Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*					R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	52.661	6.116	5.633	13.754	-	13.754	41.603	57.641	45.381	45.986	Continuing	Continuing
0718: *MATCALS*	0.000	0.602	0.630	3.624	-	3.624	0.644	0.649	0.663	0.675	Continuing	Continuing
0993: *Carrier ATC*	52.661	4.438	4.603	9.728	-	9.728	40.552	56.580	44.299	44.884	Continuing	Continuing
1657: *ATC Improvement*	0.000	1.076	0.400	0.402	-	0.402	0.407	0.412	0.419	0.427	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program element provides for the development, integration, and testing of Automated Air Traffic Control (ATC) hardware and software required to provide improved flight safety and more reliable all-weather ATC and landing system capabilities at Naval Air Stations (NASs) and Marine Corps Air Stations (MCASs) and Fleet Area Control and Surveillance Facilities (FACSFAC) worldwide. Funded programs are required to upgrade or replace aging ATC and landing system equipment on aircraft, aircraft carriers, amphibious ships, NASs, MCASs and Navy/Marine Corps tactical/expeditionary airfields and remote landing sites.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	5.521	5.633	6.084	-	6.084
Current President's Budget	6.116	5.633	13.754	-	13.754
Total Adjustments	0.595	0.000	7.670	-	7.670
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.720	0.000			
• SBIR/STTR Transfer	-0.125	0.000			
• Program Adjustments	0.000	0.000	7.700	-	7.700
• Rate/Misc Adjustments	0.000	0.000	-0.030	-	-0.030

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604504N: *Air Control*

Change Summary Explanation

Schedule:
Proj. 0993: The Service funded the AN/SPN-43 Replacement program beginning in FY14, therefore the schedule has been updated to reflect the associated milestones.

Funding:
Proj. 0718: Added FY 14 funding for G/ATOR Increment IV

Proj. 1657: Added FY 12 funds for development of air traffic control and air space management strategic plan.

Technical: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0718: *MATCALS*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0718: *MATCALS*	0.000	0.602	0.630	3.624	-	3.624	0.644	0.649	0.663	0.675	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program provides for continued development, integration, and testing of hardware and software to meet requirements for all-weather operation and improved flight safety of Air Traffic Control and Landing Systems at Marine Corps expeditionary airfields. Current program includes approved transition to Air Surveillance and Precision Approach Radar Control System (ASPARCS). The ASPARCS will replace the legacy Air Traffic Control (ATC) Precision Approach Radar (PAR), Air Surveillance Radar (ASR), and Communications and Control Subsystem with a High Mobility Multipurpose Wheeled Vehicle based PAR, ASR, and Command and Control (C2) Subsystem. Efforts have begun for requirements definition, development and engineering for the ASPARCS Pre-Planned Product Improvements (P3I), in accordance with Marine Corps Requirements Oversight Council (MROC) Decision Memorandum 11-2005 dated December 2004. P3I includes the design and development of software code to interface C2 input/output to existing software, incorporating Radar Range Extension and Mapping functionality, enhanced simulation and training and providing increased operator workstations.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: ASPARCS Improvements	0.602	0.630	0.634
Articles:	0	0	0
Description: Investigate and resolve obsolescence issues. Perform studies and analyses to implement P3I and other evolutionary improvements. Develop criteria for existing ASPARCS software to achieve Defense Information Infrastructure-Common Operating Environment Level 5 compliance, Information Assurance, Radar Range Extension and Mapping functionality, and enhanced simulation and training into the existing ASPARCS software. Perform studies and analyses.			
FY 2012 Accomplishments: Funded the development of a Capabilities Development Document for Replacement Expeditionary ATC Tower. Initial Capabilities Document for ATC states that a deployable, mobile, scalable (the size of airfield) tower with enhanced night vision device capability, and equipped with a certified tower radar display, is a capability gap in fielded Marine Air Traffic Control and Landing System (MATCALS) equipment. Current tower has increasing obsolescence issues and is reaching its service life limits.			
FY 2013 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604504N: *Air Control*	**PROJECT** 0718: *MATCALS*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Conduct investigation on obsolescence issues. Continue integration of Ground Air Task Oriented Radar System (GATOR) and Common Aviation Command and Control Suite (CAC2S) with ASPARCS. ***FY 2014 Plans:*** ASPARCS Improvements: Develop Tactical Air Navigation (TACAN) Modernization Part 1 ECP to reduce operational footprint and increase supportability and transportability.			
Title: Ground/Air Task Oriented Radar System (G/ATOR) Increment IV ***Articles:*** ***Description:*** G/ATOR is multi-role, ground-based, expeditionary radar that replaces five legacy radar systems for the Marine Air Ground Task Force. It satisfies the Marine Air Command and Control System and the Ground Counter Fire/ Counter Battery capabilities. The G/ATOR replaces the AN/TPS-63 and complements the AN/TPS-59 long range radar and will provide mobile, multi-functional, three-dimensional surveillance of air breathing targets, detection of cruise missiles and UAS, and the cueing of air defense weapons. The G/ATOR contributes to the extension of Sea Shield/Sea Strike by surveillance and detection of enemy air threats not seen by Navy sensors in the littorals by participating in a cooperative engagement network of sensors and shooters; G/ATOR enables integrated fire control (IFC) and provides engage/fire on remote capability. G/ATOR surveillance coverage with IFC will provide unprecedented reach, volume and precision in the execution of Operational Maneuver From The Sea allowing Naval forces to project and sustain power deep inland. G/ATOR Increment IV, scheduled for an Initial Operating Capability in 2018, will add military air traffic control functionality, development of Mode 5/S capability, FAA flight certification requirements, and the ability to integrate with TPN-31(V) Air Traffic Navigation, Integration, and Coordination System (ATNAVICS) for Precision Approach Radar. This increment of G/ATOR replaces the Marine Corps' TPS-73 radar and the Airport Surveillance Radar portion of the ATNAVICS also known as Air Surveillance and Precision Approach Radar Control System (ASPARCS). ***FY 2014 Plans:*** Begins software development of the Mode 5/S capability and integration of Command & Control functionality with TPN-31(V) ATNAVICS. Begin efforts to achieve FAA flight certification for G/ATOR.	0.000	0.000	2.990 0
Accomplishments/Planned Programs Subtotals	0.602	0.630	3.624

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• OPN/2815: *MATCALS*	13.368	5.861	7.461		7.461	15.086	7.777	6.425	6.527	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0718: *MATCALS*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• RDTE/0204460M: *G/ATOR*	0.000	75.088	78.208		78.208	77.413	74.653	49.969	19.968	Continuing	Continuing
• PMC/4650: *RADAR SYSTEMS*	4.246	90.348	99.325		99.325	74.830	236.165	237.381	121.000	Continuing	Continuing

Remarks

D. Acquisition Strategy

Air Surveillance and Precision Approach Radar Control System (ASPARCS) is an ACAT IVT program. Lockheed Martin was awarded the contract for this effort in June 2000. This effort included First Article development (Fixed Price Incentive) with (Firm Fixed Priced) production options. Schedule delays and technical issues with the Precision Approach Radar (PAR) and Air Surveillance Radar (ASR) and integration with the operation subsystem/communication subsystem resulted in a no-cost close out to the Lockheed Martin contract in November 2004. An Acquisition Decision Memorandum was signed in Jan 2005 approving the procurement of the Army AN/TPN-31 System to fulfill the Air Surveillance and Precision Approach Radar and Control System (ASPARCS) requirement for July 2006. The MROC Decision Memorandum 11-2005 of December 2004 outlined the evolutionary improvements envisioned by Headquarters Marine Corps. This program has joined with the Army to implement P3I and evolutionary product improvements.

E. Performance Metrics

The MATCALS RDTEN funding will develop a planned replacement for the current ASR.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0718: *MATCALS*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary HDW Develop - G/ ATOR	TBD	Northrop Grumman:Linthicum, MD	0.000	0.000		0.000		1.500	Mar 2014	-		1.500	Continuing	Continuing	Continuing
Primary HDW Develop - G/ ATOR	TBD	TBD:TBD	0.000	0.000		0.000		0.600	Jan 2014	-		0.600	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		2.100		0.000		2.100			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development - G/ ATOR	WR	NSWC:Dahlgren, VA	0.000	0.000		0.000		0.750	Dec 2013	-		0.750	Continuing	Continuing	Continuing
Software Development - ASPARCS	WR	NAWCAD:Patuxent River, MD	0.000	0.602	Dec 2011	0.630	Dec 2012	0.634	Dec 2013	-		0.634	Continuing	Continuing	Continuing
		Subtotal	0.000	0.602		0.630		1.384		0.000		1.384			

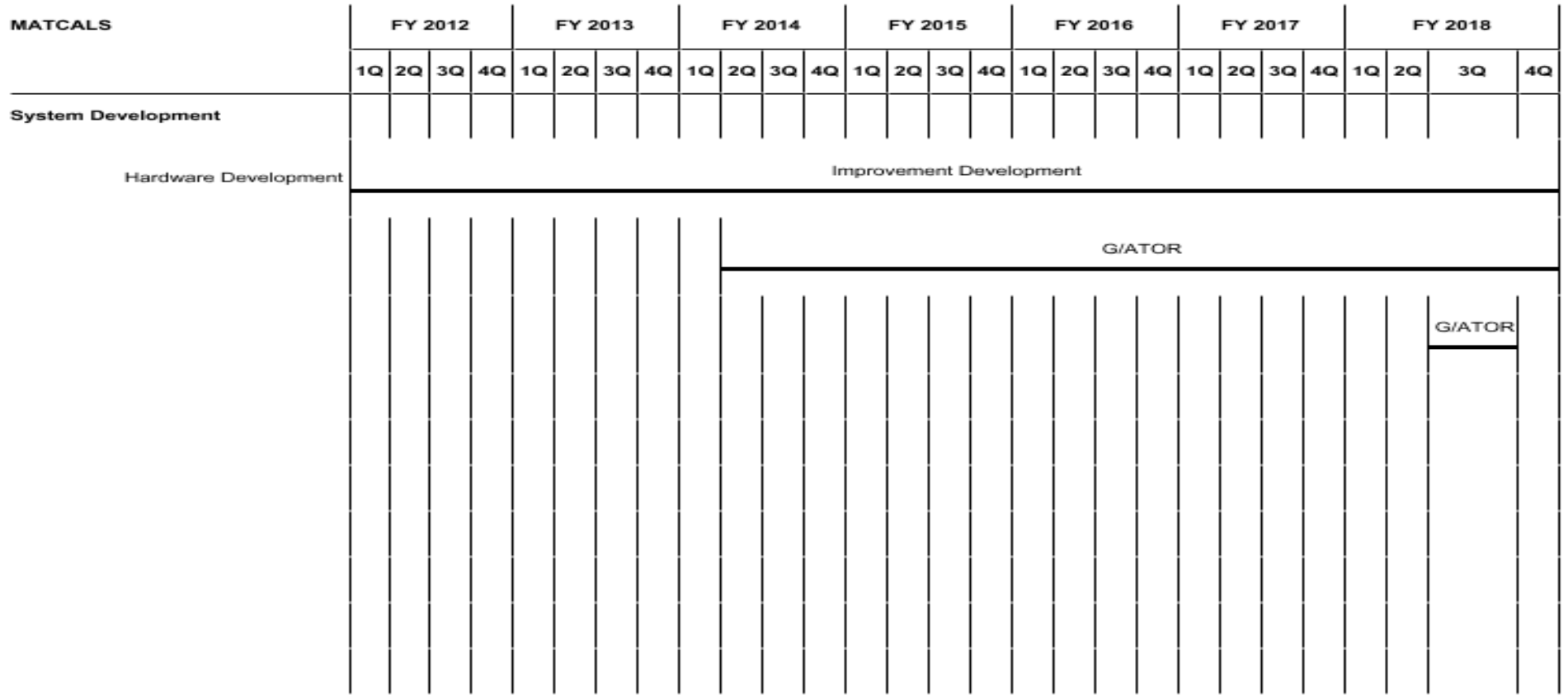
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD:Patuxent River, MD	0.000	0.000		0.000		0.140	Dec 2013	-		0.140	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		0.140		0.000		0.140			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.602		0.630		3.624		0.000		3.624			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0718: *MATCALS*



2014PB - 0604504N - 0718

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604504N: *Air Control*	**PROJECT** 0718: *MATCALS*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
MATCALS				
System Development: Hardware Development: ASPARCS Improvements	1	2012	4	2018
System Development: Hardware Development: G/ATOR	2	2014	4	2018
System Development: Hardware Development: G/ATOR Inc IV IOC	3	2018	3	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0993: *Carrier ATC*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0993: *Carrier ATC*	52.661	4.438	4.603	9.728	-	9.728	40.552	56.580	44.299	44.884	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Shipboard Air Traffic Control (ATC) Central systems, interfacing with versions of the AN/TPX-42(V) Direct Altitude and Identity Readout system (DAIR), allow Shipboard Air Traffic Controllers to identify, marshal, and direct aircraft within a 50 Nautical Mile (NM) radius of the ship. At closer range (8NM) a ship's Automatic Carrier Landing System (ACLS) and Independent Landing Monitor (ILM) are operationally required to affect safe landing on the moving decks of ships. The AN/SPN-41 ILM and AN/SPN-46 ACLS provide verification of aircraft approach glideslope position and precise aircraft automatic control respectively during its final approach and landing sequence to an aircraft carrier. Dual efforts are underway to improve the AN/SPN-46 system availability and supportability until at least September 2020. These efforts include various Engineering Change Proposals (ECPs), and the Life Cycle Extension (LCE) program transitional changes include a re-architecture of its radar control group process with Commercial Off the Shelf (COTS) technology, replacement of the computer group processing hardware, and conversion of system program software from CMS-2 to the more commonly used 'C' programming language. In recent years, the top 25% of the AN/SPN-43 frequency band has been reallocated to the Fixed Wireless Access community prohibiting ATC radar operation within 50 miles of the coast. Because the Navy requires an air traffic control radar, this project unit will include engineering efforts to identify requirements and develop a suitable replacement and bridging ECPs before the AN/SPN-43 becomes operationally ineffectual. Finally, the AN/TPX-42A(V)14 DAIR underwent several phased upgrades that have resulted in three field changes. System improvements include replacing militarized front-end equipment in the track processor with COTS technology, converting the operational program software to more commonly used and flexible 'C' language, integrating and interface with Mode 5 Identification Friend or Foe, and integrating a flat panel monitor into the AN/UYQ-70 console. The development of an ATC common console will reduce operational costs, improve reliability, and provide compatible interfaces and commonality for all ATC workstations. The addition of an embedded trainer within AN/TPX-42 A(V) will improve controller training and increase flight safety.

Test Article Descriptions:

The AN/TPX-42 ATC Console Engineering Development Model delivered in FY 2012 will be used to support developmental testing to verify system performance against established requirements.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: AN/SPN-43C	2.616	3.268	7.986
Articles:	0	0	0

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0993: *Carrier ATC*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Description: This project funds the development of the AN/SPN-43C replacement program, as well as development of sustainment Engineering Change Proposal (ECP) for the existing system. The sustainment effort will ensure the capabilities remain available to CVN, LHA and LHD type ships until the replacement system is fielded. ***FY 2012 Accomplishments:*** Completed market research and Decision Analysis Support. Identified ECPs required for effective system sustainment until replaced. Developed AN/SPN-43C replacement CONOPS. Commenced replacement system Capability Development Document (CDD) development. ***FY 2013 Plans:*** Continue CDD and commence Systems Requirement Document development. Develop replacement system Life Cycle Requirements Funding Summary, Life Cycle Cost Estimate, and Request for Proposal (RFP). Prepare documentation and request Material Development Decision from designated Milestone Decision Authority. ***FY 2014 Plans:*** Prepare documentation for AN/SPN-43 replacement program MS B decision. Prepare for source selection and release RFP.			
Title: AN/TPX-42	1.822	1.335	1.742
Articles:	0	0	0
Description: This project funds development of the final ATC Console configuration to include JPALS interface, embedded trainer, and replacement of AN/SPN-35/46 Operator displays. It is anticipated that this technology insertion will result in a formal nomenclature change for the AN/TPX-42 system, as such the identification of the modification kits will change to 'H' Kits. "H" Kits will also identify and test Voice Recorder replacement technology and obsolete components. ***FY 2012 Accomplishments:*** Continued development of Automatic Dependent Surveillance Broadcast requirements. Developed ATC Console requirements. Commenced testing of AN/TPX-42A(V)14 field change 5. Conducted preliminary design review for AN/TPX-42A(V) embedded trainer. ***FY 2013 Plans:*** Begin part 1 ECP for ATC console development. Take delivery of prototype and test AN/TPX-42A(V) embedded trainer. ***FY 2014 Plans:*** Complete part 1 ECP, initiate part 2 ECP and conduct critical design review for AN/TPX-42A(V) embedded trainer.			
Accomplishments/Planned Programs Subtotals	4.438	4.603	9.728

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0993: *Carrier ATC*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• OPN/2831: *Shipboard Air Traffic Control*	7.394	8.362	9.140		9.140	9.839	9.953	10.241	10.402	Continuing	Continuing
• OPN/2832: *Automatic Carrier Landing Systems*	17.018	15.685	20.798		20.798	20.049	19.340	19.799	20.127	Continuing	Continuing

Remarks

D. Acquisition Strategy

AN/SPN-46 Computer Group replacement subprojects are part of the AN/SPN-46 LCE project, which is an ECP. Initial contract was awarded in November 2003 for the Radar Control Group, and the contract for the Computer Group was awarded in December 2005. AN/TPX-42 Voice/Video recorder replacement, JPALS Interface, Shipboard trainer, and ATC Console are all anticipated ECPs, with improvements being incorporated into the production of AN/TPX-42 upgrade kits. AN/SPN-43 replacement program will be an ACAT IVT program.

All other projects are non-ACAT upgrades to existing systems. An evolutionary acquisition approach is being used to introduce these technology advancements that either satisfy user requirements, such as all weather operation, or address supportability and cost of ownership problems.

E. Performance Metrics

Prototype Delivery will occur in Second Quarter FY13 for the AN/TPX-42 Embedded Trainer.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0993: *Carrier ATC*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary HDW Develop-SPN-46	WR	NAWCAD:PAX River, MD	11.546	0.000		0.000		0.000		-		0.000	0.000	11.546	
Primary HDW Develop-SPN-46	SS/CPIF	SNC:Sierra, NV	6.356	0.000		0.000		0.000		-		0.000	0.000	6.356	6.356
Primary HDW Develop-TPX-42	WR	NAWCAD:PAX River, MD	2.948	0.794	Dec 2011	0.219	Dec 2012	0.300	Dec 2013	-		0.300	Continuing	Continuing	Continuing
Primary HDW Develop - SPN-43	WR	NAWCAD:PAX River, MD	0.000	1.634	Dec 2011	2.711	Dec 2012	3.122	Dec 2013	-		3.122	Continuing	Continuing	Continuing
		Subtotal	20.850	2.428		2.930		3.422		0.000		3.422			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development-SPN-46	WR	NAWCAD:PAX River, MD	13.120	0.000		0.000		0.000		-		0.000	0.000	13.120	
Software Development-TPX-42	WR	NAWCAD:PAX River, MD	11.257	1.153	Dec 2011	1.160	Dec 2012	1.215	Dec 2013	-		1.215	Continuing	Continuing	Continuing
Integrated Logistics Support- TPX-42	WR	NAWCAD:PAX River, MD	0.732	0.075	Dec 2011	0.050	Dec 2012	0.100	Dec 2013	-		0.100	Continuing	Continuing	Continuing
Studies & Analysis-SPN-46	WR	NAWCAD:PAX River, MD	0.273	0.000		0.000		0.000		-		0.000	0.000	0.273	
Software Development - SPN-43	WR	NAWCAD:PAX River, MD	0.000	0.000		0.000		3.500	Dec 2013	-		3.500	0.000	3.500	
Studies & Analysis-SPN-43	WR	NAWCAD:PAX River, MD	1.350	0.050	Dec 2011	0.050	Dec 2012	0.150	Dec 2013	-		0.150	Continuing	Continuing	Continuing
Studies & Analysis-TPX-42	WR	NAWCAD:PAX River, MD	0.250	0.050	Dec 2011	0.050	Dec 2012	0.054	Dec 2013	-		0.054	Continuing	Continuing	Continuing
Integrated Logistics Support - SPN-43	WR	NAWCAD:PAX River, MD	0.000	0.075	Dec 2011	0.100	Dec 2012	0.300	Dec 2013	-		0.300	Continuing	Continuing	Continuing
		Subtotal	26.982	1.403		1.410		5.319		0.000		5.319			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0993: *Carrier ATC*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation- SPN-46	WR	NAWCAD:PAX River, MD	1.645	0.000		0.000		0.000		-		0.000	0.000	1.645	
Developmental Test & Evaluation- TPX-42	WR	NAWCAD:PAX River, MD	1.050	0.458	Dec 2011	0.157	Dec 2012	0.237	Dec 2013	-		0.237	Continuing	Continuing	Continuing
Development Test & Evaluation - SPN-43	WR	NAWCAD:PAX River, MD	0.000	0.000		0.000		0.200	Dec 2013	-		0.200	0.000	0.200	
OperationalTest & Evaluation- TPX-42	WR	OPTEVOR:Norfolk, VA	0.062	0.000		0.000		0.000		-		0.000	0.000	0.062	
		Subtotal	2.757	0.458		0.157		0.437		0.000		0.437			

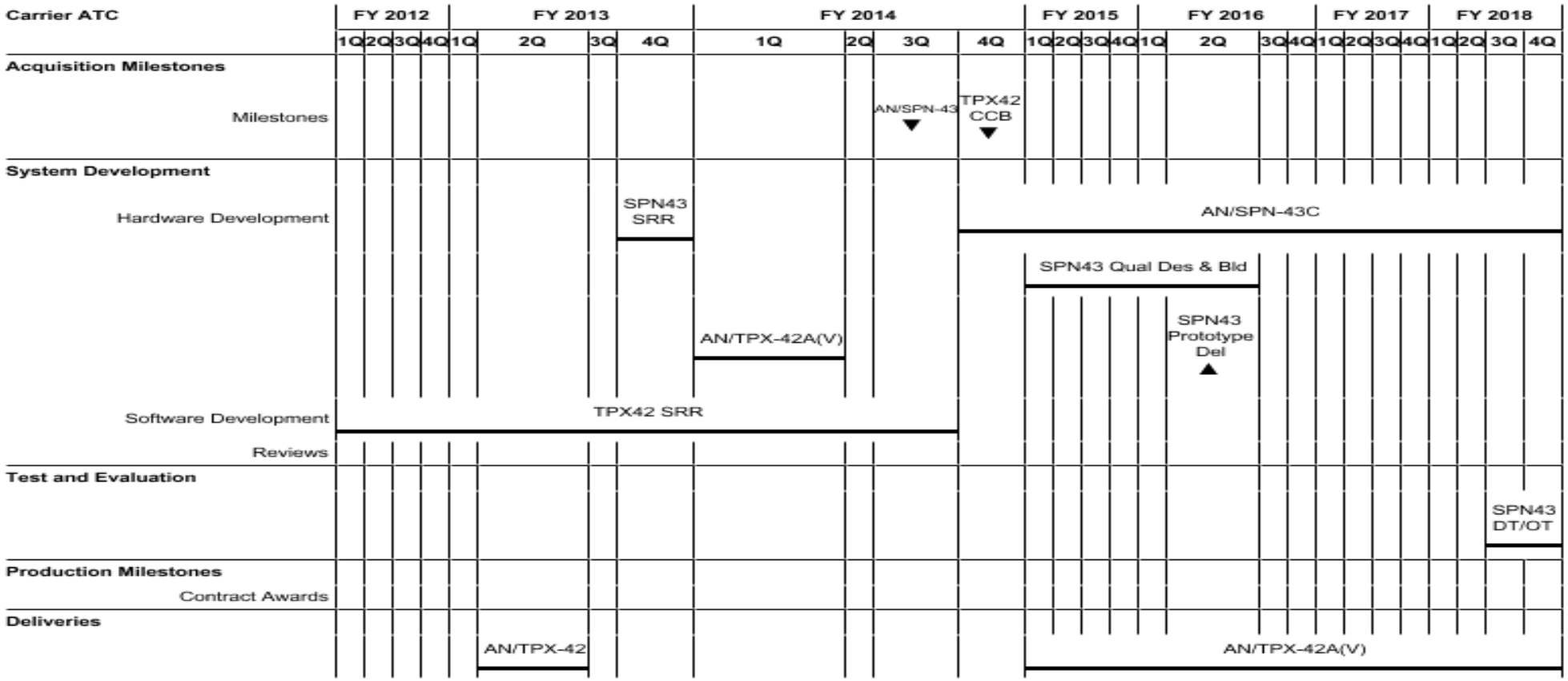
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	American Electronics, Inc.:California, MD	1.937	0.046	Dec 2011	0.046	Dec 2012	0.200	Dec 2013	-		0.200	Continuing	Continuing	Continuing
Program Management Support	WR	NAWCAD:PAX River, MD	0.000	0.103	Dec 2011	0.060	Dec 2012	0.300	Dec 2013	-		0.300	Continuing	Continuing	Continuing
Travel	WR	NAVAIRHQ:PAX River, MD	0.135	0.000		0.000		0.050	Dec 2013	-		0.050	0.000	0.185	
		Subtotal	2.072	0.149		0.106		0.550		0.000		0.550			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	52.661	4.438		4.603		9.728		0.000		9.728			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0993: *Carrier ATC*



2014OSD - 0604504N - 0993

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0993: *Carrier ATC*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Carrier ATC				
Acquisition Milestones: Milestones: Configuration Control Board (TPX42)	4	2014	4	2014
Acquisition Milestones: Milestones: AN/SPN-43 Milestone B	3	2014	3	2014
System Development: Hardware Development: AN/SPN-43C	4	2014	4	2018
System Development: Hardware Development: System Requirement Review (SRR) (SPN43)	4	2013	4	2013
System Development: Hardware Development: Quality Design and Build (SPN43)	1	2015	2	2016
System Development: Hardware Development: Prototype Delivery (SPN43)	2	2016	2	2016
System Development: Hardware Development: Critical Design Review (CDR) TPX42A(V)	1	2014	1	2014
System Development: Software Development: System Requirement Review (SRR) (TPX42)	1	2012	3	2014
Test and Evaluation: Developmental Testing/Operational Testing (SPN43)	3	2018	4	2018
Deliveries: Prototype Deliveries (TPX-42A(V))	2	2013	2	2013
Deliveries: System Deliveries (TPX-42A(V))	1	2015	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 1657: *ATC Improvement*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
1657: *ATC Improvement*	0.000	1.076	0.400	0.402	-	0.402	0.407	0.412	0.419	0.427	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program provides for engineering development, integration, adaptation, and testing of new and/or modernized Air Traffic Control (ATC) systems, air navigational aids, landing systems, and ATC communication systems for Naval and Marine Corps Air Stations (NAS/MCAS) and Fleet Air Traffic Control Systems. These systems are critical to Naval Aviation and provide for safe, efficient air operations. Additionally, the Federal Aviation Administration (FAA) is affecting major modernization of the National Airspace System (NAS). The Navy must maintain compatibility with FAA-developed ATC systems in order to ensure seamless interoperability within the NAS. NAS modernization initiatives in Project 1657 include the Visual Information Display System (VIDS) and follow-on Pre-Planned Product Improvements, with additional RDT&E efforts required for modified commercial-off-the-shelf ATC systems and equipment for modernization and recapitalization of these systems at our NAS, MCAS & Fleet Area Control & Surveillance Facilities (FACSFACs) worldwide. Landing Systems initiatives include re-engineering and technology insertion efforts for the Precision Approach Radar, Tactical Air Navigation System, and other landing systems.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: NAS MOD VIDS	0.930	0.200	0.202
Articles:	0	0	0
Description: Continue engineering development of pre-planned product improvements for the VIDS and initiate efforts to incorporate VIDS into the FACSFACs. Research display alternatives for Navy ATC systems, and evaluate alternatives for future communication and radar systems.			
FY 2012 Accomplishments: Continued engineering development of Pre-Planned Product Improvements for VIDS to incorporate multiple weather source inputs. Continued Standard Terminal Automation Replacement System and VIDS engineering development for technology insertion. Began engineering efforts to maintain interoperability with the FAA's next generation air traffic control system. Additional funding in FY2012 funded the development of a Naval Air Traffic Control and Air Space Management Strategic Plan that provides insight to meet Naval Air Traffic Control requirements through 2030.			
FY 2013 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 1657: *ATC Improvement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continue engineering development of Pre-Planned Product Improvements for VIDS to incorporate multiple weather source inputs. Continue Standard Terminal Automation Replacement System and VIDS engineering development for technology insertion. Continue engineering efforts to maintain interoperability with the FAA's next generation air traffic control system. ***FY 2014 Plans:*** Continue engineering development of Pre-Planned Product Improvements for VIDS to incorporate multiple weather source inputs. Continue Standard Terminal Automation Replacement System and VIDS engineering development for technology insertion. Continue engineering efforts to maintain interoperability with the FAA's next generation air traffic control system.			
Title: Fleet ATC Systems	0.146	0.200	0.200
Articles:	0	0	0
Description: Research efforts to determine the best technical approach to integrate various data link and communication system upgrades into Navy/Marine Corps ATC Systems including but not limited to the Digital Airport Surveillance Radar (DASR) into the Fleet Area Control and Surveillance Facilities (FACSFAC) Fleet Area Control Tracking System (FACTS) 3200 system. Evaluate alternatives for future processor/display, sensor and communication systems. ***FY 2012 Accomplishments:*** Continued engineering development for Navy Scheduling System (NAVSKED)/FACTS Technology Refresh and engineering efforts to maintain interoperability with the FAA's next generation air traffic control system. ***FY 2013 Plans:*** Continue engineering development for NAVSKED/FACTS Technology Refresh and engineering efforts to maintain interoperability with the FAA's next generation air traffic control system. ***FY 2014 Plans:*** Continue engineering development for NAVSKED/FACTS Technology Refresh and engineering efforts to maintain interoperability with the FAA's next generation air traffic control system.			
Accomplishments/Planned Programs Subtotals	1.076	0.400	0.402

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• OPN/2840: *National Air Space System Modernization*	24.581	16.919	19.754		19.754	28.764	28.888	31.348	34.144	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 1657: *ATC Improvement*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• OPN/2845: *Fleet Air Traffic Control Systems*	7.213	6.828	8.909		8.909	9.583	8.964	9.165	9.312	Continuing	Continuing

Remarks

D. Acquisition Strategy

All projects are non-ACAT upgrades to existing systems. An evolutionary acquisition approach is being used to introduce technology advancements that either satisfy emergent requirements or address supportability and cost of ownership problems.

E. Performance Metrics

The ATC Improvement program goal is to continue to research, evaluate and develop display and other alternatives for Navy ATC, communication and radar systems.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 1657: *ATC Improvement*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary HDW Develop - VIDS	WR	SPAWAR Systems Command:Charleston, SC	0.000	0.170	Dec 2011	0.200	Dec 2012	0.202	Dec 2013	-		0.202	Continuing	Continuing	Continuing
Primary HDW Develop - Fleet ATC	WR	SPAWAR Systems Center:Charleston, SC	0.000	0.146	Dec 2011	0.200	Dec 2012	0.200	Dec 2013	-		0.200	Continuing	Continuing	Continuing
		Subtotal	0.000	0.316		0.400		0.402		0.000		0.402			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	SPAWAR Systems Center:Charleston, SC	0.000	0.760	Jun 2012	0.000		0.000		-		0.000	0.000	0.760	
		Subtotal	0.000	0.760		0.000		0.000		0.000		0.000	0.000	0.760	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	1.076		0.400		0.402		0.000		0.402			

Remarks