Exhibit R-2, RDT&E Budget Item Justification						Date: February 2008	
Appropriation/Budget Activity RDT&E Defense Wide BA 06			R-1 Item Nomenclature: Training Transformation 0603757D8Z				
Cost ($ in millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	76.677	60.524	38.729	34.555	34.830	35.283	36.061
Joint National Training Capability, P758	43.260	39.668	23.599	24.127	25.014	25.446	25.961
Joint Training Capability Analysis of Alternatives (TCAoA), P759	9.052	10.214	3.686	0.746	0	0	0
Joint Combined Training Centre, P763	4.230	0	1.798	0	0	0	0
Joint Simulation Systems (JSS), P761	10.144	10.642	9.646	9.682	9.816	9.837	10.100
Joint Integrated Information Operations Range/JNTC (JIIOR), P762	9.991	0	0	0	0	0	0

A. **Mission Description and Budget Item Justification:**

These programs are part of a coordinated effort to develop and deploy capabilities for rapidly linking and integrating Live, Virtual, and Constructive (LVC) forces of Services, Combatant Commanders (COCOM), coalition, and other government agencies. These programs will create a realistic battlespace environment in which to train as a Joint Warfighting force to meet emerging mission requirements including the Long War. These investments support the Secretary of Defense's (SECDEF) Training Transformation (T2) initiative to enable and enhance Joint Warfighting readiness by training as we intend to fight. The elements associated with this coordinated effort consist of:

- Joint National Training Capability (JNTC)
- Training Capability Analysis of Alternatives (TCAoA)
- Joint Combined Training Centre (JCTC)
- Joint Simulation Systems (JSS)
- Joint Integration Information Operations Range (JIIOR)

JNTC: Initially established in 2003, JNTC continues to develop and integrate Advanced Training Technologies (ATT) into a seamless Joint training environment. JNTC establishes the overarching Joint framework and context necessary for COCOMs and Services to achieve a Joint training environment through an integrated network of training sites and nodes. JNTC provides the common standards, architecture, and development processes required to link joint training programs. By leveraging existing training programs or initiating specific actions, JNTC is providing credible opposing force capabilities, expanded access to assets typically unavailable to the training audience by integrating virtual or constructive representations of these capabilities, and furthering the integration of Joint Training objectives into Service training events, while capturing the objective data necessary to provide a complete and accurate after action review. These initiatives develop and

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enhance current and future Joint training capabilities.

TCAoA: The TCAoA effort focuses on comparing current training capabilities with training requirements in order to identify gaps in our current joint training capability, to identify alternatives for resolution and to assess the cost and effectiveness of these alternatives. Specifically, the TCAoA focuses on: (1) developing and integrating enhancements to the existing and programmed constructive simulations, (2) pursuing selected alternative training methodologies, (3) developing an innovative acquisition prototype, (4) developing solutions to implement recommendations from the Joint Staff's comprehensive study to re-engineer Joint training and (5) developing a clear management and oversight structure to meet future Joint training requirements. These efforts provide solutions to the 35 gaps and seams in Joint and Service training requirements identified by the COCOM's in the SECDEF 2004 TCAoA study. These efforts increase warfighter Joint training capabilities with improved constructive simulations and streamlined acquisition processes, leveraging industry training methodologies and technologies to provide on-demand Joint training tailorable to COCOM requirements for Joint Task Force headquarters staffs and individuals.

JCTC: At the July 2004 Australia/US Ministerial Consultations (AUSMIN), the SECDEF signed an Australian – United States Joint Statement of Principles of Interoperability and affirmed the development of a JCTC in Australia. This enables the linkage of JCTC to Department of Defense's (DoD) JNTC, leveraging each other's training capabilities and providing the environment to exercise Coalition mission essential tasks.

JSS: This effort provides warfighters with enhanced Joint Live, Virtual, and Constructive (JLVC) based training capabilities resident in the Joint Force Trainer Toolkit (JFTT) and was directed in 2003 with the SECDEF tasking U.S. Joint Forces Command (USJFCOM) with the responsibility for continued development of Joint Simulation Systems software. Investments made under the JSS program complete the transition and integration of selected residual JSS capabilities into the Toolkit. The JFTT is a set of capabilities, and "system certified" technologies that are interoperable and acceptable for usage within the Joint training environment. The JFTT is a one stop shop for Joint Exercise Support, Joint Doctrine, Joint Lessons Learned, Joint Distributed Learning, and Joint Modeling and Simulations for warfighter use.

JIIOR: Provides a secure, flexible, and seamless environment for the Services and Joint warfighters to test, train, develop tactics, and exercise simulated computer network attack using selected offensive electronic warfare capabilities. This environment enables the COCOM's warfighters to visualize non-kinetic weapons effects, understand the intricate and interactive effects generated by kinetic and non-kinetic weapons and achieve the same level of confidence and expertise in employing Information Operation weapons that they have with kinetic weapons. Funding for this effort transferred to Office of the Under Secretary of Defense (Intelligence) beginning in FY08.

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B. **Program Change Summary:**

	FY 2007	FY 2008	FY 2009
Previous Budget Estimates Submission	70.824	51.752	45.204
Current Budget Estimates Submission	76.677	60.524	38.728
Total Adjustments			
Congressional program reductions	0	-0.528	0
Congressional increases	0	9.300	0
Reprogrammings	7.600		-6.476
SBIR/STTR Transfer	-1.761		
Other	0.014		

FY 2007 Congressional Add of $7.6 for T2 Eglin Range.

T2 Eglin Range funding to developed a Live, Virtual, and Constructive Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE) Environment to allow realistic and repeatable Joint Training, Testing, and Experimentation for combating Weapons of Mass Destruction. Funding was incorrectly issued to the Navy and was not reprogrammed to Defense for execution until August 07. Funds were initially in a Navy funding line and reprogrammed to a Defense Wide account.

FY 2008 Congressional Adds $9.300

1. Agile Software Capability Intervention $1.600
2. JWFC Joint Training Blended Learning Initiative $2.000
3. Playas Mobile Command, Control and Communications Shelter $2.500
4. Playas Training and Research Center Joint Training Experiment $3.200

FY2009 Reprogramming of $6.397 to Operation and Maintenance to support Joint Training initiatives.

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C. **Other Program Funding Summary:**

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
P-1 Procurement Line Item No., Name: JNTC	9.282	15.990	16.322	16.611	17.062	17.505	17.857		110.629
C-1 MilCon Project No., Name									
Related RDT&E:									

D. Acquisition Strategy: Not Applicable

E. Performance Metrics:

The USJFCOM Joint WarFighting Center (JWFC) Joint Force Trainer Enterprise Resource Planning Board (JFT ERPB) established in FY07 reviews all RDT&E equities. The JFT ERPB consists of senior technical, operational, program manager, and stake holder representatives within the Joint Force Trainer Community. The board's responsibilities encompass merging and prioritizing technical training requirements. It apportions work to the RDT&E elements based on an assessment of where the work is best accomplished. The board will evaluate the efficacy of development efforts based on performance metrics and will vote on whether or not to continue the effort. This process will ensure the Joint Force Trainer capabilities development effort synchronizes with warfighter requirements. Performance metrics include, but are not limited to; time, money, realism, and fidelity as defined below:

- Time – Will the effort enable the Joint Force Trainer to prepare and execute training faster than current capabilities allow?
- Money – Will the effort enable the Joint Force Trainer to prepare and execute training at a more effective and efficient cost than current capabilities allow?
- Realism – Will the effort enable the Joint Force Trainer to create a training environment that is closer to the real world environment than current capabilities allow?
- Fidelity – Will the effort enable the Joint Force Trainer to create more detailed capabilities in the training environment than current capabilities allow?

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The ERPB is the strategic management forum where the outcomes of performance relative to our external customers, stakeholders, and strategic stewardship of resources are the focus of discussion. Program area owners have developed measures of effectiveness, identified near, and long term performance targets. Performance against the targets will be assessed and reported monthly and briefed quarterly to the ERPB board. To ensure transparency and credibility, performance measurement will also facilitate the formulation of a JWFC Joint Training End-of-Fiscal Year Performance Report.

Measures of effectiveness by project:

JNTC:

Short Term MOEs:

- Two capabilities are integrated into the Joint Trainer Toolkit per year that meets 60% of the Services' and COCOM's joint training objectives in JNTC-supported exercises.
- Costs using new capabilities are 85% of current training costs (# of deployed personnel and TDY travel costs, participating unit O&M cost, etc.) to achieve the same training and mission rehearsal objectives in JNTC-supported exercises.

Long Term MOEs:

- Fourteen capabilities are integrated into the Joint Trainer Toolkit that meets 90% of the Services' and COCOM's joint training objectives in JNTC-supported exercises.
- Costs using new capabilities are 75% of current training costs (# of deployed personnel and TDY travel costs, participating unit O&M cost, etc.) to achieve the same training and mission rehearsal objectives in JNTC-supported exercises.

TCAoA:

Short Term MOE's:

- One innovative acquisition strategy is developed that provides effective team training events at 85% of current training costs to achieve the same training and mission rehearsal objectives.
- Two innovative training prototypes are developed per year that allows training audiences to master 80% of training objectives.

Long Term MOEs:

- Four innovative acquisition strategies are developed that provide effective team training events at 65% of current training costs to

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achieve the same training and mission rehearsal objectives.

- Fourteen innovative training prototypes are developed that allows training audiences to master 90% of training objectives.

JSS:

Short Term MOE:

- Joint Rapid Scenario Generation provides capability in two years to reduce time to prepare Joint Simulation databases from a period measured in months to one measured in days.

Long Term MOE:

- Eliminate one of three Joint Simulation database tests.

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Cost ($ in millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Joint National Training Capability, P758	43.260	39.668	23.599	24.127	25.014	25. 446	25.961

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: DoD directed USJFCOM to establish the JNTC Advanced Training Technology (JNTC/ATT) to develop future training concepts and capabilities. The mission is to develop the robust RDT&E capabilities that integrate Live, Virtual, and Constructive (LVC) elements into a seamless Joint training environment. JNTC creates Joint warfighting conditions through a networked collection of interoperable training sites, ranges, and nodes that synthesize personnel, doctrine, and technology to deliver and achieve "Joint Context" for COCOM and Service training requirements. JNTC provides research and development (R&D) within an LVC distributed test-bed supporting the advancement of training technologies in the context of a Joint integrated battle space. The test bed operates as a continuous training R&D environment, providing the foundation for a distributed and deployable Mission Rehearsal System, integrating live Intelligence, Surveillance and Reconnaissance feeding the Common Operational Picture. These funds provide critical Joint/Coalition Service members and interagency partner's enhanced training to allow requisite enhancements to existing training systems, capabilities, and technologies. These enhancements improve training efficiencies and provide an integrated LVC environment. This capability precludes the necessity for conducting large-scale live exercises to achieve the SECDEF's T2 vision.

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

Cost ($ in millions)	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal cost	43.260	39.668	23.599
RDT&E Articles Quantity	0	0	0

FY2007 Accomplishments:

- Developed the Initial Capabilities Document for the Joint Rapid Scenario Generator (JRSG) by implementing, JRSG into the Joint Capability Integration Document System process.
- Designed, developed, tested and evaluated JRSG proof of concept.
- Prototyped a knowledge management framework by providing access to digital libraries and distributing to centers of excellence in support of Standing Joint Force Headquarters training and mission rehearsal.
- Developed a real world database and distribution system for geospatial intelligence data and force data sharing to facilitate training and mission rehearsal capability.
- Developed Opposing Forces (OPFOR) Threat Systems to include service instrumentation, interoperability standards, weapons models,

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simulated terrain, and virtual training capabilities.

- Established the JNTC/ATT Laboratory's initial infrastructure support to operate and maintain the robust RDT&E lab environment in support of the JNTC certification program. This certification program provides the "to be" standards and architecture identification, development, and support for multiple R&D projects in technical focus areas such as: networking, Joint Command and Control, instrumentation, data collection, after action review, opposing forces technologies, Live, Virtual, and Constructive technologies, knowledge management, information management, and training systems operations research.
- Prototyped, demonstrated, and began Initial Fielding of Joint After Action Review tool set.
- Established Joint Live, Virtual, and Constructive Testbed in the ATT Laboratory to support distributed simulation development with the Services.
- Agile Software Capability Intervention - Agile Software provided additional infrastructure and services necessary to reduce costs and increase responsiveness of software system and integration testing of the United States Joint Forces Command (USJFCOM) Joint Live Virtual Constructive (JLVC) training federation. This included program management, acquisition, certification and testing, and system engineering elements.
- Joint Warfare System (JWARS) provided a world-class core team of developers and knowledge brokers that develop, maintain, and field a joint campaign warfare model and simulation tool with the capacity to keep pace with the emerging challenges of the 21st century while retaining the analytical rigor originally implemented by Office of the Secretary of Defense.
- Playas Training and Research Center Joint Training Experiment developed and demonstrated a wireless instrumentation capability suitable for use in an urban training environment.
- Introduced the Joint Terrain Data Service, which provides the underlying simulated terrain data used by multiple Joint and Service simulations systems as part of the Joint Trainer Toolkit. This activity reduced training event support costs to Joint Forces Command, Combatant Commands and Service training elements by reducing or eliminating the need for duplicative terrain data producing services.
- Released enhancements to medical and logistics simulation capabilities within the Joint Live Virtual Constructive federation, enabling more robust and realistic training to Combatant Commands and Service training programs as part of the Joint Trainer Toolkit.

FY 2008 Accomplishments:

- Create new Modified Universal Joint Task architectures as based on lessons learned from Operation Enduring Freedom and Operation Iraqi Freedom focusing on intelligence task requirements. Maintain existing Joint Task Articles/Modified Universal Joint Task

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architectures as changes occur.

- Certify Mitigation Solutions to be implemented in FY08 and Service-nominated Joint-Live Virtual Construction systems in accordance with Operation Management Process Action Team approved plan.
- Identify and recommend courses of action for achieving greater levels of Joint Service interoperability in support of Mission Rehearsals and an integrated joint training Live, Virtual, and Constructive environment.
- Integrate instrumentation capabilities into Joint training environment.
- Enhance and integrate space domain representations into Joint training environment.
- Develop and integrate Chemical, Biological, Radiological, Nuclear, and Explosive capabilities into the Joint training environment.
- Perform RDT&E in new and emerging technologies such as immersive virtual technologies, story driven training, light simulation/federations, massive-multiplayer online games, training objective driven simulations, embedded training, and Joint community unique simulations.
- Perform migration testing of training applications to the Global Information Grid infrastructure.
- Development of Opposing Forces (OPFOR) Capabilities: Continue development of Multi-Spectral Threat Emitter and Man Portable Air Defense Systems. Transition initial variants into production and training events. Initiate development support to the Joint Threat Emitter Block II upgrade. Develop Battlefield Communications Simulation system upgrades that address threats in the Maritime environment. Transition procured systems into training events. Continue Virtual Joint Suppression of Enemy Air Defenses development, transition the capability onto the Information Operations (IO) Range network and participate in appropriate exercises. Provide operability enhancements, expanded traffic simulation and detailed behavioral models for the Information Operations Traffic Generator. Expand use throughout the IO Range Network. Continue to develop concealment, countermeasures and decoy (CCD) equipment capabilities and technologies. Transition these CCD technologies to procurement and training events.
- Joint Instrumentation Capabilities: Develop air – ground interoperability functional requirements and initial Joint Multiple Independent Level of Security roadmap.
- Live, Virtual, and Constructive (and their integration) Capabilities: Begin development of net centric service oriented architecture for joint training in collaboration with the test community.
- Information/Knowledge Management Capabilities: Continue the development of the collaborative information environment tools, ensuring transition to the Net Centric Enterprise Solution, when available.
- Training System Capabilities: Field prototypes of Joint Terminal Control Training and Rehearsal System Virtual Trainer.

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- After Action Review Capabilities: Demonstrate/Test and transition Joint After Action Review Resource Library spiral 2 Capability to operational use.
- Information/Knowledge Management Capabilities: Integrate the Collaborative Information Environment (CIE) based on the approved Net Centric products. Ensure that Net Centric Enterprise Services and the CIE integrate to provide a global collaborative planning capability for joint training. Develop an Enterprise capability from a Net Centric model providing the capability to track Joint requirements, cradle to grave.
- Continue research, planning and engineering to transition Joint Training and Experimentation Network (JTEN) to NextGen JTEN and complete Global Information Grid (GIG) alignment of the JTEN.
- Continue research to identify Commercial Off-The-Shelf/Government Off-The-Shelf alternative means of extending the JTEN to remote/austere locations and locations where security constraints do not permit persistent installation of JTEN service delivery points.
- Pursue research and development to mitigate or resolve identified Joint Training cross domain information sharing issues/shortfalls/gaps.
- Release version 1.0 of the Joint Multi-Resolution Model Federation / NATO Training Federation in February, 2008 as part of the Joint Training Toolkit. This capability will facilitate seamless training at both the tactical and operational levels of war, enhancing the training experience while reducing event simulation support costs.
- Release version 1.0 of the Joint Low Overhead Driver simulation which, as part of the Joint Training Toolkit, will increase the number of simulation objects within the training synthetic environment while reducing the number of required simulation operators and equipment. This will allow for a more realistic representation of the battle space, to include hostile, friendly and neutral weapon systems, personnel and equipment.

FY 2009 Plans:

- Develop robust observer training portable digital collection capability.
- Integration of additional Service feedback capabilities for joint feedback including missile defense analysis capability.
- Develop a light weight, low cost ground instrumentation expeditionary capability.
- Develop initial assessment for a common joint sensor network capability for the training ranges.
- Continue to enhance and integrate space domain representations into Joint training environment.
- Continue to develop and integrate Chemical, Biological, Radiological, Nuclear, and Explosive capabilities into the Joint training environment.

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- Continue to perform RDT&E in new and emerging technologies such as immersive virtual technologies, story driven training, light simulation/federations, massive-multiplayer online games, training objective driven simulations, embedded training, and Joint community unique simulations.
- Continue to perform migration testing of training applications to Global Information Grid infrastructure (GIG).
- Complete transition of Messaging, Collaboration, Discovery, Mediation, and Information Assurance/Security Net Centric Enterprise Service (NCES) for training applications to GIG Infrastructure.
- Continue to perform migration testing and transition of Application, Enterprise Service Management, Storage, and User Assistant NCES for training applications to GIG Infrastructure.
- OPFOR Capabilities: Upgrade Battlefield Communications Simulation System (BCSS) to provide additional BLUFOR intelligence, surveillance & reconnaissance (ISR) training, tactics & procedures (TTPs) opportunities. Transition upgraded systems into training events. Provide Maritime Threat System development for emerging capability in the littoral environment. Fully integrate Virtual Joint Suppression of Enemy Air Defenses development into the IO Range network and participate in an increasing number of exercises. Develop traffic simulation algorithms and detailed behavioral models for the Information Operations Traffic Generator. Expand use throughout the IO Range Network. Initiate Chemical, Biological, Radiological, Nuclear and Explosive (CBRNE) OPFOR Capabilities development. Continue concealment, countermeasures and decoy CCD) equipment capabilities and technologies development. Procure these CCD technologies and transition them to training events. Continue development of Multi-Spectral Threat Emitter full effective radiated power (ERP), reactive response, mobility and remote command & control (C2) capabilities. Transition these upgraded variants into production and training events. Continue development support to the Joint Threat Emitter Block II upgrade.
- Continue the development of the collaborative information environment tools, ensuring transition to the Net Centric Enterprise Solution, when available. Develop transition plans for the developed systems to integrate into Net Centric Enterprise Service solutions for Information/Knowledge Management Capabilities.
- Complete research, planning and engineering to transition JTEN to NextGen JTEN and complete GIG alignment of the JTEN.
- Complete research to identify customer off the shelf/government off the shelf alternative means of extending the JTEN to remote/austere locations and locations where security constraints do not permit persistent installation of JTEN service delivery points.
- Continue research and development efforts to mitigate or resolve identified Joint Training cross domain information sharing issues/shortfalls/gaps.

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- Plan to release version 2.0 of the Joint Multi-Resolution Model Federation / NATO Training Federation as part of the Joint Trainer Toolkit. This capability will improve tactical-to-operation level of warfare interactions and incorporate additional logistics and intelligence functionality.
- Plan to release Joint Rapid Scenario Generation target and infrastructure service as part of the Joint Trainer Toolkit. This activity will reduce training event support costs to Joint Forces Command, Combatant Commands and Service training elements by reducing or eliminating the need for duplicative target and infrastructure data producing services.

C. OTHER PROGRAM FUNDING SUMMARY: The Joint National Training Capability program also includes funds $57M of O&M and $16M of Procurement funding for FY08.

D. ACQUISITION STRATEGY: Not applicable.

E. MAJOR PERFORMERS:

Recipients	City/State	Description
General Dynamics	Suffolk, VA	Joint Advanced Training Technology Lab (JATTL) support, Award date Feb 2004

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Cost ($ in millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Joint Training Capability Analysis of Alternatives (TCAoA), P759	9.052	10.214	3.686	0.746	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Joint Force Trainer supports development capabilities in Joint simulations to eliminate training gaps identified by the COCOMs and in accordance with SECDEF's T2 objectives. In accordance with the Unified Command Plan (2004), USJFCOM JWFC leads the development and implementation of system architectures that directly support distributed Joint training requirements of the other COCOMs, Joint Task Forces, and Defense Agencies. The underlying premise of TCAoA centers on privatization of training support and development with the competitive market forces driving the development of technologies to reduce the cost of training. The creation of a JFCOM Joint Oversight Board establishes a governance process to review the effectiveness of the tools and the providers. Management of the toolkit, which is a set of capabilities, and system certified technologies that are interoperable and acceptable for usage within the Joint training environment. This Joint Force Trainer Toolkit supports Joint Exercises, Doctrine, Lessons Learned, Distributed Learning and Modeling & Simulation will be a government-led Consortium with industry and academia that ensures the tools in the toolkit comply with the requirements of the common architecture. A number of emerging technologies from Industry, Government and Academic sources that offer the greatest potential to reengineer Joint training will be identified for training use. These technologies include Light Simulations, Light Federations, Story-Driven Training, Massively-Multi-player Games, Training Objective Driven Simulation, Embedded Training, and Joint Community Unique Simulations.

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

Cost ($ in millions)	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal cost	9.052	10.214	3.686
RDT&E Articles Quantity	0	0	0

FY 2007 Accomplishments:

- Analyzed the National Guard Bureau's training and certification requirements to train its 17 Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE) Enhanced Response Force Package teams and included requirements in NGB training package.
- Developed an innovative acquisition strategy and a performance based work statement to support the National Guard Bureau with an innovative training package for its role for in Homeland Defense, specifically in CBRNE incident management.
- Established web-based Order of Battle Services editor to distribute data preparation and review to shorten Joint Event Life Cycle (JELC) process and reduce associated costs.

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FY 2007 Accomplishments:

- Integrated Joint Integrated Database Production System Terrain Production System with Geospatial Intelligence Management proof of principle.
- Automated terrain source data acquisition and management to reduce cost and improve source data quality.
- Extended range of terrain export formats to include Joint Semi-Automated Forces and Army OneSAF Objective System to improve interoperability and minimize redundant competing efforts.
- Developed an initial capability for Force Lay-down by integrating order of battle data with terrain data.
- Developed a prototype capability for correlating targeting data from intelligence databases with terrain data to improve interoperability.
- Increased scale of the Joint, Live, Virtual, and Constructive Federation to support an exercise that trains all levels.
- Researched the M&S tools available and populated the web-based tool vendor's site for use by government, academia, and industry that could be used in satisfying requirements for implementation and evaluation of training prototypes.
- Analyzed Light Simulations and Intel Model.
- Provided Joint Training Facilitator Specialist (JTFS) to COCOM staffs to support Joint Training Program (Individual /Staff training) services. The primary function is to provide joint training facilitation for the commander within the four phases of the Chairman of the Joint Chiefs of Staff Joint Training System: Requirements, Plans, Execution, and Assessment. JTFS also provide expertise on the policy, plans, procedures, actions, and milestones necessary for efficient conduct of COCOM individual and staff joint training in accordance with reference documents.

FY 2008 Accomplishments:

- Develop a comprehensive innovative collective training package for a unit comprising a Chemical, Biological, Radiological, Nuclear, and Explosive Enhanced Response Force Package (CERFP).
- Develop and deliver a training package through an innovative acquisition strategy to recertify a 186 man National Guard, CERFP unit headquartered in Austin, Texas in May 2008.
- Provide additional CERFP recertification training to the CERFP teams at Columbus, Ohio [March], Omaha, Nebraska [June], and Arden Hills, Minnesota [September].
- Continue to provide Joint Training Facilitator Specialist to COCOM staffs to support development, evaluation, and integration of
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innovative and emerging training technologies into COCOM individual and staff joint training programs.

- Deliver first Innovative Training Prototype: Virtual Culture Awareness Language Trainer (VCALT). VCALT will incorporate the use of advanced gaming technology enablers such as avatars, intelligent tutors, storytelling, remediation, and Level 4 interactivity on Joint Knowledge Online (JKO). Purpose of VCALT is to train Joint, Interagency, Intergovernmental, and Multinational players deployed to United States Central Command (CENTCOM) AOR on foreign culture awareness. VCALT will allow users to use their basic language skills to virtually experience selected culture scenarios in a web-based immersive learning environment.
- Deliver second Innovative Training Prototype: Interagency Coordination Training with United States Northern Command (USNORTHCOM). This training prototype focuses on Operational Planning and employs a four step template that bridges Individual to Collective Training by including a distributed web based immersive learning environment for Section Training and Cross Staff Section Training. Prototype directly addresses validated DOD training capability gaps and seems to improve interagency and multi-national participation during training exercises.
- Enhance targeting and terrain data correlation.
- Improve capabilities for integrating order of battle, targeting and terrain data.
- Extend Geospatial Integrated Data Management enterprise network to promote terrain data sharing across DoD in support of all M&S initiatives.
- Develop a distributed data services capability designed to reduce exercise costs for the Department of Defense.
- Establish open standards for data models and federation object models to reduce integration costs.
- Develop prototype COCOM training capabilities based on the following technologies; Massively Multiplayer Games, Story-Driven Training, and Light Simulations/Federations.
- Develop a use case for training United States Africa Command (AFRICOM) staff in mission rehearsal using non-kinetic scenarios.
- Develop criteria for training situations and metrics for evaluation of training.

FY 2009 Plans:

- Provide CERFP recertification to the CERFP teams located in Ellenwood, Georgia, Ft Pickett, Virginia and Camp Dawson, West Virginia.
- Enhance emerging technologies such as immersive virtual technologies, story driven training and massive-multiplayer online game technology to develop two new prototypes for Joint community unique simulations in support of TC AoA gaps.

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- Enhance existing web-based, immersive technologies simulations to enable advanced problem solving and leadership skills for the Joint, Interagency, Intergovernmental and multi-national players deployed in Global War on Terrorism.
- Develop an over-arching gaming technology strategy that is joint training focused, yet, coordinated with Service training capability requirements and R&D plans to identify future innovative prototypes and acquisition strategies (long term Measures of Effectiveness).
- Enhance information operations by modeling computer-network attack and defense.
- Implement a psychological operations capability in the Joint, Live, Virtual, and Constructive Federation.
- Develop architecture for a NATO training federation, and implement a live, virtual, and constructive capability to support NATO events.
- Establish data services for terrain, targeting, and infrastructure, to provide faster and higher-fidelity mission rehearsals.
- Deliver COCOM gaming technology and analyze the effectiveness of using Massively Multiplayer Games, Story-Driven Training, and Light Simulations/Federations for COCOM training requirements.

C. OTHER PROGRAM FUNDING SUMMARY: Not applicable.

D. ACQUISITION STRATEGY: Not applicable.

E. MAJOR PERFORMERS:

Recipients	City/State	Description
TBD	TBD	Joint Training Data Services

Exhibit R-2, RDT&E Budget Item Justification		Date: February 2008
Appropriation/Budget Activity RDT&E Defense Wide BA 06		R-1 Item Nomenclature: Training Transformation 0603757D8Z
TBD	TBD	Comprehensive training package supporting the National Guard Bureau in the expansive mission as Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE) incident management for Homeland Defense
Northrop Grumman	Suffolk, VA	Virtual Culture Awareness Language Trainer (VCALT) and Interagency Coordination prototypes.

Exhibit R-2a, RDT&E Budget Item Justification						Date: February 2008	
Appropriation/Budget Activity RDT&E Defense Wide BA 06			R-1 Item Nomenclature: Training Transformation 0603757D8Z				
Cost ($ in millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Joint Combined Training Centre, P760	4.230	0	1.798	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: At the July 2004 Australia/US Ministerial Consultations (AUSMIN), the SECDEF signed an Australian – United States Joint Statement of Principles of Interoperability and affirmed the development of a Joint/Combined Training Centre (JCTC). The end-state for the JCTC is to enhance coalition training in Joint/Combined mission essential tasks in order to assess operational capability and preparedness, improve interoperability, facilitate capability development and develop recommended solutions, and enhance regional security. The JCTC will link DoD's Joint National Training Capability (JNTC) as part of the Global Joint Training Infrastructure via United States Pacific Command's Pacific (USPACOM) Gaming and Simulation Facility and eventually USPACOM Pacific Warfighting Center as a cooperative collection of training sites, nodes, simulations, and events. This strategic initiative has an AU$23 million commitment from Australia that requires U.S. funding enhancement to prevent possible withdrawal of Australia from the project thus reducing coalition readiness in emerging world situations.

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

Cost ($ in millions)	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal cost	4.230	0	1.798
RDT&E Articles Quantity	0	0	0

FY2007 Accomplishments:

- Commissioned a Program Study of desired capabilities as described in the JCTC scoping study. This study established the Modeling and Simulation baseline systems to support Australian participation with the US Joint training community, the technical requirements for US-Australian network interconnection and finally discover the policy and technical requirements to satisfy Multinational Information Sharing for authorizing network interconnection.
- Established connectivity between USPACOM and Australia JCTC Management Center.
- Prepared instrumented ranges as described in the JCTC scoping study to support a proof of concept demonstration.
- Leased and transported supporting architecture for a deployable and/or permanent live, virtual, and constructive environment to support proof of concept demonstration.

FY 2008 Accomplishments: Not applicable.

Exhibit R-2a, RDT&E Project Justification	Date: February 2008
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FY 2009 Plans:

- Advance the US-Australia Joint Combined Training Capability (JCTC) by researching, developing, designing, and testing of the JCTC which will include: Australian range instrumentation, conducting environmental studies, refining and implementing AS / U.S. training network architecture, and enhancing or modifying simulation systems for bilateral use.

C. OTHER PROGRAM FUNDING SUMMARY: Not applicable.

D. ACQUISITION STRATEGY: Not applicable.

E. MAJOR PERFORMERS:

Recipients	City/State	Description
SPAWAR,PACOM	Canberra, Australia and Hawaii	Fund manpower for engineering, technical support, consulting services and project management in support of JCTC research.

Exhibit R-2a, RDT&E Budget Item Justification						Date: February 2008	
Appropriation/Budget Activity RDT&E Defense Wide BA 06			R-1 Item Nomenclature: Training Transformation 0603757D8Z				
Cost ($ in millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Joint Simulation Systems (JSS), P761	10.144	10.642	9.646	9.682	9.816	9.837	10.100

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Secretary of Defense tasked USJFCOM with the responsibility for maintaining JSS software and establishing a Software Support Facility (SSF) at the Joint Warfighting Center (JWFC), pending the results of a Training Capabilities Analysis of Alternatives (TCAoA). As a result of the TCAoA findings, JWFC will fund development capabilities in Joint simulations to eliminate COCOM identified training gaps. JWFC provides the Joint training environment with the ability to insert emerging research and development technology to enhance existing systems in Joint, Live, Virtual and Constructive (JLVC) and Joint Multi-Resolution Model training architectures. In accordance with Unified Command Plan 04, USJFCOM leads the development, integration, and operation of systems and architectures that directly support distributed Joint training requirements of other COCOMs, Joint Task Forces, and Defense Agencies.

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

Cost ($ in millions)	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal cost	10.144	10.642	9.646
RDT&E Articles Quantity	0	0	0

FY 2007 Accomplishments:

- Increased the size, scope, depth and fidelity of the scenarios for the Joint Live, Virtual, and Constructive Training Federation to support a Combatant Command Exercise that trained all personnel for the Combatant Commander to the individual soldier. The JLVC is an entity-based federation comprised of multiple service representation models, intelligence models, a logistics model, virtual simulators, live force instrumentation systems, and simulation to Command and Control systems interfaces.
- Produced exportable version of the Joint Multi-Resolution Model.
- Developed the capability to model civilian populations and infrastructure to represent non-kinetic effects within a Stability and Support Operation.
- Developed a weather model for the Joint, Live, Virtual, and Constructive training federation to support natural disaster scenarios.
- Enhanced logistics modeling-and-simulation capabilities to fully support global deployment requirements of U.S. Transportation Command.
- Increased air and maritime fidelity for the Joint Theater Level Simulation to improve training for combatant and component commands.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2008
Appropriation/Budget Activity RDT&E Defense Wide BA 06	R-1 Item Nomenclature: Training Transformation 0603757D8Z

- Enhanced communications between simulations and command, control, communications, computers, and intelligence systems, which reduce exercise costs.
- Enhanced asymmetric-threat and urban-operations modeling to support combatant commands' joint training for the Global War on Terrorism.

FY 2008 Accomplishments:

- Enhance the Joint Conflict and Tactical Simulation, Low Overhead Driver to reduce exercise operation costs.
- Incorporate chemical, biological, radiological, and nuclear effects into the Joint, Live, Virtual, and Constructive Federation.
- Enhance electronic warfare, or jamming, in the Joint, Live, Virtual, and Constructive Federation.
- Implement a civilian infrastructure model in the Joint Theater Level Simulation.
- Provide distributed data services to reduce exercise costs for the Department of Defense.
- Establish open standards for data models and federation object models to reduce integration costs.
- Incorporate USJFCOM's Joint Experimentation directorate with the U.S. Army non-kinetic effects model into the Joint, Live, Virtual, and Constructive Federation.

FY 2009 Plans:

- Enhance information operations by modeling computer-network attack and defense.
- Implement a psychological operations capability in the Joint, Live, Virtual, and Constructive Federation.
- Establish data services for terrain, targeting, and infrastructure, to provide faster and higher-fidelity mission rehearsals.

C. OTHER PROGRAM FUNDING SUMMARY: Not applicable**.**

D. ACQUISITION STRATEGY: Not applicable

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2008
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E. MAJOR PERFORMERS:

Recipients	City/State	Description
Lawrence Livermore	Suffolk, VA	Joint Conflict and Tactical Simulation (JCATS)
Northrop Grumman	Suffolk, VA	Joint Support Team/JSSF Contract Support
Northrop Grumman	Orlando, FL	Joint Support Team/JDIF Contract Support
Rolands&Associates	Monterey, CA	Joint Theater Level Simulation (JTLS)

Exhibit R-2a, RDT&E Budget Item Justification						Date: February 2008	
Appropriation/Budget Activity RDT&E Defense Wide BA 06			R-1 Item Nomenclature: Training Transformation 0603757D8Z				
Cost ($ in millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Joint Integrated Information Operations Range/JNTC (JIIOR), P762	9.991	0	0	0	0	0	0

JIIOR was transferred to Support Information Operations Capability PE 0303166D8Z, starting in FY 2008.

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The National Military Strategy of the United States stresses the importance of integrating Information Operations (IO) capabilities for the success of Joint Operations and Decision Superiority. "Assuring information systems in the face of attack and conducting effective Information Operations" was one of the six critical operational goals in DoD's transformation efforts (2001 Quadrennial Defense Review). In addition, the DoD IO Roadmap, signed on 30 October 2003, explicitly identified DoD's need for the IO Range. The FY04-09 Defense Planning Guidance stated the need to expand IO training and education for the developing cadre of IO professionals and provide an environment for analysis, testing, training, combat assessments, and measures of effectiveness for more reliable IO capabilities. Deputy SECDEF Memorandum on the IO Range signed 18 November 2005 established the requirement for creating a cooperative information operations range among military services under the leadership of USJFCOM.

The basis of the functional structure of the IO Range is the integration of existing ranges, laboratories, information warfare centers, and other Government facilities that currently support IO test, training, exercise, and experimentation events. Capabilities at the selected sites will be securely connected and integrated into IO Range. A key feature of this concept is the persistent, secure connection that links the sites together, allowing the exchange of data and the visualization of effects as capabilities are employed. Creation of a "virtual range" based on persistent connections significantly reduces the amount of lead-time required to set up each new warfighter event. The long-term goal for the IO Range is to be a full spectrum IO Range, supporting all the disciplines of IO Operational Security, computer network operations, electronic warfare, psychological operations, and military deception.

In short, the IO Range provides an environment enabling the Services and COCOMs to visualize non-kinetic weapons effects, understand the intricate and interactive effects generated by kinetic and non-kinetic weapons, and achieve the same level of confidence and expertise in employing IO weapons that they have with kinetic weapons.

Exhibit R-2a, RDT&E Budget Item Justification			Date: February 2008
Appropriation/Budget Activity RDT&E Defense Wide BA 06		R-1 Item Nomenclature: Training Transformation 0603757D8Z	
B. ACCOMPLISHMENTS/PLANNED PROGRAM:			
Cost ($ in millions)	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal cost	9.991	0	0
RDT&E Articles Quantity	0	0	0

FY 2007 Accomplishments:

- FY07 Events executed: Terminal Fury 07, Red Flag (AF), Alternate Current (AF), Talisman Saber 07 Part A (USPACOM), Mission Employment (AF), Talisman Saber 07 Part B (USPACOM), Pirate's Dagger (STRATCOM, JFCOM J9), Virtual Customer.
- Integrated additional events (COCOM, Service and Testing) to meet mission requirements.
- Established 15 Service Delivery Points and or Transportable Service Delivery Points at Service, OCONUS, Coalition, and other government agency sites.
- Expanded the IO Range backbone beyond the Defense Research and Engineering Network (DREN) to include JTEN and Energy Science Network
- Implemented back-up and recovery redundancy systems for Network Operations Center (NOSC).
- Began development of an alternate NOSC.
- Began implementation of event specific visualization capabilities.
- Pursued Oracle’s Cross-Domain Security Solution framework.
- Processed over 60 requirements submitted by COCOMs, Services, and other government agencies for use of the IO Range.
- Established and matured the Requirements Analysis Group, Requirements Core Group, and Requirements Working Group.
- Developed and refined Systems Security Authorization Agreement for the IO Range.
- Received DREN Authorization to Operate certification.
- Established an IOR COMSEC program.
- Participated in Red Team/Blue Team evaluation.
- Established personnel, physical, and AIS self-inspection checklists.
- Participated in Phase 1 assessment by National Assessment Group.
- Began work on spiral development for Electronic Warfare, Computer Network Defense and Psychological Operations.
- Established a Senior Advisory Group and Joint Integrated Process Team.

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2008
Appropriation/Budget Activity RDT&E Defense Wide BA 06	R-1 Item Nomenclature: Training Transformation 0603757D8Z

FY 2008 Accomplishments: Not applicable**.**

FY 2009 Plans: Not applicable.

C. OTHER PROGRAM FUNDING SUMMARY: Not applicable**.**

D. ACQUISITION STRATEGY: Not applicable.

E. MAJOR PERFORMERS:

Recipients	City/State	Description
Booz Allen and Hamilton	Suffolk, VA	Manage implementation and operation of the IO Range.