Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 6: *RDT&E Management Support*				R-1 ITEM NOMENCLATURE PE 0804758N: *Service Support To JFCOM, JNTC*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	4.983	4.180	4.260	0.000	4.260	4.355	4.453	4.573	4.687	Continuing	Continuing
3152: *Service Support to JFCOM/ JNTC*	4.983	4.180	4.260	0.000	4.260	4.355	4.453	4.573	4.687	Continuing	Continuing

A. Mission Description and Budget Item Justification

Per the FY 2005 National Defense Authorization Act, Navy JNTC RDT&E is managed by US Fleet Forces Command (USFF) Joint & Sustainment Branch (N71) from P/E 0804758N. This management reflects the decentralized execution of JNTC RDT&E from JFCOM. Throughout the FYDP, these funds will continue to be managed and executed by USFF N71.

The Navy continues to develop joint training technologies that will play a crucial role in it's ability to address current and future joint operational training requirements. Navy program activities include conducting research, development, test and evaluation and cross-service architecture certification on Navy capable systems, developing architectures and roadmaps to ensure that service instrumentation follows a common standard, and researching and assessing Navy mission rehearsal, Joint Semi-Automated Forces (JSAF), JNTC JLVC FOM Interoperabilities, Remote Interface Control, Virtual Communications Multi-Modal Interface, and Coalition / Inter-Agency integration requirements.

The Navy will further develop capabilities that integrate live, virtual, and constructive elements into a seamless joint training environment. Using a scientific and phased approach, Navy will leverage and research new technologies and methods, based upon focused joint operational training requirements, that provide a crucial technology-based foundation supporting all current and "to be" Navy joint training capabilities. Available commercial-off-the-shelf (COTS) and government-off-the-shelf (GOTS) networked information technologies and collaborative planning tools will be leveraged to provide improved net-centric joint training capability. Navy will lead the collaboration process to identify, collect and validate the requirements in order to design and develop the modeling and simulation capabilities that address the shortfalls in current abilities to support Joint Task training to standards.

The Navy JNTC RDT&E Program efforts directly support the Unified Command Plan (UCP) series and is aligned with the DoD Information Operations (IO) Roadmap.

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B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	5.134	4.197	0.000	0.000	0.000
Current President's Budget	4.983	4.180	4.260	0.000	4.260
Total Adjustments	-0.151	-0.017	4.260	0.000	4.260
• Congressional General Reductions		-0.017			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.151	0.000			
• Program Adjustments	0.000	0.000	4.260	0.000	4.260

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
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COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3152: *Service Support to JFCOM/ JNTC*	4.983	4.180	4.260	0.000	4.260	4.355	4.453	4.573	4.687	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

BASE REQUEST:

Navy Warfare Development Command (NWDC) provides dedicated Joint Semi-Automated Forces (JSAF) software via development, configuration management, verification and validation and engineering management to ensure that Fleet and Joint requirements are incorporated. NWDC also supports the development of standards in networking, simulation federation, and tactical system interfaces for Fleet Synthetic Training (FST) interoperability to meet training objectives.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
JSAF Improvement Program	2.883	2.400	2.436	0.000	2.436
FY 2009 Accomplishments: In FY 2009, the programmed improved AGEIS representation supporting C2BMC in support of Integrated Air & Missile Defense for Terminal Fury '09. Reduced performance limitations in the generation of shipping and surface clutter in support of Fleet Synthetic Training -Joint. Improved the theater ballistic missile model for the short range missiles used authoritative data from the Missile and Space Intelligence Center (MSIC), in support of FST-J and COCOM events. The JNTC/JLVC Navy Training FOM supported JLVC 2.1 acceptance testing; provided integration support for Missile Defense Agency (MDA) and STRATCOM.					

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Fleet Synthetic Training (FST) utilizes interoperable shore-based and ship-embedded simulation and stimulation systems linked by distributed networks, using JSAF as the core constructive environment. FST capability shortfalls addressed in FY10: BMD integration with live system components, IO; Maritime Interceptions/MDA; IWO, /EW;Emergent Requirements. The JLVC NCTE FOM Development program is the primary means of providing a persistent and interoperable network among the Navy, Joint, and Coalition federation components. *FY 2011 Base Plans:* Navy will further develop capabilities to address ASW improvements, information operations, BLUFOR capability representation including Littoral Combat Ship (LCS), P-8A, Surface Warfare Enterprise Advanced Capability Build (ACB) - 12/14 development and integration and emergent threats. Navy will further address additional Coalition Partner Integration, LCS Shore Based Training Facility (SBTF) integration, Combined Armed Forces (CAF) -Distributed Mission Operations (DMO) integrations and Korean Simulation Battle Center (KSBC) integration.					
JNTC/JLVC Navy Training FOM Support *FY 2009 Accomplishments:* In FY 2009, the programmed improved AGEIS representation supporting C2BMC in support of Integrated Air & Missile Defense for Terminal Fury '09. Reduced performance limitations in the generation of shipping and surface clutter in support of Fleet Synthetic Training -Joint. Improved the theater ballistic missile model for the short range missiles used authoritative data from the Missile and Space Intelligence Center (MSIC), in support of FST-J and COCOM events. The JNTC/JLVC Navy Training FOM supported JLVC 2.1 acceptance testing; provided integration support for Missile Defense Agency (MDA) and STRATCOM.	2.100	1.780	1.824	0.000	1.824

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Fleet Synthetic Training (FST) utilizes interoperable shore-based and ship-embedded simulation and stimulation systems linked by distributed networks, using JSAF as the core constructive environment. FST capability shortfalls addressed in FY10: BMD integration with live system components, IO; Maritime Interceptions/MDA; IWO, /EW;Emergent Requirements. The JLVC NCTE FOM Development program is the primary means of providing a persistent and interoperable network among the Navy, Joint, and Coalition federation *FY 2011 Base Plans:* Navy will further develop capabilities to address ASW improvements, information operations, BLUFOR capability representation including Littoral Combat Ship (LCS), P-8A, Surface Warfare Enterprise Advanced Capability Build (ACB) - 12/14 development and integration and emergent threats. Navy will further address additional Coalition Partner Integration, LCS Shore Based Training Facility (SBTF) integration, Combined Armed Forces (CAF) -Distributed Mission Operations (DMO) integrations and Korean Simulation Battle Center (KSBC) integration.					
Accomplishments/Planned Programs Subtotals	4.983	4.180	4.260	0.000	4.260

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

1) Navy Warfare Development Command (NWDC) will produce one JSAF software release to include documentation; will design and implement upgrades to JSAFconsistent with approved requirements and CRs and document the effects of JSAF capabilities (robustness) and stability. Will design, implement, test, and integrate JSAF enhancements in accordance with requirements.

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2) NWDC will produce one Navy Training FOM (NTF) release to include applicable documentation updates for the Guidance, Rational, and Interoperability Manual (GRIM) and Federation Agreement document (FAD). Will implement JSAF capability enhancements to support evolving joint and Coalition training requirements.

3) Facilitate integration by providing dedicated support to the effort, improving the quality of participation and documentation of Navy efforts in the JNTC. Refine and mature the Navy Training Federation Object Model (NTF), it is improving interoperability and integration with other services and the Joint community. Provides a standardized Federation Object Model (FOM) for integration across the Navy training simulations.

4) The multi-tiered technology approach currently implemented in Joint distributed exercises presents challenges to asset control and monitoring. collective system control is sparse at best. Emerging research in the area of global control architectures and mechanisms is advancing the state of the art in communication network/ system control. A current advanced research initiative, Remote Interface Control (RIC), has established an architecture capable of controlling the five layers of the communications network infrastructure that must be addressed as Joint and multi-national events continue to expand: (1) live and virtual radio control, (2) Internet Protocol network control, (3) security administration and control, (4) system health, and (5) support services.

5) Current Joint Live-Virtual-Constructive (JLVC) and other federation simulation distribution is accomplished by tying simulation data to multicast groups. This is neither a scalable solution nor is it an effective one as federates are not able to publish and subscribe with fine enough precision. The Simulation Aware Software Router will address this shortcoming, and additionally provide a flexible solution for federating heterogeneous networks and on-the-wire protocols without forcing all federates onto a single, uniform, lowest common denominator solution for each training event. Ultimately, a simulation aware router will allow simulation users to optimize the network for both simulation scalable traffic and for voice and Command, Control, Communications, (Computers), Intelligence (C4I) traffic.

6) Naval aviation training components will require the ability to transport multi-modal (e.g. secure, non-secure, coalition, etc.) voice communication simultaneously on the Navy Continuous Training Environment (NCTE) and other networks during Joint fleet exercises. As the Navy Aviation Simulation Master Plan (NASMP) integrates within the NCTE and other Joint training environments, multi-modal virtual communication technology is required for Naval aviation components to participate in multi-national, multi-service, and fleet coalition training events.