consolidated environment.

FY 2009: The program will:
- Prepares the transition of technology transfer programs toward a consolidated environment.

Exhibit R-2a, RDT&E Project Justification				Date: February 2007
	FY 2006	FY 2007	FY 2008	FY 2009
Accomplishment/Subtotal Cost	0.0	0.0	3.527	3.847

Policy R&D

Identifies international technologies and provide program management oversight and technical support for projects cooperating with international partners. Anticipates exploitation of technology, including available and advanced capabilities, and works through the international commercial sector and academia concerning adversary's application of technology. Explores processes and policy to integrate international capabilities across the spectrum of international security issues.

FY 2006: The program has: Work developed in other program elements.

FY 2007: The program will: Work developed in other program elements.

FY2008: The program will:

- Develops software tools in conjunction with the US Pacific Combatant Command to more fully understand nation turmoil. Adapts the culture and political environment within the Asia/Pacific area to various scenarios.
- Funds researchers who will develop process tools to promote homeland defense initiatives in other nations and countries and prevent terrorist activity before reaching the US.
- Leverages ongoing irregular warfare research efforts within the Services to better analyze, modify, design, and demonstrate enduring counterinsurgency technical and operational capabilities.
- With funding from PE 0603832D8Z, Defense Information Systems Agency, and the Joint Staff, continues developing Adaptive Planning Scenarios with a set of software and hardware tools that will replace the current war/contingency planning system.

FY 2009: The program will:

- Expands the development of software tools into a broader focus within the Asia/Pacific area.
- Funds researchers who will begin to integrate process tools within the military and to promote homeland defense initiatives.
- Further develops ongoing irregular warfare research efforts within the Services to better analyze, modify, design, and demonstrate enduring counterinsurgency technical and operational capabilities.
- With funding from PE 0603832D8Z, Defense Information Systems Agency, and the Joint Staff, continues developing

Adaptive Planning Scenarios with a set of software and hardware tools that will replace the current war/contingency planning system.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007

C. Other Program Funding Summary: None

D. Acquisition Strategy: N/A

E. Major Performers: N/A

Exhibit R-2, RDT&E Budget Item Justification						Date February 2007		
Appropriation/Budget Activity RDT&E Defense-Wide, BA 7				R-1 Item Nomenclature: Net Centricity PE 0305199D8Z				
Cost ($ in millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	8.024	8.696	10.243	12.747	1.504	30.103	30.573	31.045
Horizontal Fusion	0.000	0.000	0.000	2.732	0.000	19.394	19.864	20.211
GIG Evaluation Facilities (GIG-EF) and GIG End-to-End Systems Engineering Advisory Activities	8.024	8.696	10.243	10.015	1.504	10.709	10.709	10.834

A. Mission Description and Budget Item Justification:

This program element will support information management and information technology activities focused on the development, integration, testing and assessment of capabilities and applications in support of joint and coalition warfighter needs. Resources will support net centric collaborative development and operations to improve situational awareness, interoperability and operational planning efforts. This program is funded under Budget Activity 7, Operational System Development, because it supports engineering development and testing of RDT&E activities.

The Horizontal Fusion Project funding in FY 2006, FY 2007 and FY 2008 was realigned by the Department to support priority net centric transformation efforts such as information assurance, Multinational Information Sharing and Internet Protocol (IP) based capability into military communications satellites.

B. **Program Change Summary:** (Show total funding, schedule, and technical changes for the program element that have occurred since the previous President's Budget Submission)

	FY 2006	FY 2007	FY 2008	FY 2009
Previous POM/BES	8.254	8.746	10.243	12.747
Current Presidents Budget	8.024	8.696	10.243	12.747
Total Adjustments	-.230	-.050		
Congressional program reductions				
Congressional rescissions, inflation adjustments		-.050		
Congressional increases				
Reprogrammings				
Transfer				
Program Increase				

Program Change Summary Explanation:
FY 2006: SBIR -.205 million, STTR -.025 million.
FY 2007: FFRDC -.017 million, Economic Assumptions -.033 million.
FY 2008: No change.
FY 2009: No change.

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

E. Performance Metrics:

1. User Activity and Participation. A key measurement of GIG-EF success is the amount of participation and usage of the GIG-EF in support of Joint warfighting requirements. Performance metrics in this area would include:

- Number of events, tests and experiments scheduled
- Percentage of GIG-EF time active vs. idle
- Total amount of in-kind funding from GIG developers and activities
- Aggregate funding per test
- Number of service and user participants in tests (jointness)

2. Contributions to GIG development and transition. The GIG-EF should also advance the state of the art in support of GIG implementation.

- Number of independent test reports and limited objective experiments support major GIG architectural issues (IA, IPv6/MPLS, Routing, etc.)
- Number of demonstrations in support of major GIG architectural issues (IA, IPv6, Routing, etc.)

3. Risk mitigation for the GIG.

- Demonstrations in support of GIG overall goals (ex: IPv6 by FY 2008, 10 Gb Optical HAIPE by FY 2007, etc.)
- Number of GIG E2E Systems Engineering Oversight working group requirements addressed via GIG-EF demonstration, experimentation and testing.

4. Tangible products such as frameworks and design guidance used for program assessments and reviews.

5. Specific modifications to Programs based on the frameworks and guidance that improve program compatibility and end to end performance.

6. A more collaborative environment where systems engineering organizations of individual GIG programs and the end to end systems engineering oversight organization mutually identify and solve issues related to maximizing end to end performance

Exhibit R-2a, RDT&E Project Justification						Date: February 2007	
Appropriation/Budget Activity RDT&E, Defense-Wide, BA 7			Project Name and Number: GIG-EF/PE 0305199D8Z				
Cost ($ in millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Name: GIG Evaluation Facilities (GIG-EF) & GIG End-to-End SE Advisory Activities	8.024	8.696	10.243	10.015	1.504	10.709	10.709	10.834

A. Mission Description and Budget Item Justification:

The Global Information Grid (GIG) Evaluation Facilities and E2E Systems Engineering (SE) Advisory Activities project provides resources needed to test key systems in an end-to-end manner, including providing for system engineers, test-bed hardware, software and fiber optic connectivity at the Naval Research Laboratory and several other test locations in the U.S. The evaluation facilities will be used to demonstrate interoperability of multiple Transformational Communications programs including but not limited to the Joint Tactical Radio System (JTRS), Global Information Grid Bandwidth Expansion (GIG BE), Teleports, and Transformational Satellite Communications System (TSAT). For these systems GIG-EF & SE would:

-Perform tests that physically demonstrate technical performance.

-Provide an independent, overarching review of technology and interface standards.

-Ensure technical issues are identified early and schedules synchronized to produce a jointly interoperable, timely and cost-effective architecture development.

-Prevent costly program reworks and restructuring, and more importantly, avoid delays in providing joint warfighter connectivity.

The effort also provides engineering, integration and hardware and fiber optic connectivity necessary to validate the performance for key transformational communication programs. The funding will also provide the engineering resources necessary for performing the Global Information Grid (GIG) end-to-end systems engineering oversight function. Resources will be applied to end-to-end systems engineering topics related to the successful integration of several programs that will form the GIG in areas such as information assurance (IA), quality of service (QOS), network management, interface definition and standards selection, and routing protocols. These resources will work in conjunction with systems engineers from key GIG programs such as the Joint Tactical Radio System (JTRS), Transformational Satellite Communications System (TSAT), Teleport, GIG Bandwidth Expansion (GIG-BE), Warfighters Internet-Tactical (WIN-T), Net-Centric Enterprise Services (NCES) and Automated Digital Networking System (ADNS) to identify and address technical issues resulting from engineering decisions made without the end-

to-end perspective.

B. Accomplishments/Planned Program

		FY 2006	FY 2007	FY 2008
Accomplishment/ Effort/Subtotal Cost		8.024	8.696	10.243
RDT&E Articles Quantity *(as applicable)				

FY 2006 Accomplishments: ($8.024 million)

- Created a master GIG-EF experimentation plan based on critical technical issues and testing priorities identified by GIG programs
- Drafted an EWSW traceability matrix to track testing against EWSE requirements
- Drafted a "GIG Mobile Region Topology" white paper
- Contributed to the "Network-Based Anomaly Detection – Black Core" (NBAD) whitepaper
- Developed Test Plans for IPsec/Control Plane encryption, HAIPE Discovery, QoS and IPv4/IPv6 Multicast.
- Supported the JTRS Joint Virtual Laboratory (JVL-N) Phase II network testing between NRL, SSC-SD, MCTSSA, Hanscom AFB and Ft. Monmouth.
- Supported the JTRS JCL component testing between SSC-SD and China Lake.
- Participated in performance and service conformance testing of JITC Joint IPv6 Moonv6 effort.
- Conducted IP Routing and MPLS QoS experimentation using RFC 2547bis over IPv6.
- Conducted IPv4 and IPv6 IP Control Plan Protection using IPsec.
- Conducted IPv6 Multicast Experimentation
- Conducted Path MTU (Maximum Transmission Unit) Discovery with both crypto and tunneling.
- Developed and distributed the Draft GIG-EF CONOPS
- Released Tactical Managed QoS Test Report for JRAE-05 Final Report
- Developed test plans for IPsec/Control Plane encryption, HAIPE Discovery, QoS and IPv4/IPv6 Multicast
- Conducted DoD IPv6 testing to include, but not limited to:
    - Working with JITC to determine IPv6 capabilities and issues
    - IPv4 to IPv6 translation
    - High performance streaming over IPv4/IPv6 and MPLS

FY 2007 Plans: ($8.696 million)

- Review JTRS Cluster AMF, TSAT, JC2, and NCES for compliance to end to end GIG frameworks, architectures, and design guidance
- Analyze end to end systems engineering issues by review technical documentation, working with the systems engineering organizations of each of the programs, employing modeling and simulation, and using the results of end to end systems engineering testing and influence design changes to programs to assure compatibility and to maximize end to end performance
- Work with systems engineering organizations from GIG programs to identify and address cross-program issues and influence programs to implement compatible designs that maximize end to end performance
- Continued support of GIG-EF capabilities and enhancements.
- Connect East and West coast GIG-EF hubs via 10Gbps service
- Perform End-to-End testing and experimentation in support of GIG developer and user requirements including, but not limited to:
    - HAIPE Discovery (DNS vs. BGP vs. LDAP) starting with emulators.
    - HAIPE Routing/QoS experiments
    - End-to-End QoS testing
    - End-to-End Routing and Multicast testing
    - JTRS JVL-N Testing
    - Moonv6 IPv6 participation
    - IPsec Control Plane segregation
    - Quality of Protection and Anomaly Detection
    - Application Interoperability
    - IPv6-HAIPE Interoperability and Performance starting with emulators.

FY 2008 Plans: ($10.243 million)

- Ensure the GIG end to end quality of service framework evolves in accordance with the evolution of commercial products, services, and technology
- Refine the GIG IA, routing architecture, and network management framework to be consistent with evolving commercial products, services, and technology

- Work with systems engineering organizations from GIG programs to identify and address cross-program issues and influence programs to implement compatible designs that maximize end to end performance
- Continued support of GIG-BE capability. Develop initial 40 Gb connectivity among DoD testing components (GIG-BE, TSAT, Teleports) and inter-connectivity to key GIG development sites including capability to support Inter-agency end-to-end testing with DoD, Intelligence Community, Allied and Coalition activities.
- Design and test upgrade to testing suites to support 40 Gb networks
- Perform testing in support of GIG developer and user requirements including but not limited to:
    - IPv6 transition final testing
    - JTRS WNW end-to-end testing in support of Cluster 5 (spiral 2), AMF.
    - 40 Gbps IPv6/MPLS experimentation and testing including early HAIPE concept development
    - Support NCES spiral development
    - Continued support of end-to-end warfighter interoperability experimentation via JRAE tests in coordination with USJFCOM JBMC2 activities
    - Joint C2 applications and platform testing activities such as JITC
    - HAIPE Discovery (DNS vs. BGP vs. LDAP) with HAIPIS v3 devices
    - Mobile Routing testing
    - HAIPE Routing/QoS experiments with mobile networks
    - End-to-End QoS testing with mobile networks
    - End-to-End Routing and Multicast testing with mobile networks
    - JTRS JVL-N and JTEN Testing
    - IPsec Control Plane segregation
    - Quality of Protection and Anomaly Detection
    - IPv6-HAIPE Interoperability and Performance starting with HAIPIS v3 devices

FY 2009 Plans: ($10.015 million)

- Ensure the GIG end to end quality of service framework evolves in accordance with the evolution of commercial products, services, and technology
- Work with systems engineering organizations from GIG programs to identify and address cross-program issues and influence programs to implement compatible designs that maximize end to end performance
- Continue to provide critical technology validation for GIG WGs, Components and Services/Users
- Finalize 40 Gb connectivity among DoD testing components (GIG-BE, TSAT, Teleports) and inter-connectivity to key GIG development sites including capability to support Inter-agency end-to-end testing with DoD, Intelligence Community, Allied

and Coalition activities.

- Perform testing in support of GIG developer and user requirements including but not limited to:
  - IPv6 final testing
  - 40 Gbps IPv6/MPLS experimentation
  - Enterprise authentication testing validation
  - Continued support of NCES spiral development
  - Continued support of end-to-end warfighter interoperability experimentation via JRAE tests in coordination with USJFCOM JBMC2 activities
  - DiffServ-based RSVP aggregation
  - Cross-Domain VPNs
  - QoS alternatives: Provisioning vs. signaling
  - Centralized vs. distributed discovery services
  - Control & Management Information Crossing Security Boundaries
  - Joint C2 applications and platform testing activities such as JITC
  - Mobile Routing testing
  - HAIPE Routing/QoS experiments with mobile networks
  - End-to-End QoS testing with mobile networks
  - End-to-End Routing and Multicast testing with mobile networks
  - JTRS JVL-N and JTEN Testing
  - IPsec Control Plane segregation
  - Quality of Protection and Anomaly Detection

C. Other Program Funding Summary: N/A

D. Acquisition Strategy. N/A

E. Major Performers: Naval Research Laboratory, SPAWAR Systems Center San Diego, MIT Lincoln Laboratories, NSA, DISA, and MITRE.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE
RDT&E/ Defense Wide BA# 7	**1001018D8Z – NATO Joint STARS**

Cost ($ in Millions)		FY 2006 Actual	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total Program Element (PE) Cost		24.355	41.412	41.466	42.858	50.399	55.927	60.768	66.511
P018	NATO Alliance Ground Surveillance (AGS)	24.355	41.412	41.466	42.858	50.399	55.927	60.768	66.511

A. Mission Description and Budget Item Justification: (U) This project supports the U.S. share of the cost for NATO to acquire a ground surveillance capability similar to what the NATO owned and operated Airborne Warning and Control System (AWACS) provides for air surveillance.

(U) The North Atlantic Council (NAC) validated the requirement in 1995 for a NATO-owned and operated core air-to-ground surveillance capability supplemented by interoperable national assets. Since then, the Major NATO Commanders have consistently made Alliance Ground Surveillance (AGS) their number one equipment acquisition priority.

- October 1997, NATO Conference of National Armaments Directors (CNAD) approved AGS NATO Staff Requirement (NSR).
- April 1999, NATO Washington Summit Defense Capabilities Initiatives (DCI) included need for a NATO-owned and operated core system for ground surveillance.
- September 2001, Reinforced NAC (RNAC) re-affirmed need for a NATO-owned and operated AGS capability by 2010 and to move forward with the program.
- November 2002, NATO Prague Summit approved Prague Capabilities Commitment (PCC) that includes an airborne ground surveillance capability.
- December 2003, AGS Steering Committee approved in principle the merger of NATO AGS and the Trans-Atlantic Cooperative AGS Radar (TCAR) sensor projects.
- May 2004, Following a competitive Project Definition Study, CNAD endorsed the Trans-Atlantic Industrial Proposed Solution (TIPS) consortium's selection as the program of record to enter the Design and Development Phase, and directed that the TCAR sensor development project be integrated into the AGS program.
- May 2004, NATO AGS Steering Committee approved an updated Master Schedule supporting a 2010 Initial Operating Capability (IOC) with Full Operational Capability (FOC) by 2013.
- November 2005, Risk Reduction Study (RRS) was completed, providing the Nations a higher degree of confidence in six areas of concern: program management; harmonization with other pending NATO aircraft programs; interoperability with existing national systems; compatibility with the NATO intelligence, surveillance and reconnaissance architecture; integration of the TCAR sensor; and affordability.
- April 2006, CNAD approved release of a Request for Proposal (RFP) to industry for the Design and Development (D&D) phase, including a mixed fleet (manned and unmanned) and development of at least one radar for either, with a total procurement Not to Exceed of 3.3 billion euros (BY 2003 euros equivalent to TY $5.4B).
- October 2006, AGS Industries (AGSI, former TIPS consortium) formally submitted a program proposal. CNAD agreed that the proposal would form the basis for negotiations of the D&D contract and tasked the AGS Support Staff (AGS3) to begin negotiations with AGSI. Negotiations are expected to be completed by March 2007.
- November 2006, Heads of State at NATO Riga Summit endorsed the progress on NATO AGS, with a view to achieving real capabilities, as one of a set of initiatives to increase the capacity of NATO forces to address contemporary threats and challenges.

B. Program Change Summary	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	25.068	41.670	53.230	57.504
Current BES/President's Budget (FY 2008/2009)	24.355	41.412	41.466	42.858

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE
RDT&E/ Defense Wide BA# 7	**1001018D8Z – NATO Joint STARS**

Total Adjustments	-0.713	-0.258	-11.764	-14.646
Congressional Program Reductions		-0.244		
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.713			
Other		-0.014	-11.764	-14.646

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

E. Performance Metrics: Not Applicable.

OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDT&E/ Defense Wide BA# 7	**1001018D8Z – NATO Joint STARS**	**P018**

Cost ($ in Millions)		FY 2006 Actual	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
P018	NATO Alliance Ground Surveillance (AGS)	24.355	41.412	41.466	42.858	50.399	55.927	60.768	66.511

A. Mission Description and Project Justification: A. Mission Description and Budget Item Justification: (U) This project supports the U.S. share of the cost for NATO to acquire a ground surveillance capability similar to what the NATO owned and operated Airborne Warning and Control System (AWACS) provides for air surveillance.

(U) The North Atlantic Council (NAC) validated the requirement in 1995 for a NATO-owned and operated core air-to-ground surveillance capability supplemented by interoperable national assets. Since then, the Major NATO Commanders have consistently made Alliance Ground Surveillance (AGS) their number one equipment acquisition priority.

- October 1997, NATO Conference of National Armaments Directors (CNAD) approved AGS NATO Staff Requirement (NSR).
- April 1999, NATO Washington Summit Defense Capabilities Initiatives (DCI) included need for a NATO-owned and operated core system for ground surveillance
- September 2001, Reinforced NAC (RNAC) re-affirmed need for a NATO-owned and operated AGS capability by 2010 and to move forward with the program.
- November 2002, NATO Prague Summit approved Prague Capabilities Commitment (PCC) that includes an airborne ground surveillance capability.
- December 2003, AGS Steering Committee approved in principle the merger of NATO AGS and the Trans-Atlantic Cooperative AGS Radar (TCAR) sensor projects.
- May 2004, Following a competitive Project Definition Study, CNAD endorsed the Trans-Atlantic Industrial Proposed Solution (TIPS) consortium's selection as the program of record to enter the Design and Development Phase And directed that the TCAR sensor development project be integrated into the AGS program.
- May 2004, NATO AGS Steering Committee approved an updated Master Schedule supporting a 2010 Initial Operating Capability (IOC) with Full Operational Capability (FOC) by 2013.
- November 2005, Risk Reduction Study (RRS) was completed providing the Nations a higher degree of confidence in six areas of concern: program management; harmonization with other pending NATO aircraft programs; interoperability with existing national systems; compatibility with the NATO intelligence, surveillance and reconnaissance architecture; integration of the TCAR sensor; and affordability.
- April 2006, CNAD approved release of a Request for Proposal (RFP) to industry for the Design and Development (D&D) phase, including a mixed fleet (manned and unmanned) and development of at least one radar for either, with a total procurement Not to Exceed of €3.3B (Base Year euros equivalent to $5.4 Then Year dollars).
- October 2006, AGS Industries (AGSI, former TIPS consortium) formally submited a proposal compliant with the RFP. CNAD agreed that the proposal, as submitted by AGSI, would form the basis for negotiations of the D&D contract and tasked the AGS Support Staff (AGS3) to begin negotiations with AGSI. Negotiations are expected to be completed by March 2007.
- November 2006, Heads of State at NATO Riga Summit endorsed the progress on NATO AGS, with a view to achieving real capabilities, as one of a set of initiatives to increase the capacity of NATO forces to address contemporary threats and challenges.

B. Accomplishments/Planned Program:

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009

OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDT&E/ Defense Wide BA# 7	**1001018D8Z – NATO Joint STARS**	**P018**

(U) FY 2006 Accomplishments	24.355	0.000	0.000	0.000

2006 Program Activities:
- Completed the Program Memorandum of Understanding (MOU), Design and Development Supplement, and Trans-Atlantic Cooperative AGS Radar (TCAR) Implementing Arrangement
- Completed and provided the NATO Program Charter to Nations for review and approval.
- Established an affordable procurement program cost ceiling of 3.3 billion euros (2003 Base-Year euros equivalent to 5.4 billion Then-Year dollars)
- Released the Request for Proposal for the Design and Development phase, including a Statement of Objectives (SOO).
- Established a formal joint activity to achieve interoperability between Joint STARS and the UK's ASTOR system.
- Provided our share of personnel to the AGS Support Staff (AGS3) at NATO Headquarters.
- Participated in AGS Capability Steering Committee meetings.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
(U) FY 2007/2008/2009 Plans:	0.000	41.412	41.466	42.858

(U) FY 2007 Plans and Accomplishments to date:
- Receive a formal proposal from industry that was compliant with the RFP, the SOO, and within the established cost ceiling. [COMPLETE]
- Evaluate the contractor proposal and started formal negotiations with a target completion date of March 2007. [COMPLETE]
- Complete contract negotiations and obtain contractor signature.
- Submit contract and Program Memorandum of Understanding (PMOU) for national staffing.
- Revise contract and PMOU as necessary.
- Secure Congressional approval to sign the MOU, authorizing NATO to commit to Design and Development contracts.
- Develop and implement plans to transition the NATO AGS Capability Steering Committee to a NATO AGS Management Organization (NAGSMO).
- Establish and staff a NATO AGS Management Agency (NAGSMA).

U) FY 2008 Plans:
- Execute Design and Development contract.
- Provide personnel to the NAGSMA.
- Designate U.S. Representative to the NAGSMO Board of Directors (BOD).
- Participate in affordability and technical Working Groups.
- Improve and expand NATO alliance relationships relative to the industrial co-development.
- Ensure ministerial and congressional support for AGS continues.

(U) FY 2009 Plans:
- Provide for a professional user interface to the NATO AGS program office (NAGSMA).
- Continue executing Design and Development Phase.
- Initiate planning for the Engineering & Manufacturing Development (EMD) Phase.
- Obtain additional funding as required to fully fund the EMD Phase.
- Participate in technical and operational Working Groups.
- Improve and expand industry and professional association with NATO allies.

OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)		Date: February 2007
APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 7	PE NUMBER AND TITLE **1001018D8Z – NATO Joint STARS**	PROJECT **P018**

- Address Congressional, GAO, IG Actions regarding program issues as they arise.
- Ensure effective oversight of the program is provided by continuing to participate in the NAGSMA and BOD.

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy Pending Department and Congressional approval by late FY 2007, the U.S. will sign a multi-national Program Memorandum of Understanding (PMOU) committing the U.S. government to NATO-derived shares of the approximately 31-month Design and Development Phase. The PMOU will support the contract and acquisition strategy developed by the NATO AGS Support Staff (AGS3) in Brussels. FY 2005 funds provided the U.S. share of a NATO AGS Risk Reduction Study and its share of the AGS3 personnel. An overall program cost ceiling of €3.3 billion (BY 2003) (~$5.4 billion TY) was established by the NATO Armaments Directors. This cost ceiling is primarily being achieved by deleting development of a second version of the radar for the UAV and using an Off-the-Shelf, Multi-Platform Radar Technology Insertion Program (MP-RTIP) equipped, Global Hawk to satisfy the NATO UAV requirement. Follow-on PMOUs will address subsequent program phases.

E. Major Performers Not Applicable.