Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy										DATE: February 2012	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*							
COST ($ in Millions)	**FY 2011**	**FY 2012**	**FY 2013 Base**	**FY 2013 OCO**	**FY 2013 Total**	**FY 2014**	**FY 2015**	**FY 2016**	**FY 2017**	**Cost To Complete**	**Total Cost**
Total Program Element	99.704	54.072	108.871	-	108.871	67.139	46.567	47.337	48.185	Continuing	Continuing
2208: *CVN 21*	30.444	27.817	36.673	-	36.673	37.212	37.685	38.283	38.947	Continuing	Continuing
3216.: *Tactical Support Center-Integration*	8.507	2.110	9.600	-	9.600	4.593	4.654	4.728	4.817	Continuing	Continuing
4004: *EMALS*	59.135	22.418	60.861	-	60.861	23.568	2.440	2.507	2.568	Continuing	Continuing
4005: *In-Service Carrier Systems Development*	1.618	1.727	1.737	-	1.737	1.766	1.788	1.819	1.853	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Navy unique program addresses all technology areas associated with Navy/Marine Corps aircraft operations aboard ships. The program includes:

- (2208) - Development of ship hull, mechanical, propulsion, electrical, aviation, and combat support systems, subsystems and components to significantly improve aircraft carrier affordability, manpower requirements, survivability, and operational capabilities, and to meet the requirements of existing and pending regulations and statutes critical to the operation of existing and future aircraft carriers.

- (3216) - Development of block upgrades to the MH-60R sensor suite into the AN/SQQ-34 Aircraft Carrier Tactical Support Center (CV-TSC). The CV-TSC provides increased situational awareness to the Carrier Strike Group (CSG) in support of force protection, primarily in the area of Anti Submarine Warfare (ASW). Through the integration of
off-board sensors and signal, data and display processors, the AN/SQQ-34 is utilized in detecting, classifying, and localizing threats. An integrated element of the Carrier Combat System, the AN/SQQ-34 supports the tactical deployment of embarked ASW and Surface Warfare (SUW) assets (S-3B until retirement, SH-60F helicopter). This project provides the development and engineering foundation to refresh legacy AN/SQQ-34 systems on all Carriers and shore sites in support of Fleet introduction and shipboard integration of the MH-60R Multi Mission Helicopter. Upgrades to legacy systems enable the exchange of sensor, tactical and imagery data with the MH-60R initially, followed by incremental upgrades to support CVN air integration efforts.

- (4004) - Development of an advanced technology aircraft launch system in support of the CVN 78 Class design and construction schedule. The Electro Magnetic Aircraft Launch System (EMALS) will replace the current steam catapult on CVN 78 Class ships. EMALS provides better control of applied forces, both peak and transient dynamic, improved
reliability and maintainability, increased operational availability and reduced operator and maintainer workload.

- (4005) - The In-Service Carrier Systems Development Demonstration and Validation program exploits available technologies to deliver an affordable, robust, operator-friendly automation control environment for Navy Aircraft Carrier shipboard equipment. The program provides the system architecture, requirements/specification

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development, technology selection, software development (including software baseline), as well as land-based and shipboard testing of new technologies to improve shipboard operations and to reduce workload, manpower requirements, and Total Ownership Costs (TOC).

B. Program Change Summary ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Previous President's Budget	93.830	54.072	47.867	-	47.867
Current President's Budget	99.704	54.072	108.871	-	108.871
Total Adjustments	5.874	-	61.004	-	61.004
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	10.000	-			
• SBIR/STTR Transfer	-1.659	-			
• Program Adjustments	-	-	61.197	-	61.197
• Rate/Misc Adjustments	-	-	-0.193	-	-0.193
• Congressional General Reductions Adjustments	-0.467	-	-	-	-
• Congressional Directed Reductions Adjustments	-2.000	-	-	-	-

Change Summary Explanation

Cost: Added funding in FY 13 to properly price the EMALS effort. Updated schedule to show completion of all EMALS System Development and Demonstration events in 2Q FY 15, including all life cycle testing. Added funding in FY 11 for EMALS system development and demonstration efforts

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy			DATE: February 2012
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COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2208: *CVN 21*	30.444	27.817	36.673	-	36.673	37.212	37.685	38.283	38.947	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

This project provides for the development of aircraft carrier specific technologies, the infusion of the ship technology base into existing and future aircraft carriers, and the potential realization of subsystem design capabilities not currently feasible. This project transitions the most promising technologies from the Navy technology base, other government laboratories, and the private sector into specific advanced development efforts. All systems developed in this project have the potential to support emerging requirements and other promising systems technologies for insertion into new aircraft carrier designs. The emphasis is directed toward developing ship hull, mechanical, propulsion, electrical, aviation, warfare systems, and combat support systems, sub-systems and components to significantly improve aircraft carrier affordability, manpower requirements, survivability, and operational capabilities and to meet the requirements of existing and pending regulations and statutes critical to the operation of future aircraft carriers. This project also encompasses those tasks required to support CVN 78 procurement, including, but not limited to engineering support, programmatic and program support, logistics support, modeling and simulation, manpower and program related studies, and design support systems, such as the Integrated Digital Environment (IDE).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Title: CVN 21 Advanced Technology Design & Development	25.805	20.993	23.861
Articles:	0	0	0

Description: -CVN 21 Advanced Technology Design & Development: Continue development and transition of technologies to support CVN 21 Key Performance Parameters (KPPs): maintain sortie generation rate, reductions in manpower, and further recovery of weight and stability service life margins. Continue design activities to integrate the new technologies, such as the new propulsion plant and Electromagnetic Aircraft Launch System into the ship.

FY 2011 Accomplishments:

Technologies and design efforts included transition planning and execution, including finished development work, certification / qualification testing, in-service testing, integrated logistics support, and design integration tasks for all projects in the Critical and Non-Critical Technology portfolios. Efforts also encompass those tasks required to support CVN 78 procurement, including, but not limited to, engineering support, programmatic and program support, logistics support, modeling and simulation, manpower and program related studies, and design support systems, such as the Integrated Digital Environment (IDE).

FY 2012 Plans:

Funding is essential to technical data package development for the insertion of the latest technology and the development of critical systems and components. Technical data packages provide the plan during ship construction to support the delivery of

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
key warfare and aviation systems necessary for ship certification. The development of key systems (such as Machinery Control and Monitoring System) are required for the safety and control of the warfare and key systems on the ship. ***FY 2013 Plans:*** Funding is essential for the advanced design, development, and program support of critical systems and components. Such critical systems include aviation and warfare, which are essential to ship certification			
Title: CVN 21 - Test & Evaluation (T&E) ***Articles:*** ***Description:*** - CVN 21 - Test & Evaluation (T&E) ***FY 2011 Accomplishments:*** Continued executing IT-1 test phase. Continued developing the process for Full Ship Shock Trial (FSST) Alternative, concentrating on the completion of the LPD 19 Finite Element Model (FEM) and conducting the LPD 19 initial analysis run. Continued developing and revising TEMP 1610, Revision C, adding testing and resource definition to Parts III and IV. Continued collaborative development of Commander, Operational Test and Evaluation's (COTF) Integrated Evaluation Framework (IEF) and the mapping of the requirements, Critical Operational Issues (COIs), Measures of Effectiveness (MOEs) and Measures of Suitability (MOSs) to the test events in the TEMP 1610 Revision C Top-Level Evaluation Framework Matrix to support DT and IOT&E test planning. Continued development and refinement of the Overall Platform Integrated Test Schedule (OP-ITS), based on inputs from the Participating Acquisition Resource Managers (PARMs), the shipbuilder and other stakeholders. Developed a configuration management (CM) process for the OP-ITS and provided periodic updates of the OP-ITS to all stakeholders. Established and co-chaired an Integrated Coordination Team (ICT) with Integrated Warfare Systems (IWS) 10.0 to continue planning for pre- and post-delivery tests and trials with various working groups, the shipbuilder, Supervisor of Shipbuilding (SUPSHIP), Commander, Operational Test and Evaluation (COTF), Deputy Assistant Secretary of Defense (Developmental Test and Evaluation) (DASD (DT&E)) and Director, Operational Test and Evaluation (DOT&E) to ensure that test activities are coordinated, and that testing risks are identified and addressed. Continued to plan and execute electromagnetic environmental effects (E3) testing and analyses for systems deemed to be at risk for these effects. Continued topside E3 risk evaluations. Continued Information Assurance (IA) planning for test and certification of the platform. Developed the Anti-Tamper (AT) Plan Addendum to the Program Protection Plan (PPP). Began development of the Platform Level Vulnerability Assessment Plan (VAP). Collaborated with the Warfare System (WS) Test, Evaluation & Certification (TE&C) team to identify and develop solutions for cross-domain issues. Collaborated with the TEMP 1714 Capstone Enterprise Air Warfare Ship Self-Defense (AW SSD) team to develop/update the test plans, resource requirements and schedules for CVN 78-related testing on the Self-Defense Test Ship (SDTS), as well as the post-delivery AW SSD testing on CVN 78. Continued the analysis of and improvements to the Integrated Strike Planning and Execution Model (ISPEM) and the Virtual Carrier (VCVN) Model to ensure that the Initial Operational Test and Evaluation (IOT&E) requirements for validating the sortie generation rate (SGR) key performance parameter (KPP) are	4.639 0	6.824 0	12.812 0

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013

met. Conducted SGR Assessment (SGRA) 10. Continued development of SGR validation test strategy with COTF and various stakeholders.

FY 2012 Plans:

Continue development of TEMP 1610, Revision C. Continue collaborative development of the Commander, Operational Test and Evaluation's (COTF) Integrated Evaluation Framework (IEF). Continue mapping the requirements, Critical Operational Issues (COIs), Measures of Effectiveness (MOEs) and Measures of Suitability (MOSs) in the IEF to the test events in the TEMP 1610, Revision C Top-Level Evaluation Framework Matrix. Continue updating the Overall Platform Integrated Test Schedule (OP-ITS), based on inputs from the Participating Acquisition Resource Managers (PARMs), the shipbuilder and other stakeholders. Continue to co-chair the Integrated Coordination Team (ICT) to continue planning for pre- and post-delivery tests and trials with various working groups, the shipbuilder, Supervisor of Shipbuilding (SUPSHIP), Commander, Operational Test and Evaluation (COTF), Deputy Assistant Secretary of Defense (Developmental Test and Evaluation) (DASD (DT&E)) and Director, Operational Test and Evaluation (DOT&E) to ensure that test activities are coordinated, and that testing risks are identified and addressed. Continue developing the process for a Full Ship Shock Trial (FSST) Alternative, concentrating on conducting the second and third LPD 19 Finite Element Model (FEM) analysis runs and comparing the results with the LPD 19 FSST data. Continue executing Integrated Test (IT)-1 test phase, which includes planning and conducting IT-1 Operational Assessment (OA) 1 (formerly OT-B3), producing the IT-1 OA report 1 (IT-1 OAR1) and conducting the following activities: Combat Systems (CS) land-based testing, Dual Band Radar (DBR) land-based testing, electromagnetic environmental effects (E3) testing and analyses for systems deemed to be at risk for these effects, topside E3 risk evaluations, sortie generation rate assessment (SGRA) 11, PEO C4I Test Integration Facility (TIF) testing, NAVAIR Production Integration Facility (PIF) testing, TPX-42 testing and navigation system risk mitigation testing. Continue development of the draft Interoperability Certification Evaluation Plan (ICEP) and begin development of a draft Integrated Architecture Traceability Matrix by the Joint Interoperability Test Command (JITC). Continue development of Platform Level Vulnerability Assessment Plan (VAP). Continue collaboration with the Warfare System (WS) Test, Evaluation & Certification (TE&C) team to identify and develop solutions for cross-domain issues. Continue the analysis of and improvements to the Integrated Strike Planning and Execution Model (ISPEM) and the Virtual Carrier (VCVN) Model to ensure that the Initial Operational Test and Evaluation (IOT&E) requirements for validating the sortie generation rate (SGR) key performance parameter (KPP) are met. Continue development of SGR validation test strategy with COTF and various stakeholders.

FY 2013 Plans:

Complete development and deliver the TEMP 1610, Revision C for final approval. Continue updating and maintaining configuration management of the Overall Platform Integrated Test Schedule (OP-ITS). Continue to co-chair the Integrated Coordination Team (ICT) focusing on pre- and post-launch activities with various working groups, ship's force, the shipbuilder, Supervisor of Shipbuilding (SUPSHIP), Commander, Operational Test and Evaluation (COTF), Deputy Assistant Secretary of Defense (Developmental Test and Evaluation) (DASD (DT&E)) and Director, Operational Test and Evaluation (DOT&E). Continue the Full Ship Shock Trial (FSST) Alternative process development by completing the LPD 19 analyses and results

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
validation, and by re-starting the CVN 71 finite element model (FEM) development, the CG 48 analysis runs, the augmented shock qualification testing and drafting the CVN 78 FSST Alternative Gate Review Plan and the CVN 78 FSST Alternative Process Analysis and Shock Event Plan. Complete the Integrated Test - Phase 1 (IT-1), which includes planning and conducting IT-1 Operational Assessment (OA) 2, producing the IT-1 OA report 2 (IT-1 OAR2) and the IT-1 Developmental Test Report (IT-1 DT RPT). Commence IT-2 test phase, which includes Launch, Combat Systems (CS) land-based testing, Dual Band Radar (DBR) land-based testing, electromagnetic environmental effects (E3) testing and analyses for systems deemed to be at risk for these effects, topside E3 risk evaluations, sortie generation rate assessment (SGRA) 12, PEO C4I Test Integration Facility (TIF) testing, NAVAIR Production Integration Facility (PIF) testing, TPX-42 testing, Consolidated Afloat Networks and Enterprise Services (CANES) testing, navigation integration testing and Advanced Weapons Elevator (AWE) testing.			
Accomplishments/Planned Programs Subtotals	30.444	27.817	36.673

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• BLI 200100: *Carrier Replacement Program*	2,615.756	554.798	608.195	0.000	608.195	666.129	2,999.085	1,662.208	2,867.641	13,154.058	36,797.384
• BLI 530000: *Completion of Prior Year Shipbuilding Programs (CVN 78)*	0.000	0.000	0.000	0.000	0.000	449.000	362.000	0.000	0.000	0.000	811.000

D. Acquisition Strategy

The CVN 78 is the first ship of the CVN 78 Class of aircraft carriers designed to replace USS ENTERPRISE and the ships of the NIMITZ Class. The CVN 78 will feature a new nuclear propulsion and electrical generation/distribution system, new electromagnetic aircraft launching system (EMALS), advanced arresting gear (AAG) system, all electric auxiliaries,
warfare system improvements, survivability enhancements, improved weapons handling, and improved aircraft servicing. These design features will result in lower manpower and total ownership costs as compared to the NIMITZ Class. Additionally, the following war fighting benefits will be realized: increased sortie generation rate, improved ship self-defense capability, increased launch and recovery capability/flexibility, increased operational availability, and increased flexibility to support future upgrades.

E. Performance Metrics

Successfully execute Integrated Test - Phase 1 (IT-1) Operational Assessment (OA) 1 (formerly OT-B3). Successfully complete IT-1 OA Report 1 (IT-1 OAR1). Complete development and obtain final approval of TEMP 1610 Revision C. Successfully execute Integrated Test - Phase 1 and IT-1 OA2. Complete development and issue IT-1OAR2 and IT-1 Developmental Test Report (IT-1 DT RPT). Successfully conduct and support feasibility and tradeoff studies and data packages on new and modified shipboard systems, technologies and proposed modification. Data packages shall include information to support program decisions to integrate these

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efforts into the whole ship design efforts. Successfully conduct IDC shock testing and reporting in order to finalize IDC R&D efforts. Successfully complete Advanced Weapons Elevator Shock and Electromagnetic Interference (EMI) Test qualifications. Successfully complete Plasma Arc Waste Destruction System (PAWDS) Land-Based Test. Successfully create and deliver 21 Decision Memorandums (DM) for Bents/Bays 1-21.on the 03 Level (Gallery Deck) with Layer 31 information. This effort includes comment and adjudication for each ODWG delivered DM. Successfully develop the baseline Technical Data Packages for 39 systems and mature packages in preparation for final GFI arrival.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy			DATE: February 2012
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Propulsion Plant Development	SS/CPFF	Bettis:PA	71.627	-		-		-		-	0.000	71.627	
Propulsion Plant Development	C/CPFF	HII:VA	164.409	-		-		-		-	0.000	164.409	
Propulsion Plant Development	Various	Miscellaneous:Various	10.562	-		-		-		-	0.000	10.562	
Propulsion Plant Development	WR	NSWC Carderock:MD	0.050	-		-		-		-	0.000	0.050	
Advanced Design & Development	C/CPAF	HII:VA	165.844	0.352	Oct 2011	8.197	Oct 2012	-		8.197	0.000	174.393	
Advanced Design & Development	WR	NSWC Carderock:MD	73.142	1.033	Oct 2011	-		-		-	0.000	74.175	
Advanced Design & Development	C/CPFF	SAIC:NM	49.488	0.180	Nov 2011	0.188	Nov 2012	-		0.188	0.000	49.856	
Advanced Design & Development	WR	NAWCAD Patuxent River:MD	50.538	3.165	Oct 2011	3.951	Oct 2012	-		3.951	0.000	57.654	
Advanced Design & Development	WR	NAWC Lakehurst:NJ	8.189	-		-		-		-	0.000	8.189	
Advanced Design & Development	WR	NSWC Dahlgren:VA	27.734	3.328	Oct 2011	3.343	Oct 2012	-		3.343	0.000	34.405	
Advanced Design & Development	C/CPAF	Raytheon:MA	33.042	4.841	Dec 2011	4.953	Dec 2012	-		4.953	0.000	42.836	
Advanced Design & Development	WR	NSWC Port Hueneme:CA	5.939	0.050	Oct 2011	-		-		-	0.000	5.989	
Advanced Design & Development	WR	SPAWAR:CA	10.487	0.445	Oct 2011	0.637	Oct 2012	-		0.637	0.000	11.569	
Advanced Design & Development	C/CPFF	NAVSEA Seaport:DC	29.828	4.695	Dec 2011	2.413	Dec 2012	-		2.413	0.000	36.936	
Advanced Design & Development	Various	Miscellaneous:Various	40.140	2.904	Oct 2011	0.179	Oct 2012	-		0.179	0.000	43.223	
		Subtotal	741.019	20.993		23.861		-		23.861	0.000	785.873	

Remarks

Northrop Grumman spun off its shipbuilding sector and effective 14 April 2001 officially became Huntington Ingalls Industries (HII)

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy		DATE: February 2012
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	C/CPAF	HII:VA	9.835	0.671	Dec 2011	1.650	Dec 2012	-		1.650	0.000	12.156	
Developmental Test & Evaluation	WR	NAWCAD Patuxent River:MD	16.294	2.250	Nov 2011	2.700	Oct 2012	-		2.700	0.000	21.244	
Developmental Test & Evaluation	WR	NSWC Dahlgren:VA	3.810	0.301	Nov 2011	0.348	Oct 2012	-		0.348	0.000	4.459	
Developmental Test & Evaluation	WR	NSWC Carderock:MD	10.337	0.040	Nov 2011	3.843	Oct 2012	-		3.843	0.000	14.220	
Developmental Test & Evaluation	WR	SPAWAR:CA	3.417	0.330	Nov 2011	0.630	Oct 2012	-		0.630	0.000	4.377	
Developmental Test & Evaluation	C/CPFF	NAVSEA SeaPort:DC	0.143	-		-		-		-	0.000	0.143	
Developmental Test & Evaluation	C/CPAF	Raytheon:Not Specified	2.007	0.665	Dec 2011	0.770	Dec 2012	-		0.770	0.000	3.442	
Developmental Test & Evaluation	Various	Miscellaneous:Various	10.197	1.584	Nov 2011	1.874	Oct 2012	-		1.874	0.000	13.655	
Operational Test & Evaluation	WR	COMOPTEVFOR:VA	3.637	0.983	Nov 2011	0.997	Oct 2012	-		0.997	0.000	5.617	
		Subtotal	59.677	6.824		12.812		-		12.812	0.000	79.313	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DAWF	Various	Various:Various	0.275	-		-		-		-	0.000	0.275	
		Subtotal	0.275	-		-		-		-	0.000	0.275	

	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	800.971	27.817		36.673		-		36.673	0.000	865.461	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
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Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy		DATE: February 2012
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Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2208				
CVN 79 DAB PR	3	2013	3	2013
Propulsion Plant	1	2011	4	2017
EMALS SDD Complete	2	2015	2	2015
AAG Config Review	1	2011	1	2011
AAG TRR 2 (IT)	2	2012	2	2012
Integrated Tests IT-1	1	2011	2	2013
Integrated Tests IT-2	2	2013	3	2016
Integrated Tests IT-3	3	2016	1	2017
Integrated Tests IT-4	1	2017	4	2017
Operational Assessment Report 1 (OAR1 IT-1)	3	2012	3	2012
Operational Assessment Report 2 (OAR2 IT-1)	3	2013	3	2013
Developmental Test Report (DP RPT IT-1)	3	2013	3	2013
Operational Assessment Report 3 (OAR3 IT-1)	4	2014	4	2014
Developmental Test Report (DT RPT IT-2)	4	2016	4	2016
Operational Assessment Report (OAR IT-2)	4	2016	4	2016
Assessment of Operational Test Readiness - Phase C1 (AOTR-C1)	4	2016	4	2016
Operational Test Readiness Review - Phase C1 (OTRR-C1)	4	2016	4	2016
Developmental Test Report (DP RPT IT-3)	2	2017	2	2017
Assessment of Operational Test Readiness - Phase C1 (AOTR-C2)	3	2017	3	2017
Operational Test Readiness Review - Phase C1 (OTRR-C2)	3	2017	3	2017
Operational Test Phase 1 (OT-C1)	1	2017	4	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy		DATE: February 2012
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	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Operational Test Phase 2 (OT-C2)	3	2017	4	2017
CVN 79 Construction Contract Award	4	2013	4	2013
CVN 79 SCN Full Funding	1	2013	4	2017
CVN 78 Ship Delivery	4	2015	4	2015

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APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 3216.: *Tactical Support Center-Integration*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3216.: *Tactical Support Center-Integration*	8.507	2.110	9.600	-	9.600	4.593	4.654	4.728	4.817	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The CV-TSC program provides increased situational awareness to the Carrier Strike Group (CSG) in support of force protection, primarily in the area of Anti-Submarine Warfare (ASW). Through the integration of off-board sensors with shipboard systems, including data processing and displays, the AN/SQQ-34 is utilized in detecting, classifying, and localizing threats. An integrated element of the Carrier Combat System, the AN/SQQ-34 supports the tactical deployment of embarked ASW and Surface Warfare (SUW) assets (SH-60F and MH-60R helicopters). This project provides the design, development and engineering foundation to refresh legacy AN/SQQ-34 systems on all Carriers and shore sites in support of Fleet introduction and shipboard integration of the MH-60R Multi-Mission Helicopter. Upgrades to legacy systems enable the exchange of sensor, tactical and imagery data with the MH-60R initially, followed by incremental upgrades to support CVN ASW improvements and air integration and efforts.

Additionally, this project will mature the development of low-cost multi-beam Ku-Band planar phased arrays and associated integrated radio systems, and addresses the major cost drivers of planar arrays and their associated radios. This effort will be the first spiral of a major cost reduction effort for multi-beam arrays, with a goal of showing a path to a production cost of less than one third the cost of existing array technologies. This development will produce key integrated components needed to reduce the cost of arrays and will provide prototype multi-beam Ku-Band receiving and transmitting arrays/radios using these components. The effort will also emphasize advances in technologies associated with multi-path interference, scan angle losses and networking waveforms.
(Speed to Fleet) The CV-TSC program provides increased situational awareness to the Carrier Strike Group (CSG) in support of force protection, primarily in the area of Anti-Submarine Warfare (ASW). A portion of this program will focus on maturing low-cost multi-beam Ku-Band planar phased arrays and associated integrated radio systems that will be used to support data links to multiple MH-60Rs. This specific effort will address the need for low cost communications security (COMSEC) devices that are compatible with phased array systems, and that are needed to secure these data links.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Title: MH-60R Integration Development for CV-TSC	8.507	2.110	7.605
Articles:	0	0	0
FY 2011 Accomplishments: Completed AN/SQQ-34(V)2 MH-60R Integration Increment 1 (software version 6.0) system verification and validation and conducted Combat System Certification.			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603512N: *Carrier Systems Development*	**PROJECT** 3216.: *Tactical Support Center-Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Completed detailed design work on AN/SQQ-34(V)2 MH-60R Integration Increment 2, including multiple critical design reviews (CDRs). Efforts included hardware/software development for a modification to the existing Common Data Link (CDL) system to support MH-60R links within the Ku-Band. Developed acquisition documentation (source selection plan and statement of work) for the next generation Ku-Band system that will support simultaneous users including MH-60R, BAMS, P-3s and other potential users. Completed development of AN/SQQ-34(V)2 MH-60R Integration Increment 2 (software version 7.0). Completed software baseline and verification testing. Initiated software code effort on AN/SQQ-34(V)2 MH-60R Integration Increment 2 (software version 7.0). ***FY 2012 Plans:*** Conduct Test Readiness Review (TRR) and Combat System Certification on AN/SQQ-34(V)2 MH-60R Integration Increment 2 baseline (software version 7.0). Complete requirements definition for next software build upgrade of the AN/SQQ-34(V)2 baseline (Software version 8.0). Commence high level design activities and conduct a System Requirements Review (SRR) and a System Functional Review (SFR). Content of build upgrades include integration with PEO-IWS product line architecture efforts and integration of Sonar Tactical Decision Aid (STDA) for support of ASW environmental and mission planning. ***FY 2013 Plans:*** Continue development efforts AN/SQQ-34(V)2 (software version 8.0) with input from System Requirements Review (SRR) and System Function Review (SFR). Complete Critical Design Review (CDR) and begin generating software code and test plan. Begin development of low-cost multi-beam Ku-Band planar phased arrays and associated integrated radio systems, and addresses the major cost drivers of planar arrays and their associated radios.			
Title: Phased Array COMSEC ***Articles:*** ***Description:*** (Speed to Fleet) The CV-TSC program provides increased situational awareness to the Carrier Strike Group (CSG) in support of force protection, primarily in the area of Anti-Submarine Warfare (ASW). A portion of this program will focus on maturing low-cost multi-beam Ku-Band planar phased arrays and associated integrated radio systems that will be used to support data links to multiple MH-60Rs. This specific effort will address the need for low cost communications security (COMSEC) devices that are compatible with phased array systems, and that are needed to secure these data links. ***FY 2013 Plans:***	- 	- 	1.995 0

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 3216.: *Tactical Support Center-Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Develop low cost COMSEC suitable for use with phased array-based Ku-band data links to MH-60R.			
Accomplishments/Planned Programs Subtotals	8.507	2.110	9.600

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• OPN/2176: *Undersea Support Equipment (CV-TSC/CDL portion)*	17.372	15.740	8.348	0.000	8.348	0.350	0.358	0.398	0.407	Continuing	Continuing

D. Acquisition Strategy

The CV-TSC will be upgraded to support full deployments of Ku-Band equipped MH-60R aircraft. The CV-TSC development activity is a government field activity, Naval Undersea Warfare Center (NUWC), Division Keyport. Hardware procurements and back fit of the CV-TSC will use the AN/SQQ-34C as a baseline with additional hardware necessary for MH-60R support. Hardware shall be procured via a Request For Proposal (RFP) with industry. To the maximum extent possible, CV-TSC will use enterprise hardware initiatives being developed by the Navy in support of DDG-1000 and Aegis Modernization.
(Speed to Fleet) In support of MH-60R, COMSEC development and certification will be conducted under the auspices of the Naval Center for High Assurance Computer Systems at the Naval Research Laboratory (NRL).

E. Performance Metrics

- Successfully complete Preliminary Design Review (PDR) and Critical Design Review (CDR) for MH-60R system upgrade.
- Successfully field system that supports integration of the MH-60R on the CVN.
- Utilize Commercial Off-The-Shelf (COTS) based Common Processor/Common Display Systems (CPS/CDS) to minimize Total Ownership Costs.

(Speed to Fleet) Successfully complete Certification requirements for COMSEC being developed.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 3216.: *Tactical Support Center-Integration*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering / H/W & S/W Devel / Integration	WR	NAWC/Pax River:MD	-	-		1.500	Dec 2012	-		1.500	0.000	1.500	
Engineering / H/W & S/W Devel / Integration	WR	NRL:DC	-	-		0.500	Dec 2012	-		0.500	0.000	0.500	
Engineering / H/W & S/W Devel / Integration	WR	NSWC/Dahlgren:VA	-	-		0.500	Dec 2012	-		0.500	0.000	0.500	
Engineering / H/W & S/W Devel / Integration	WR	NUWC/Keyport:WA	9.633	1.535	Dec 2011	4.449	Nov 2012	-		4.449	Continuing	Continuing	Continuing
System Eng / S/W Development	C/CPFF	Adaptive Methods:VA	0.300	-		-		-		-	0.000	0.300	
System Eng / S/W Development	C/CPFF	JHU/APL:MD	0.250	-		-		-		-	0.000	0.250	
System Eng / S/W Development	WR	SPAWAR:CA	3.610	-		-		-		-	0.000	3.610	
Engineering / H/W & S/W Development	C/CPFF	VAR*:VAR*	-	-		0.366	Dec 2012	-		0.366	0.000	0.366	
Advanced Design & Development	WR	NRL:DC	-	-		1.995	Oct 2012	-		1.995	0.000	1.995	
		Subtotal	13.793	1.535		9.310		-		9.310			

Remarks

Engineering/H/W & S/W Development/Integration

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Certification	WR	NUWC//Keyport:WA	0.500	0.500	Dec 2011	0.235	Nov 2012	-		0.235	Continuing	Continuing	Continuing
		Subtotal	0.500	0.500		0.235		-		0.235			

Remarks

Testing and Certification

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 3216.: *Tactical Support Center-Integration*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPAF	BAE Systems:MD	0.095	0.075	Feb 2012	0.055	Dec 2012	-		0.055	Continuing	Continuing	Continuing
		Subtotal	0.095	0.075		0.055		-		0.055			

Remarks

N/A

	Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	14.388	2.110		9.600		-		9.600			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603512N: *Carrier Systems Development*	**PROJECT** 3216.: *Tactical Support Center-Integration*

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603512N: *Carrier Systems Development*	**PROJECT** 3216.: *Tactical Support Center-Integration*

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603512N: *Carrier Systems Development*	**PROJECT** 3216.: *Tactical Support Center-Integration*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3216.L24				
Increment 1 (S/W v6.0): Initial MH-60R Capabilities Development	1	2011	1	2011
Phased Array COMSEC				
Increment 1 (S/W v6.0): Test Readiness Review (TRR)	1	2011	1	2011
Increment 1 (S/W v6.0): MH-60R Verification and Validation	2	2011	3	2011
Requirements: Identify COMSEC Requirement: COMSEC Requirement	1	2013	1	2013
Increment 1 (S/W v6.0): MH-60R Combat System Certification	3	2011	4	2011
Increment 2 (S/W v7.0): MH-60R Block Upgrades Development	1	2011	2	2012
Increment 2 (S/W v7.0): Critical Design Review (CDR)	1	2011	2	2011
Increment 2 (S/W v7.0): Test Readiness Review (TRR)	2	2012	2	2012
Design & Development: Initial Design: Preliminary Design	1	2013	2	2013
Increment 2 (S/W v7.0): MH-60R Verification and Validation	2	2012	3	2012
Increment 2 (S/W v7.0): MH-60R Combat System Certification	4	2012	4	2012
Design & Development: Detailed Design: Final Design	2	2013	3	2013
Increment 3 (S/W v8.0): MH-60R Block Upgrades (P-8/BAMS Integration)	3	2012	2	2014
Design & Development: Hardware/Software: Hardware/Software Completion	3	2013	4	2013
Increment 3 (S/W v8.0): System Requirements Review (SRR)	3	2012	4	2012
Increment 3 (S/W v8.0): System Functional Review (SFR)	4	2012	4	2012
Increment 3 (S/W v8.0): Critical Design Review (CDR)	2	2013	2	2013
Increment 3 (S/W v8.0): Test Readiness Review (TRR)	2	2014	2	2014
Testing: Functional Testing: Hardware/Software Functional Testing	1	2014	1	2014
Increment 3 (S/W v8.0): Verification and Validation	3	2014	4	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 3216.: *Tactical Support Center-Integration*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Testing: Certification Testing: Formal Certification Testing	2	2014	4	2014
Increment 3 (S/W v8.0): Combat System Certification	4	2014	1	2015
Increment 4 (S/W v9.0): MH-60R Block Upgrades (P-8/BAMS Integration)	3	2014	2	2016
Increment 4 (S/W v9.0): System Requirements Review (SRR)	3	2014	3	2014
Reviews: Initial Design: Initial Design Review	1	2013	1	2013
Increment 4 (S/W v9.0): System Functional Review (SFR)	4	2014	4	2014
Increment 4 (S/W v9.0): Critical Design Review (CDR)	1	2015	2	2015
Increment 4 (S/W v9.0): Test Readiness Review (TRR)	2	2016	2	2016
Reviews: Final Design: Final Design Review	2	2013	2	2013
Increment 4 (S/W v9.0): Verification and Validation	2	2016	3	2016
Increment 4 (S/W v9.0): Combat System Certification	4	2016	4	2016
Increment 4 (S/W v10.0): MH-60R Block Upgrades (P-8/BAMS Integration)	3	2016	4	2017
Increment 4 (S/W v10.0): System Requirements Review (SRR)	3	2016	3	2016
Increment 4 (S/W v10.0): System Functional Review (SFR)	4	2016	4	2016
Increment 4 (S/W v10.0): Critical Design Review (CDR)	1	2017	2	2017

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 4004: *EMALS*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
4004: *EMALS*	59.135	22.418	60.861	-	60.861	23.568	2.440	2.507	2.568	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

This project provides for the development of an advanced technology aircraft launch system in support of the CVN 78 design and construction schedule, as well as Engineering and Life Cycle System (ELCS) design. The Electromagnetic Aircraft Launch System (EMALS) will be the aircraft catapult for CVN 78 Class ships. EMALS provides better control of applied forces, both peak and transient dynamic, improved reliability and maintainability, increased operational availability, and reduced operator and maintainer workload.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Title: EMALS	59.135	22.418	60.861
Articles:	0	0	0
Description: EMALS			
FY 2011 Accomplishments: (1) EMALS SDD Phase - Continued shipboard representative system development effort. Continued testing and performed risk mitigation. Provided management, system engineering, test, and ship integration support.			
FY 2012 Plans: (1) EMALS SDD Phase - Continue shipboard representative system development, testing and risk mitigation efforts. Provide management, system engineering, test, and ship integration support. (2) EMALS E&LCSD - Award the E&LCSD (BOA) Contract. Provide technical services, program management and logistics management in support of EMALS CVN 78 shipset efforts.			
FY 2013 Plans: Finalize full system testing and perform risk mitigation. Continue to develop Logistics products. Ensure EMALS supportability by providing logistics expertise to all IPTs. Implement the complete logistics program during the SDD phase. Continue developing the EMALS Maintenance Plan, Reliability Centered Maintenance (RCM), update and maintain Logistics Management Information, Logistic Support Analysis, calibration procedures, and EMALS training.			
Accomplishments/Planned Programs Subtotals	59.135	22.418	60.861

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 4004: *EMALS*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• BLI 200100: *Carrier Replacement Program*	2,615.756	554.798	608.195	0.000	608.195	666.129	2,999.085	1,662.208	2,867.641	13,154.058	36,797.384
• BLI 530000: *Prior Year Shipbuilding CVN78*	0.000	0.000	0.000	0.000	0.000	449.000	362.000	0.000	0.000	0.000	811.000

D. Acquisition Strategy

The CVN 78 will be the first ship of the CVN 78 Class of aircraft carriers designed to replace USS ENTERPRISE and the ships of the NIMITZ Class. The CVN 78 will feature a new nuclear propulsion and electrical generation/distribution system, new electromagnetic aircraft launching system, advanced arresting gear system, all electric auxiliaries, warfare system improvements, survivability enhancements, improved weapons handling, and improved aircraft servicing. These design features will result in lower manpower and total ownership costs as compared to the NIMITZ Class. Additionally, the following war fighting benefits will be realized: increased sortie generation rate, improved ship
self defense capability, increased launch and recovery capability/flexibility, increased operational availability, and increased flexibility to support future upgrades.

E. Performance Metrics

Successfully complete Highly Accelerated Life Test (HALT) Phase II. Successfully complete System Functional Demonstration (SFD) testing. Successfully complete Environment Qualification Testing (EQT). Successfully complete Shipset Controls Lab testing.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 4004: *EMALS*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aircraft Launch, Recovery & Support	C/CPAF	Northrop Grumman:VA	86.673	-		-		-		-	0.000	86.673	
Aircraft Launch, Recovery & Support	C/CPAF	General Atomics (PDRR):CA	82.719	-		-		-		-	0.000	82.719	
Aircraft Launch, Recovery & Support	C/CPAF	General Atomics (SDD):CA	390.728	20.718	Dec 2011	40.104	Dec 2012	-		40.104	25.865	477.415	408.301
Aircraft Launch, Recovery & Support	WR	NAWC Lakehurst:NJ	44.704	-		-		-		-	0.000	44.704	
Aircraft Launch, Recovery & Support	C/CPAF	HIINC:VA	3.126	-		-		-		-	0.000	3.126	
Aircraft Launch, Recovery & Support	C/CPAF	General Atomics (SDD) - Award Fee:CA	14.253	-		-		-		-	0.000	14.253	14.253
		Subtotal	622.203	20.718		40.104		-		40.104	25.865	708.890	

Remarks

Northrop Grumman spun off its shipbuilding sector and effective 14 April 2001 officially became Huntington Ingalls Incorporated (HIINC).

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aircraft Launch, Recovery & Support	WR	NAWC Lakehurst:NJ	72.346	1.700	Dec 2011	20.757	Dec 2012	-		20.757	5.218	100.021	
		Subtotal	72.346	1.700		20.757		-		20.757	5.218	100.021	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DAWF	Various	Not Specified:Not Specified	0.299	-		-		-		-	0.000	0.299	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 4004: *EMALS*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	0.299	-		-		-		-	0.000	0.299	

	Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	694.848	22.418		60.861		-		60.861	31.083	809.210	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603512N: *Carrier Systems Development*	**PROJECT** 4004: *EMALS*

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 4004: *EMALS*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 4004				
CVN 79 DAB PR	3	2013	3	2013
Propulsion Plant	1	2011	4	2017
EMALS SDD Complete	2	2015	2	2015
AAG Config Review	1	2011	1	2011
AAG TRR 2 (IT)	2	2012	2	2012
Integrated Tests IT-1	1	2011	2	2013
Integrated Tests IT-2	2	2013	3	2016
Integrated Tests IT-3	3	2016	1	2017
Integrated Tests IT-4	1	2017	4	2017
Operational Assessment Report 1 (OAR1 IT-1)	3	2012	3	2012
Operational Assessment Report 2 (OAR2 IT-1)	3	2013	3	2013
Development Test Report (DT RPT IT-1)	3	2013	3	2013
Operational Assessment Report 3 (OAR3 IT-1)	4	2014	4	2014
Development Test Report (DT RPT IT-2)	4	2016	4	2016
Operational Assessment Report 1 (OAR IT-2)	4	2016	4	2016
Assessment of Operational Test Readiness - Phase C1 (AOTR-C1)	4	2016	4	2016
Operational Test Readiness Review - Phase C1 (OTRR-C1)	4	2016	4	2016
Development Test Report (DT RPT IT-3)	2	2017	2	2017
Assessment of Operational Test Readiness - Phase C1 (AOTR-C2)	3	2017	3	2017
Operational Test Readiness Review - Phase C1 (OTRR-C2)	3	2017	3	2017
Operational Test Phase 1 (OT-C1)	1	2017	4	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603512N: *Carrier Systems Development*	**PROJECT** 4004: *EMALS*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Operational Test Phase 2 (OT-C2)	3	2017	4	2017
CVN 79 Construction Contract Award	4	2013	4	2013
CVN 79 SCN Full Funding	1	2013	4	2017
CVN 78 Ship Delivery	4	2015	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 4005: *In-Service Carrier Systems Development*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
4005: *In-Service Carrier Systems Development*	1.618	1.727	1.737	-	1.737	1.766	1.788	1.819	1.853	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

Note - Project title was previously called "Smart Carrier"

A. Mission Description and Budget Item Justification

The In-Service Carrier Systems Demonstration and Validation program exploits available technologies to deliver an affordable, robust, operator-friendly automation control environment for Navy Aircraft Carrier shipboard equipment. The program provides the system architecture, requirements/specification development, technology selection, software development (including software baseline), as well as land-based and shipboard testing of new technologies to improve shipboard operations and to reduce workload, manpower requirements, and Total Ownership Costs. Initial technologies include the Ship Control System Governor Software Development, Tank Preservation, UPS Replacements, Advanced Damage Control System (ADCS), Weapons Elevator Control Accumulator Replacement, and the Integrated Condition Assessment System. Demonstration technologies include Advanced Damage Control System (ADCS) software improvements, A/C Plant Model, IOC Replacement, Fleet Wireless PDA, Weapons Elevator Laser Positioning System, Legacy Steering Interface upgrades, CVN ITD location option evaluation tools, Antenna to Antenna coupling analysis tools. Wireless systems, smart sensors, lighting systems, knowledge-based systems, automated casualty control, automated technology for workload reduction, linked smart devices, common software tools for interoperability, and self-healing network are technologies being considered for future applications including the following: Integrated Bridge control Data Logger, C4I Network Performance Modeling and Analysis, NCDS Packet Filtering Device, Network Data Logger Device, PCS proof of concept, SCS Onboard trainer, Universal PCCU.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Title: In-Service Carrier Systems Development	1.618	1.727	1.737
Articles:	0	0	0
FY 2011 Accomplishments: Completed Ship Control System Governor Software Development, AC Plant Model Capacity Optimization, Fleet Wireless PDA (Blackberry), and Weapons Elevator Laser Positioning System (CVN 76).			
FY 2012 Plans: Fiscal Year 2012 plans include support to technologies. Modifications, upgrades and development of systems and software will be ongoing in support of In-Service aircraft carrier modernization initiatives.			
FY 2013 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 4005: *In-Service Carrier Systems Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Fiscal Year 2013 plans include support to Aircraft Carrier technologies. Modifications, upgrades and development of systems and software will be ongoing in support of In-Service aircraft carrier modernization initiatives.			
Accomplishments/Planned Programs Subtotals	1.618	1.727	1.737

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Investigate, demonstrate, and implement available technologies to deliver a robust, operator-friendly automation control environment for Navy Aircraft Carrier shipboard equipment to reduce workload, manpower requirements, and Total Ownership Costs (TOC).

E. Performance Metrics

Successfully complete Ship Control System Governor Software Development, AC Plant Model Capacity Optimization, UPS Replacements, ADCS Software Improvements (AFSSS/FCCS) Software Development Test, IOC replacement demonstration, Tank Preservation models, Weapons Elevator Laser Positioning demonstration, Legacy Steering Interface Upgrades, CVN ITD location option evaluation tool development, Antenna to Antenna coupling analysis tool development, Universal PCCU development, Ship Control System Trainer, Integrated Bridge Control Data Logger, Weapons Elevator Control Accumulator Replacement, and C4I Network Performance Requirements Modeling and Analysis.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 4005: *In-Service Carrier Systems Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ship Integration	WR	NAVSEA:Phil	1.112	0.115	Nov 2011	0.187	Nov 2012	-		0.187	0.000	1.414	
Ship Integration	WR	NAVSEA:Dahlgren	0.060	0.090	Nov 2011	0.031	Nov 2012	-		0.031	0.000	0.181	
		Subtotal	1.172	0.205		0.218		-		0.218	0.000	1.595	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	WR	NAVSEA:Phil	6.616	0.270	Nov 2011	0.341	Nov 2012	-		0.341	0.000	7.227	
Program Management Support	WR	NAVSEA:Phil	2.218	0.188	Nov 2011	0.221	Nov 2012	-		0.221	0.000	2.627	
Training Development	WR	NAVSEA:Phil	0.652	0.093	Nov 2011	0.166	Nov 2012	-		0.166	0.000	0.911	
Integrated Logistics Support	WR	NAVSEA:Phil	1.160	0.068	Nov 2011	0.102	Nov 2012	-		0.102	0.000	1.330	
Software Development	WR	NAVSEA:Dahlgren	0.115	0.140	Nov 2011	0.068	Nov 2012	-		0.068	0.000	0.323	
Program Management Support	WR	NAVSEA:Dahlgren	0.150	0.120	Nov 2011	0.047	Nov 2012	-		0.047	0.000	0.317	
		Subtotal	10.911	0.879		0.945		-		0.945	0.000	12.735	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	SPAWAR:Atlantic	-	0.225	Dec 2011	0.200	Nov 2012	-		0.200	0.000	0.425	
Developmental Test & Evaluation	WR	NAVSEA:Phil	3.692	0.268	Nov 2011	0.343	Nov 2012	-		0.343	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NAVSEA:Dahlgren	0.050	0.150	Nov 2011	0.031	Nov 2012	-		0.031	0.000	0.231	
		Subtotal	3.742	0.643		0.574		-		0.574			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 4005: *In-Service Carrier Systems Development*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DAWF	Various	Various:Various	0.008	-		-		-		-	0.000	0.008	
		Subtotal	0.008	-		-		-		-	0.000	0.008	

	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	15.833	1.727		1.737		-		1.737			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 4005: *In-Service Carrier Systems Development*

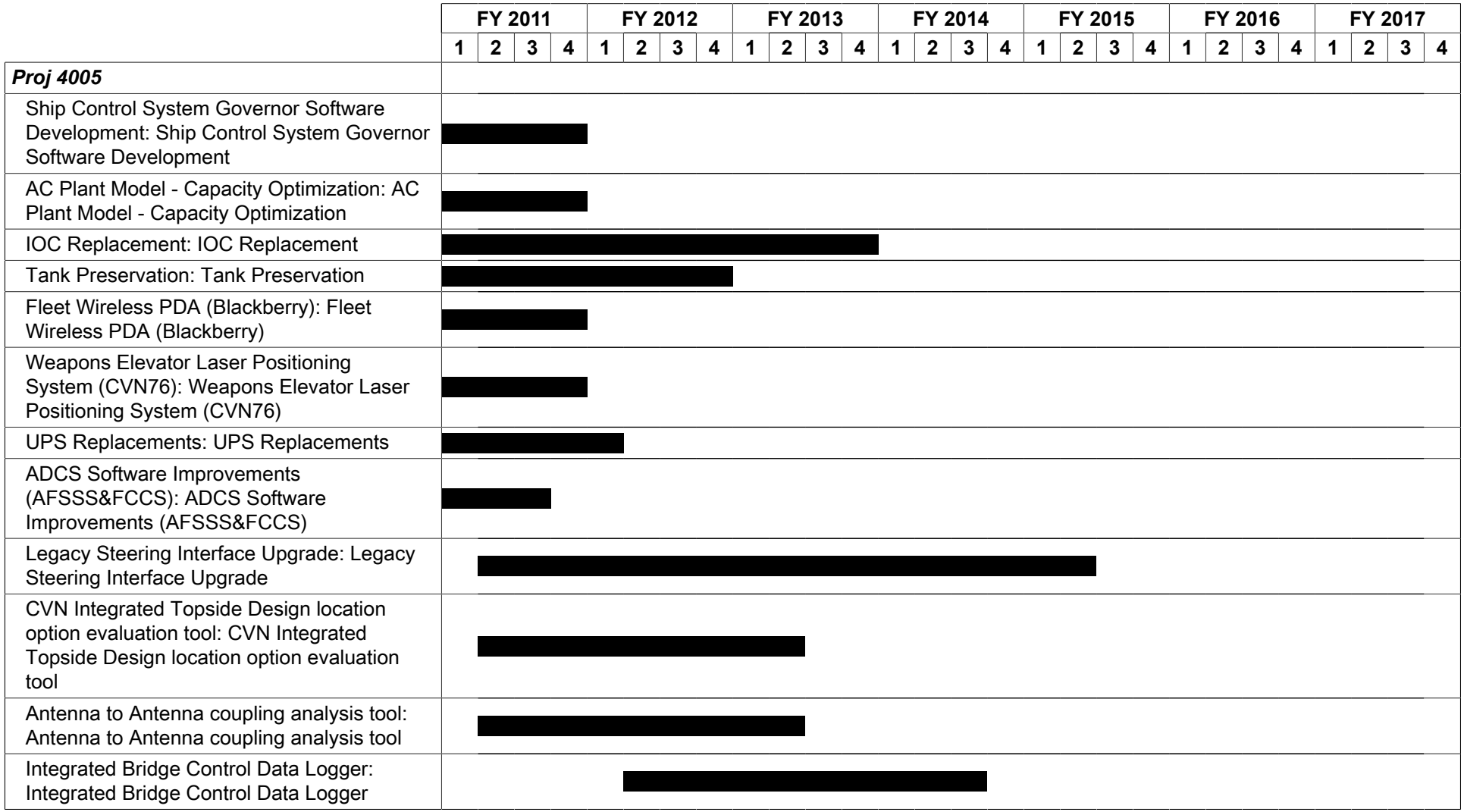

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 4005: *In-Service Carrier Systems Development*

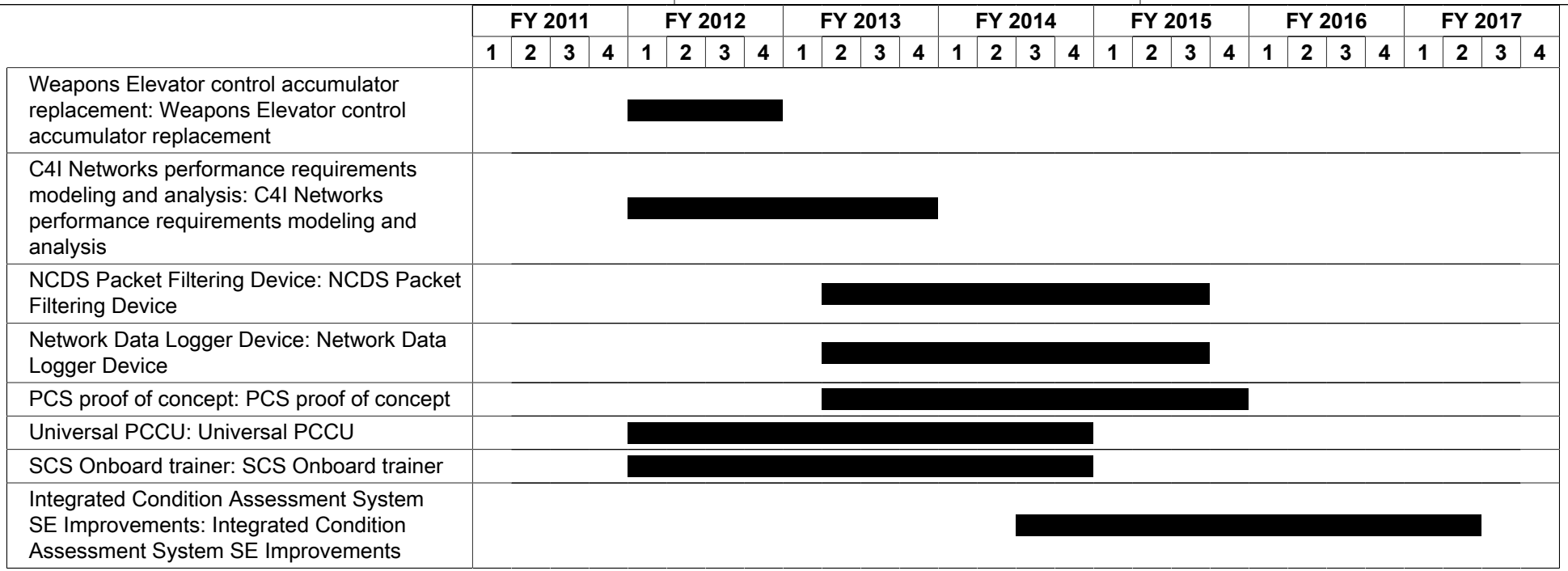

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603512N: *Carrier Systems Development*	**PROJECT** 4005: *In-Service Carrier Systems Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 4005				
Ship Control System Governor Software Development: Ship Control System Governor Software Development	1	2011	4	2011
AC Plant Model - Capacity Optimization: AC Plant Model - Capacity Optimization	1	2011	4	2011
IOC Replacement: IOC Replacement	1	2011	4	2013
Tank Preservation: Tank Preservation	1	2011	4	2012
Fleet Wireless PDA (Blackberry): Fleet Wireless PDA (Blackberry)	1	2011	4	2011
Weapons Elevator Laser Positioning System (CVN76): Weapons Elevator Laser Positioning System (CVN76)	1	2011	4	2011
UPS Replacements: UPS Replacements	1	2011	1	2012
ADCS Software Improvements (AFSSS&FCCS): ADCS Software Improvements (AFSSS&FCCS)	1	2011	3	2011
Legacy Steering Interface Upgrade: Legacy Steering Interface Upgrade	2	2011	2	2015
CVN Integrated Topside Design location option evaluation tool: CVN Integrated Topside Design location option evaluation tool	2	2011	2	2013
Antenna to Antenna coupling analysis tool: Antenna to Antenna coupling analysis tool	2	2011	2	2013
Integrated Bridge Control Data Logger: Integrated Bridge Control Data Logger	2	2012	3	2014
Weapons Elevator control accumulator replacement: Weapons Elevator control accumulator replacement	1	2012	4	2012
C4I Networks performance requirements modeling and analysis: C4I Networks performance requirements modeling and analysis	1	2012	4	2013
NCDS Packet Filtering Device: NCDS Packet Filtering Device	2	2013	3	2015
Network Data Logger Device: Network Data Logger Device	2	2013	3	2015
PCS proof of concept: PCS proof of concept	2	2013	4	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603512N: *Carrier Systems Development*	**PROJECT** 4005: *In-Service Carrier Systems Development*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Universal PCCU: Universal PCCU	1	2012	4	2014
SCS Onboard trainer: SCS Onboard trainer	1	2012	4	2014
Integrated Condition Assessment System SE Improvements: Integrated Condition Assessment System SE Improvements	3	2014	2	2017