Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy											Date: February 2015	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604504N *I Air Control*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	63.928	9.664	29.037	57.928	-	57.928	53.368	65.570	52.446	53.648	Continuing	Continuing
0718: *MATCALS*	1.229	2.330	4.103	1.412	-	1.412	1.215	1.017	0.638	0.650	Continuing	Continuing
0993: *Carrier ATC*	61.229	6.361	12.818	40.559	-	40.559	33.270	33.783	29.715	30.451	Continuing	Continuing
1657: *ATC Improvement*	1.470	0.973	0.404	0.399	-	0.399	0.402	0.410	0.419	0.428	Continuing	Continuing
3372: *ATC Systems*	0.000	-	11.712	15.558	-	15.558	18.481	30.360	21.674	22.119	Continuing	Continuing

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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	10.754	29.037	69.486	-	69.486
Current President's Budget	9.664	29.037	57.928	-	57.928
Total Adjustments	-1.090	-	-11.558	-	-11.558
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.014	-			
• SBIR/STTR Transfer	-0.076	-			
• Program Adjustments	-	-	-10.995	-	-10.995
• Rate/Misc Adjustments	-	-	-0.563	-	-0.563

Change Summary Explanation

The FY 2016 funding request was reduced by $0.995 million to account for the availability of prior year execution balances

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy	Date: February 2015
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604504N *I Air Control*

Technical: Not applicable.
Schedule: The G/ATOR Program has been rebaselined due to Service priorities.
Cost: Project 0718 (MATCALS) FY 2016 program was reduced to properly phase program requirements in accordance with expenditures. The G/ATOR Program has been rebaselined due to Service priorities. Project 0993 (Carrier ATC) The FY 2016 funding request was reduced by $10.0 million in the SPN-50 contract award based on cost estimates received from local industry. This reduction does not affect the planned contract award or the program's ability to meet objectives.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / *Air Control*	Project (Number/Name) 0718 / *MATCALS*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
0718: *MATCALS*	1.229	2.330	4.103	1.412	-	1.412	1.215	1.017	0.638	0.650	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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 operations and improved flight safety of Air Traffic Control (ATC) and Landing Systems at Marine Corps expeditionary airfields. An Acquisition Decision Memorandum from Jan 2005 approved the use of the U.S. Army AN/TPN-31 Air Traffic Navigation, Integration, and Coordination System (ATNAVICS) to fulfill the Air Surveillance and Precision Approach Radar and Control System (ASPARCS) requirement for Jul 2006. The ATNAVICS will replace the legacy ATC Precision Approach Radar (PAR), Airport Surveillance Radar (ASR), and Command and Control Subsystem with a High Mobility Multipurpose Wheeled Vehicle based PAR, ASR and Command and Control Subsystem. The MROC Decision Memorandum 11-2005 of Dec 2004 outlines the evolutionary improvements required by Headquarters Marine Corps (HQMC). This program works with the Marine ATC Working Group identifying the requirements to implement the P3I and evolutionary product improvements as required for G/ATOR, ATNAVICS, Expeditionary ATC Towers, and Navigational Aids that support Marine Air Traffic Control Detachments (MATCD).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: ASPARCS Improvements	2.230	3.608	0.617	-	0.617
Articles:	-	-	-	-	-
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 Mode 5/S integration, operational functionality study and analyses with AN/TPN-31(V)7 ATNAVICS System.					
FY 2014 Accomplishments: Extend the Tactical Air Navigation Modernization Part 1 ECP to include transportability testing which will reduce operational footprint and increase supportability and transportability. Start a Part 1 ECP for the AN/TSQ-216 Remote Landing Site Tower to replace obsolete generator. Perform developmental work on the AN/TSQ-120C Tower and produce a Plan of Action and Milestones outlining options for the mobilization of the Tower-Down Shelter. Start a Part 1 ECP to integrate the Mode 5 capability into the AN/TPN-31(V) ATNAVICS. Start a Part 1 ECP for the TSQ-120C to investigate and resolve obsolescence issues and to improve expeditionary mobility.					
FY 2015 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604504N / *Air Control*	**Project (Number/Name)** 0718 / *MATCALS*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Develop Expeditionary Air Traffic Control (ATC) Tower capability improvements via the ECP process as assessed by the Decision Analysis Support (DAS) study conducted by NAVAIR 4.10. A Data Information Part 1 ECP will be performed to address mobility, alternate power source, and locate communication (radar, visual, weather, links, Non-Classified Internet Protocol Router & Secret Internet Protocol Router) enhancing products that will provide greater situational awareness for the air traffic controller in an expeditionary environment. Perform Mode 5/S integration, operational functionality study and analyses with AN/TPN-31(V)7 ATNAVICS System. ***FY 2016 Base Plans:*** Complete the ATC Tower capability improvement Part 1 ECP that recommend which areas; mobility, alternate power source, and identify additional communication (radar, visual, weather, links, Non-Classified Internet Protocol Router & Secret Internet Protocol Router) products that can be upgraded via a Part 2 ECP and provide greater situational awareness for air traffic controllers utilizing these systems. ***FY 2016 OCO Plans:*** N/A					
Title: Ground/Air Task Oriented Radar System (G/ATOR) Block 4	0.100	0.495	0.795	-	0.795
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 Unmanned Arial Systems (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 Block 4, scheduled for an Initial Operating Capability in 2QFY19, will add military air traffic control functionality, development of Mode 5/S capability, Federal Aviation Administration (FAA) flight certification requirements, and the ability to integrate with AN/TPN-31(V) Air Traffic Navigation, Integration, and Coordination System (ATNAVICS) for Precision Approach Radar. This increment of G/ATOR replaces the Marine Corps' AN/					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604504N / *Air Control*	**Project (Number/Name)** 0718 / *MATCALS*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
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 Accomplishments:*** Begins development of the Mode 5/S capability and integration of Command & Control functionality with AN/TPN-31(V) ATNAVICS. ***FY 2015 Plans:*** Begin efforts to achieve Federal Aviation Administration (FAA) flight certification for G/ATOR. Commence Command & Control (C2) and AN/TPN-31(V)7 integration requirements. Continue Mode 5/S development for G/ATOR. ***FY 2016 Base Plans:*** Complete the hardware/software development to achieve FAA flight certification for G/ATOR. Complete the hardware/software requirements for the integration of AN/TPN-31(V) ATNAVICS and G/ATOR. Complete the Mode 5/S development for G/ATOR. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	2.330	4.103	1.412	-	1.412

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPN/2815: *MATCALS*	8.953	16.999	10.011	-	10.011	8.546	5.926	6.074	6.203	Continuing	Continuing
• RDTEN/0204460M: *G/ATOR*	74.432	99.082	80.129	-	80.129	84.424	36.109	10.192	6.254	Continuing	Continuing
• PMC/4650: *RADAR SYSTEMS*	102.522	17.295	35.118	-	35.118	25.183	19.602	23.535	24.042	Continuing	Continuing

Remarks

D. Acquisition Strategy

An Acquisition Decision Memorandum was signed in Jan 2005 approving the procurement of the Army AN/TPN-31 Air Traffic Navigation, Integration, and Coordination System (ATNAVICS) 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 required by Headquarters Marine Corps (HQMC). This program has joined with the Army to implement Pre-Planned Product Improvements (P3I) and evolutionary product improvements. G/ATOR Block IV, scheduled for an Initial Operating Capability in 2019, will add military air traffic control Federal Aviation Administration flight certification requirements, and the ability to integrate with AN/TPN-31 (ATNAVICS) for

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604504N / *Air Control*	**Project (Number/Name)** 0718 / *MATCALS*

Precision Approach Radar. The Marine Air Traffic Control (ATC) Working Group identified requirements to address obsolescence issues with ATC Expeditionary Towers. These requirements were validated by APX-25 and a Decision Analysis Study was conducted by NAVAIR 4.10. Funding will address development of expeditionary ATC Tower capability improvements via the Engineering Change Proposal (ECP) process.

E. Performance Metrics

The MATCALS RDTEN funding will be utilized to continue development of evolutionary improvements envisioned by HQMC for the MATCALS Family of Systems.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / *Air Control*	Project (Number/Name) 0718 / *MATCALS*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary HDW Develop - ASPARCS Mode 5/S	WR	NAWCAD : Patuxent River, MD	0.000	-		0.489	Dec 2014	-		-		-	-	0.489	-
Primary HDW Develop - ASPARCS	WR	SPAWARSYSCEN : San Diego, CA	0.000	-		2.295	Dec 2014	-		-		-	-	2.295	-
		Subtotal	0.000	-		2.784		-		-		-	-	2.784	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development - G/ ATOR	WR	NSWC : Dahlgren, VA	0.000	-		-		-		-		-	Continuing	Continuing	Continuing
Software Development - ASPARCS	WR	NAWCAD : Patuxent River, MD	1.229	2.090	Dec 2013	0.624	Dec 2014	0.617	Dec 2015	-		0.617	Continuing	Continuing	Continuing
Software Development - Mode 5/S Dev - G/ATOR	SS/CPIF	Telephonics : Huntington Station, NY	0.000	-		0.495	Jun 2015	0.595	Jun 2016	-		0.595	-	1.090	1.090
		Subtotal	1.229	2.090		1.119		1.212		-		1.212	-	-	-

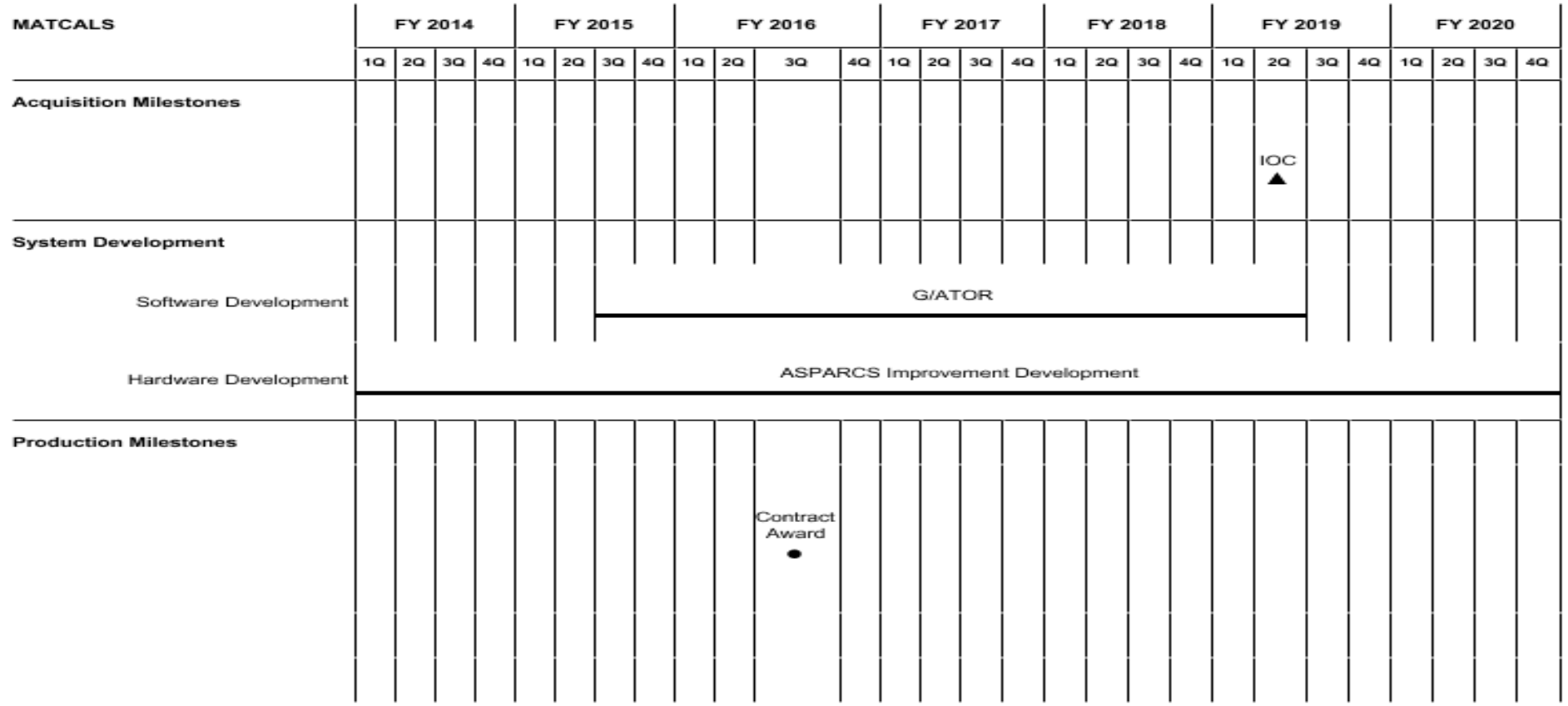
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD : Patuxent River, MD	0.000	0.240	Dec 2013	0.200	Dec 2014	0.200	Dec 2015	-		0.200	Continuing	Continuing	Continuing
		Subtotal	0.000	0.240		0.200		0.200		-		0.200	-	-	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1.229	2.330		4.103		1.412		-		1.412	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604504N / *Air Control*	**Project (Number/Name)** 0718 / *MATCALS*



2016PB - 0604504N - 0718

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604504N / *Air Control*	**Project (Number/Name)** 0718 / *MATCALS*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
MATCALS				
Acquisition Milestones: G/ATOR Block 4	2	2019	2	2019
System Development: Software Development: G/ATOR	3	2015	2	2019
System Development: Hardware Development: ASPARCS Improvements	1	2014	4	2020
Production Milestones: G/ATOR Block 4	3	2016	3	2016

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy											Date: February 2015	
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604504N / *Air Control*				Project (Number/Name) 0993 / *Carrier ATC*			
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
0993: *Carrier ATC*	61.229	6.361	12.818	40.559	-	40.559	33.270	33.783	29.715	30.451	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Shipboard Air Traffic Control (SATC) systems, interfacing with versions of the AN/TPX-42A(V) Direct Altitude and Identity Readout (DAIR), allow shipboard Air Traffic Controllers to identify, marshal, and direct aircraft within a 50 Nautical Mile (NM) radius of the ship. In recent years, the top 25 percent of the AN/SPN-43C frequency band has been reallocated to the Fixed Wireless Access Community prohibiting Air Traffic Control (ATC) Air Search Radar (ASR) operation within 50NM of the coast. Because the Navy requires an air traffic control surveillance radar, this project unit will include engineering efforts to identify requirements and develop the AN/SPN-50(V)1 as an AN/SPN-43C replacement system. In addition, bridging ECPs will be required to sustain the AN/SPN-43C capability until the AN/SPN-50(V)1 is completely fielded. Finally, the AN/TPX-42A(V) Direct Altitude and Identity Readout (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 open architecture COTS technology, converting the operational program software to more commonly used and flexible "C" language, providing the "hooks" for potential interface with Mode 5 Identification Friend or Foe, and integrating a flat panel monitor into the controller work station. 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-42A(V) will improve controller training and increase flight safety.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**
Title: AN/SPN-50	-	-	35.622	-	35.622
Articles:	-	-	-	-	-
Description: This project funds the development of the AN/SPN-43C replacement program (AN/SPN-50), which was previously funded under AN/SPN-43C and is being broken out for administrative reasons. This system enables Air Traffic Controllers to assure the safe and expeditious movement of air traffic. This capability is an enabler in maintaining launch/recovery cycle times/sortie rates. #3 CVN NARG, #1 ATC NARG priorities.					
FY 2014 Accomplishments: N/A					
FY 2015 Plans: N/A					
FY 2016 Base Plans: Complete Source Selection for AN/SPN-50, award contract.					
FY 2016 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604504N / *Air Control*	**Project (Number/Name)** 0993 / *Carrier ATC*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
N/A					
Title: AN/SPN-43C	4.619	10.932	1.675	-	1.675
Articles:	-	-	-	-	-
Description: This project funds the development of the AN/SPN-43C replacement program and the development of sustainment Engineering Change Proposals (ECP) for the existing system. The sustainment effort will ensure the capabilities provided by the AN/SPN-43C remain available to CVN, LHA and LHD type ships until the replacement system is fielded. ***FY 2014 Accomplishments:*** Prepare documentation for AN/SPN-43 replacement program (AN/SPN-50(V)1) MS B decision. Prepare for source selection. Continued sustainment ECPs for AN/SPN-43C. ***FY 2015 Plans:*** Release RFP and initiate source selection for AN/SPN-50(V)1 contract award. Continue sustainment ECPs for the AN/SPN-43C. ***FY 2016 Base Plans:*** Continue sustainment ECPs for AN/SPN-43C. ***FY 2016 OCO Plans:*** N/A					
Title: AN/TPX-42	1.742	1.886	3.262	-	3.262
Articles:	-	-	-	-	-
Description: This project funds the ongoing modernization of the AN/TPX-42 system through engineering changes and technology refresh. Specific engineering changes are: Development of a Multi Function Console (MFC) which will consolidate and replace the AN/SPN-46/35 as well as AN/TPX-42 displays with a single multifunction air traffic control display configuration; Replacement of the AN/TPX-42 proprietary Radar Data Processor with an open architecture design and replacement of the system's obsolete voice recorder. It is expected that the MFC will lead to a nomenclature change for this system. ***FY 2014 Accomplishments:*** Complete part 1 AN/TPX-42A(V) embedded trainer ECP, develop the part 2 ECP and conduct critical design review for AN/TPX-42A(V) embedded trainer. ***FY 2015 Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604504N / *Air Control*	**Project (Number/Name)** 0993 / *Carrier ATC*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Complete Multi Function Console Part 1 ECP and develop the Part 2 ECP. ***FY 2016 Base Plans:*** Complete Voice Recorder Part 1 Engineering Change Proposal (ECP) and develop the Part 2 ECP. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	6.361	12.818	40.559	-	40.559

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPN/2831: *Shipboard Air Traffic Control*	8.675	9.366	9.346	-	9.346	9.177	9.225	9.434	9.630	Continuing	Continuing
• OPN/2832: *Automatic Carrier Landing Systems*	20.758	21.357	21.281	-	21.281	26.551	36.998	40.879	41.735	Continuing	Continuing

Remarks

D. Acquisition Strategy

AN/SPN-46 Computer Group replacement subprojects are part of the AN/SPN-46 Life Cycle Extension (LCE) project, which is an Engineering Change Proposal (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 Air Traffic Control (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

Configuration Control Board for AN/TPX-42A(V) will occur in fourth quarter FY2015.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / *Air Control*	Project (Number/Name) 0993 / *Carrier ATC*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary HDW Develop-SPN-46	WR	NAWCAD : PAX River, MD	11.546	-		-		-		-		-	-	11.546	-
Primary HDW Develop-SPN-46	SS/CPIF	SNC : Sierra, NV	6.356	-		-		-		-		-	-	6.356	6.356
Primary HDW Develop-TPX-42	WR	NAWCAD : PAX River, MD	4.347	0.300	Dec 2013	0.400	Dec 2014	0.374	Dec 2015	-		0.374	Continuing	Continuing	Continuing
Primary HDW Develop - SPN-43	WR	NAWCAD : PAX River, MD	1.608	1.137	Dec 2013	0.500	Dec 2014	0.474	Dec 2015	-		0.474	Continuing	Continuing	Continuing
Primary HDW Develop - SPN-50(V)1	TBD	TBD : TBD	0.000	-		-		26.770	Jun 2016	-		26.770	203.230	230.000	230.000
		Subtotal	23.857	1.437		0.900		27.618		-		27.618	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development-SPN-46	WR	NAWCAD : PAX River, MD	13.120	-		-		-		-		-	-	13.120	-
Software Development-TPX-42	WR	NAWCAD : PAX River, MD	13.406	1.215	Dec 2013	1.400	Dec 2014	1.734	Dec 2015	-		1.734	Continuing	Continuing	Continuing
Integrated Logistics Support- TPX-42	WR	NAWCAD : PAX River, MD	1.409	0.100	Dec 2013	0.110	Dec 2014	0.120	Dec 2015	-		0.120	Continuing	Continuing	Continuing
Integrated Logistics Support - SPN-43	WR	NAWCAD : PAX River, MD	0.115	0.200	Dec 2013	0.306	Dec 2014	0.310	Dec 2015	-		0.310	Continuing	Continuing	Continuing
Integrated Logistics Support-SPN-50(V)1	WR	NAWCAD : PAX River, MD	0.305	-		0.500	Dec 2014	0.700	Dec 2015	-		0.700	-	1.505	-
Studies & Analysis-SPN-50(V)1	WR	NAWCAD : PAX River, MD	0.802	0.140	Dec 2013	2.500	Dec 2014	0.800	Dec 2015	-		0.800	-	4.242	-
Studies & Analysis-SPN-46	WR	NAWCAD : PAX River, MD	0.273	-		-		-		-		-	-	0.273	-
Software Development - SPN-50(V)1	WR	NAWCAD : PAX River, MD	0.000	1.218	Dec 2013	2.087	Dec 2014	3.841	Dec 2015	-		3.841	-	7.146	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / *Air Control*	Project (Number/Name) 0993 / *Carrier ATC*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Studies & Analysis-SPN-43	WR	NAWCAD : PAX River, MD	1.919	0.010	Dec 2013	0.060	Dec 2014	0.020	Dec 2015	-		0.020	Continuing	Continuing	Continuing
Studies & Analysis-TPX-42	WR	NAWCAD : PAX River, MD	0.300	0.054	Dec 2013	0.500	Dec 2014	0.100	Dec 2015	-		0.100	Continuing	Continuing	Continuing
Systems Engineering-SPN-50(V)1	WR	NAWCAD : PAX River, MD	0.000	1.000	Dec 2013	1.900	Dec 2014	2.911	Dec 2015	-		2.911	-	5.811	-
		Subtotal	31.649	3.937		9.363		10.536		-		10.536	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation- SPN-46	WR	NAWCAD : PAX River, MD	1.645	-		-		-		-		-	-	1.645	-
Developmental Test & Evaluation- TPX-42	WR	NAWCAD : PAX River, MD	1.608	0.237	Dec 2013	0.400	Dec 2014	0.500	Dec 2015	-		0.500	Continuing	Continuing	Continuing
Development Test & Evaluation - SPN-43	WR	NAWCAD : PAX River, MD	0.000	0.200	Dec 2013	0.700	Dec 2014	0.600	Dec 2015	-		0.600	-	1.500	-
OperationalTest & Evaluation- TPX-42	WR	OPTEVOR : Norfolk, VA	0.062	-		-		-		-		-	-	0.062	-
Operational Test & Evaluation-SPN-50(V)1	WR	OPTEVOR : Norfolk, VA	0.000	-		0.500	Dec 2014	0.600	Dec 2015	-		0.600	-	1.100	-
		Subtotal	3.315	0.437		1.600		1.700		-		1.700	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	American Electronics, Inc. : California, MD	1.995	0.200	Dec 2013	0.300	Dec 2014	0.300	Dec 2015	-		0.300	1.500	4.295	4.295

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604504N / *Air Control*	**Project (Number/Name)** 0993 / *Carrier ATC*

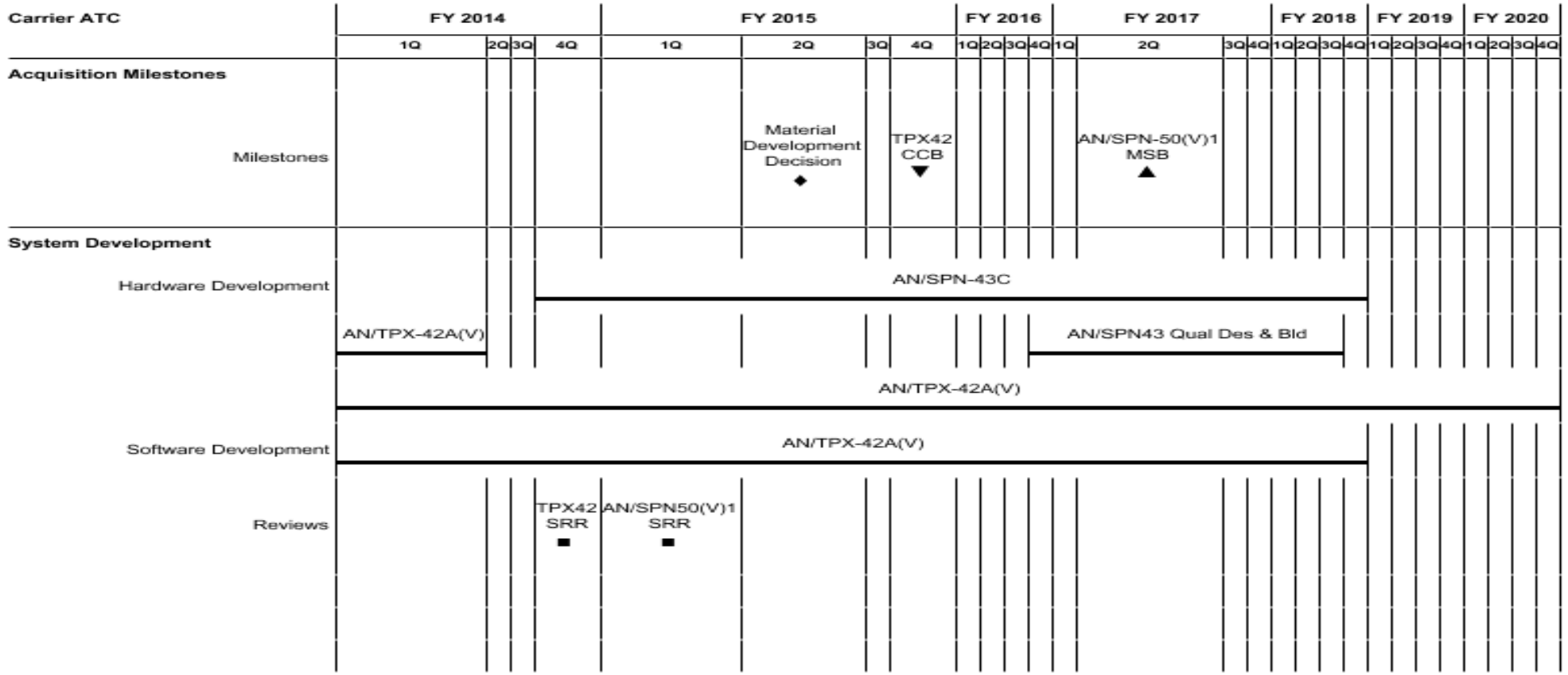
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD : PAX River, MD	0.278	0.300	Dec 2013	0.600	Dec 2014	0.350	Dec 2015	-		0.350	Continuing	Continuing	Continuing
Travel	WR	NAVAIRHQ : PAX River, MD	0.135	0.050	Oct 2013	0.055	Oct 2014	0.055	Oct 2015	-		0.055	-	0.295	-
		Subtotal	2.408	0.550		0.955		0.705		-		0.705	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	61.229	6.361		12.818		40.559		-		40.559	-	-	-

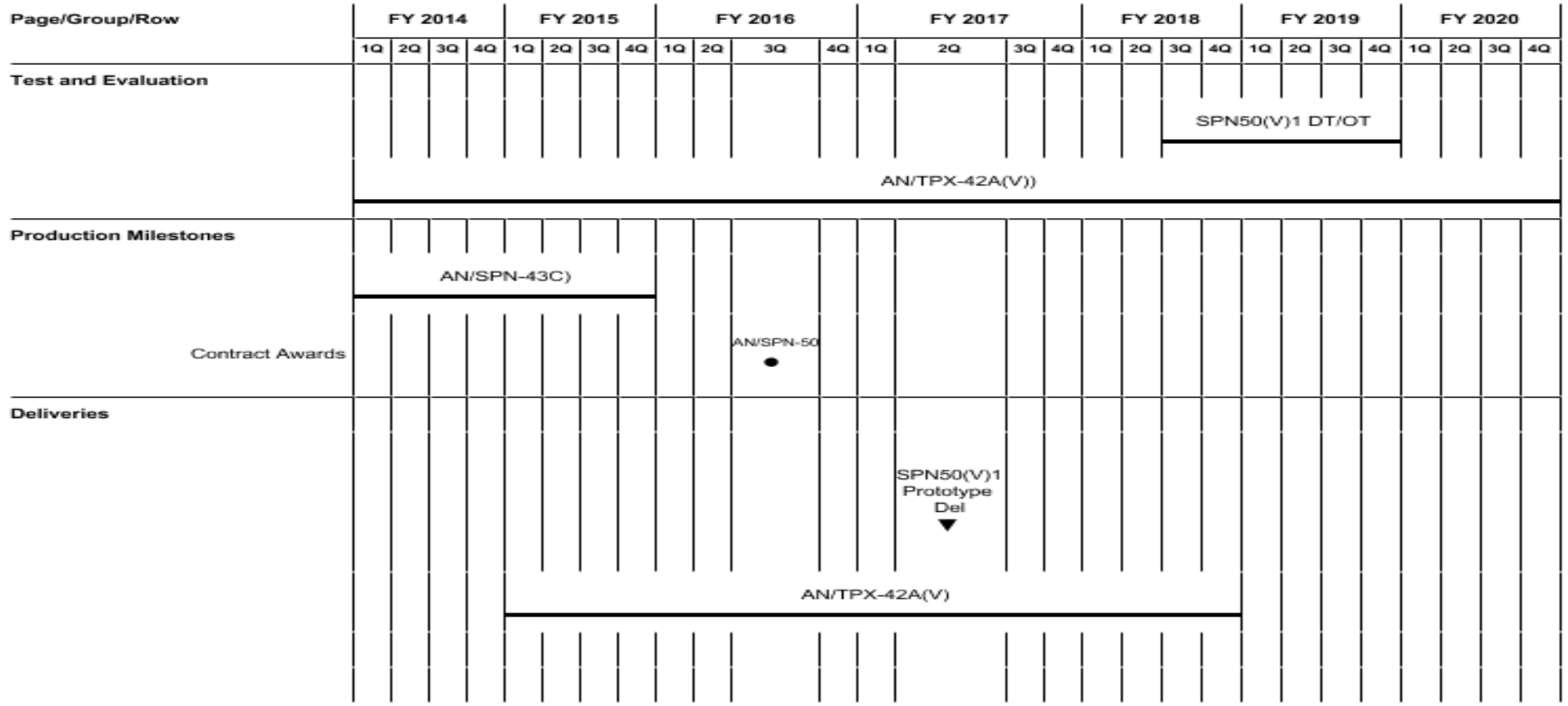
Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604504N / *Air Control*	**Project (Number/Name)** 0993 / *Carrier ATC*



2016PB - 0604504N - 0993

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604504N / *Air Control*	**Project (Number/Name)** 0993 / *Carrier ATC*



2016PB - 0604504N - 0993

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604504N / *Air Control*	**Project (Number/Name)** 0993 / *Carrier ATC*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Carrier ATC				
Acquisition Milestones: Milestones: Configuration Control Board (AN/TPX42A(V))	4	2015	4	2015
Acquisition Milestones: Milestones: Material Development Decision	2	2015	2	2015
Acquisition Milestones: Milestones: AN/SPN-50(V)1 Milestone B	2	2017	2	2017
System Development: Hardware Development: AN/SPN-43C	4	2014	4	2018
System Development: Hardware Development: Quality Design and Build (AN/SPN43C)	4	2016	3	2018
System Development: Hardware Development: Critical Design Review (CDR) TPX42A(V)	1	2014	1	2014
System Development: Hardware Development: AN/TPX-42A(V)	1	2014	4	2020
System Development: Software Development: AN/TPX-42A(V)	1	2014	4	2018
System Development: Reviews: System Requirement Review (SRR) (AN/SPN-50)	1	2015	1	2015
System Development: Reviews: System Requirement Review (SRR) (AN/TPX42(V))	4	2014	4	2014
Page/Group/Row				
Test and Evaluation: Developmental Testing/Operational Testing (AN/SPN-50)	3	2018	4	2019
Test and Evaluation: Developmental Testing (AN/TPX-42A(V))	1	2014	4	2020
Production Milestones: Developmental Testing (AN/SPN-43C)	1	2014	4	2015
Production Milestones: Contract Awards: AN/SPN-50 EDM Contract Award	3	2016	3	2016
Deliveries: Prototype Delivery (AN/SPN50)	2	2017	2	2017
Deliveries: System Deliveries (TPX-42A(V))	1	2015	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / *Air Control*	Project (Number/Name) 1657 / *ATC Improvement*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
1657: *ATC Improvement*	1.470	0.973	0.404	0.399	-	0.399	0.402	0.410	0.419	0.428	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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 ATC 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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: NAS MOD VIDS	0.773	0.202	0.199	-	0.199
Articles:	-	-	-	-	-

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 2014 Accomplishments:
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 next generation air traffic control system. The program also continued development of the Naval Air Traffic Control and Air Space Management Strategic Plan to further develop the aforementioned engineering efforts in support of the strategic planning roadmap development which will provide insight to meet Naval Air Traffic Control requirements and maintain interoperability with the FAA's next generation air traffic control systems through 2030.

FY 2015 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

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604504N / *Air Control*	**Project (Number/Name)** 1657 / *ATC Improvement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
development for technology insertion. Continue engineering efforts to maintain interoperability with the Federal Aviation Administration's (FAA) next generation air traffic control system. ***FY 2016 Base Plans:*** Continue engineering development of Pre-Planned Product Improvements for Visual Information Display System (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 next generation air traffic control system. ***FY 2016 OCO Plans:*** N/A					
Title: Fleet ATC Systems	0.200	0.202	0.200	-	0.200
Articles:	-	-	-	-	-
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 2014 Accomplishments:*** Continue engineering development for Navy Scheduling (NAVSKED)/FACTS Technology Refresh and engineering efforts to maintain interoperability with the FAA's next generation air traffic control system. ***FY 2015 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 2016 Base 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 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	0.973	0.404	0.399	-	0.399

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604504N / *Air Control*	**Project (Number/Name)** 1657 / *ATC Improvement*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPN/2840: *National Air Space System Modernization*	16.870	26.639	25.621	-	25.621	27.718	30.117	30.553	31.195	Continuing	Continuing
• OPN/2845: *Fleet Air Traffic Control Systems*	8.909	9.214	8.249	-	8.249	8.381	8.510	8.618	8.799	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 Air Traffic Control (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 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604504N / *Air Control*	**Project (Number/Name)** 1657 / *ATC Improvement*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary HDW Develop - VIDS	WR	SPAWAR Systems Command : Charleston, SC	0.369	0.773	Dec 2013	0.202	Dec 2014	0.199	Dec 2015	-		0.199	Continuing	Continuing	Continuing
Primary HDW Develop - Fleet ATC	WR	SPAWAR Systems Center : Charleston, SC	0.344	0.200	Dec 2013	0.202	Dec 2014	0.200	Dec 2015	-		0.200	Continuing	Continuing	Continuing
		Subtotal	0.713	0.973		0.404		0.399		-		0.399	-	-	-

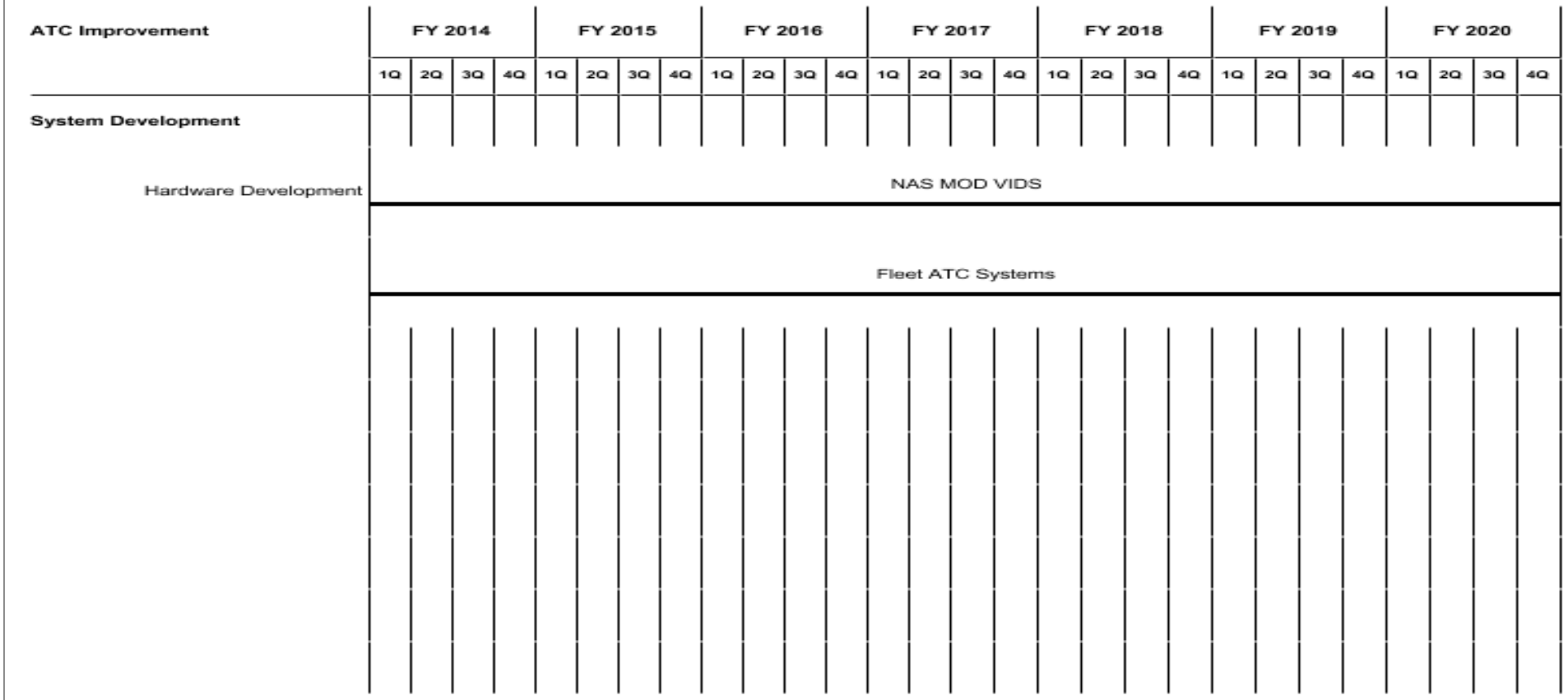
Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	SPAWAR Systems Center : Charleston, SC	0.757	-		-		-		-		-	-	0.757	-
		Subtotal	0.757	-		-		-		-		-	-	0.757	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1.470	0.973		0.404		0.399		-		0.399	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604504N / *Air Control*	**Project (Number/Name)** 1657 / *ATC Improvement*



2016PB - 0604504N - 1657

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604504N / *Air Control*	**Project (Number/Name)** 1657 / *ATC Improvement*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
ATC Improvement				
System Development: Hardware Development: NAS MOD VIDS	1	2014	4	2020
System Development: Hardware Development: Fleet ATC Systems	1	2014	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / *Air Control*	Project (Number/Name) 3372 / *ATC Systems*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
3372: *ATC Systems*	-	-	11.712	15.558	-	15.558	18.481	30.360	21.674	22.119	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Landing System Upgrade Program (LSUP) consists of life cycle extension (LCE) upgrades to the AN/SPN-35C Precision Approach Radar (PAR), AN/SPN-41B (Instrument Control Landing Systems (ICLS)) and AN/SPN-46 Automatic Carrier Landing Systems (ACLS) systems which support Air Traffic Control (ATC) operations on board CVN, LHA, or LHD-class ships. This effort includes numerous commercial off-the-shelf (COTS) component refresh updates which are urgently needed to sustain the operational viability of these Naval ATC systems in order to support Fleet air operations for at least the next 15 years until the next generation ATC system is fully implemented. This COTS refresh will include analysis and upgrade of key system components that are critical to overall system operation but have become increasingly difficult to maintain over the past few years. Recent adjustments in the direction and scope of Naval ATC systems have necessitated a re-evaluation of the long-term viability and sustainability of the current Fleet ATC equipment.

This COTS Refresh is expected to include analysis and upgrade of the following components: Gearbox Stepper Motors, Logic Controller Assembly, Power Supplies, Roll Encoder Assembly, Micro Electro Mechanical Systems (MEMs) Assembly, Fiber Optic Media Converters, Touchscreen Display Assembly, Communication Assembly, Maintenance Test Drawer Assembly, and Radio Frequency RF Monitor Assembly, and upgrades of the Transmitters and Radomes are expected to ensure accurate and continuous functionality of the AN/SPN-41B system. Additionally, COTS refreshes will be necessary to mitigate obsolescence concerns for power supplies and various circuit card assemblies.

Recent changes to the Navy's Precision Approach and Landing Capability requirements have necessitated Life Cycle Extension upgrades to legacy landing systems, AN/SPN-35, AN/SPN-41 and AN/SPN-46.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: AN/SPN-46 Blk IV Upgrade	-	11.712	15.558	-	15.558
Articles:	-	-	-	-	-
Description: Blk IV consists of antenna pedestal upgrades, addresses transmitter obsolescence issues, and replacement of obsolete circuit cards.					
FY 2014 Accomplishments: N/A					
FY 2015 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604504N / *Air Control*	**Project (Number/Name)** 3372 / *ATC Systems*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Begin hardware and software development of the AN/SPN-46 Blk IV upgrade. Award development contract for addressing part/circuit card obsolescence. ***FY 2016 Base Plans:*** Continue hardware and software development of the AN/SPN-46 Blk IV upgrade; continue addressing circuit card and other (part) obsolescence issues. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	-	11.712	15.558	-	15.558

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPN/2832: *ACLS*	20.758	21.357	21.281	-	21.281	26.551	36.998	40.879	41.735	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Resources and Requirements Review Board approved the Department of the Navy (DON) Precision Approach and Landing Capability (PALC) Roadmap per Decision Memorandum (DM) Ser: N8B/13U141053 dtd 03 July 2013. This PALC Roadmap re-scoped Joint Precision Approach and Landing System (JPALS) into a single increment. As a result, a requirement to upgrade current SPNs has emerged. Per Enclosure 1 of the above DM, the Landing Systems Upgrade Program will be comprised of the AN/SPN-46, AN/SPN-35C, and AN/SPN-41B and is anticipated that each SPN upgrade will go through separate Material Development Decisions (MDD) and Milestones.

E. Performance Metrics

MDD in FY14 for upgrade of the AN/SPN-46.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / *Air Control*	Project (Number/Name) 3372 / *ATC Systems*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development - AN/SPN-46 Blk IV Upgrade	WR	NAWCAD : Patuxent River, MD	0.000	-		3.467	Jan 2015	3.401	Nov 2015	-		3.401	Continuing	Continuing	Continuing
Ancillary Hardware Development - AN/SPN-46 Blk IV Upgrade	C/CPFF	Sierra Nevada Corp (SNC) : Reno, NV	0.000	-		7.500	Apr 2015	10.598	Dec 2015	-		10.598	Continuing	Continuing	Continuing
		Subtotal	0.000	-		10.967		13.999		-		13.999	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support (ILS)	WR	NAWCAD : Patuxent River, MD	0.000	-		0.200	Jan 2015	0.800	Nov 2015	-		0.800	Continuing	Continuing	Continuing
Systems Engineering Support	WR	NAWCAD : Patuxent River, MD	0.000	-		0.145	Jan 2015	0.400	Nov 2015	-		0.400	Continuing	Continuing	Continuing
		Subtotal	0.000	-		0.345		1.200		-		1.200	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management (PM) Support	WR	NAWCAD : Patuxent River, MD	0.000	-		0.300	Jan 2015	0.339	Nov 2015	-		0.339	Continuing	Continuing	Continuing
PM Suppt - MSS	C/CPAF	TBD : Patuxent River, MD	0.000	-		0.100	Jan 2015	0.020	Nov 2015	-		0.020	Continuing	Continuing	Continuing
		Subtotal	0.000	-		0.400		0.359		-		0.359	-	-	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		11.712		15.558		-		15.558	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / *Air Control*	Project (Number/Name) 3372 / *ATC Systems*	

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604504N / *Air Control*	**Project (Number/Name)** 3372 / *ATC Systems*

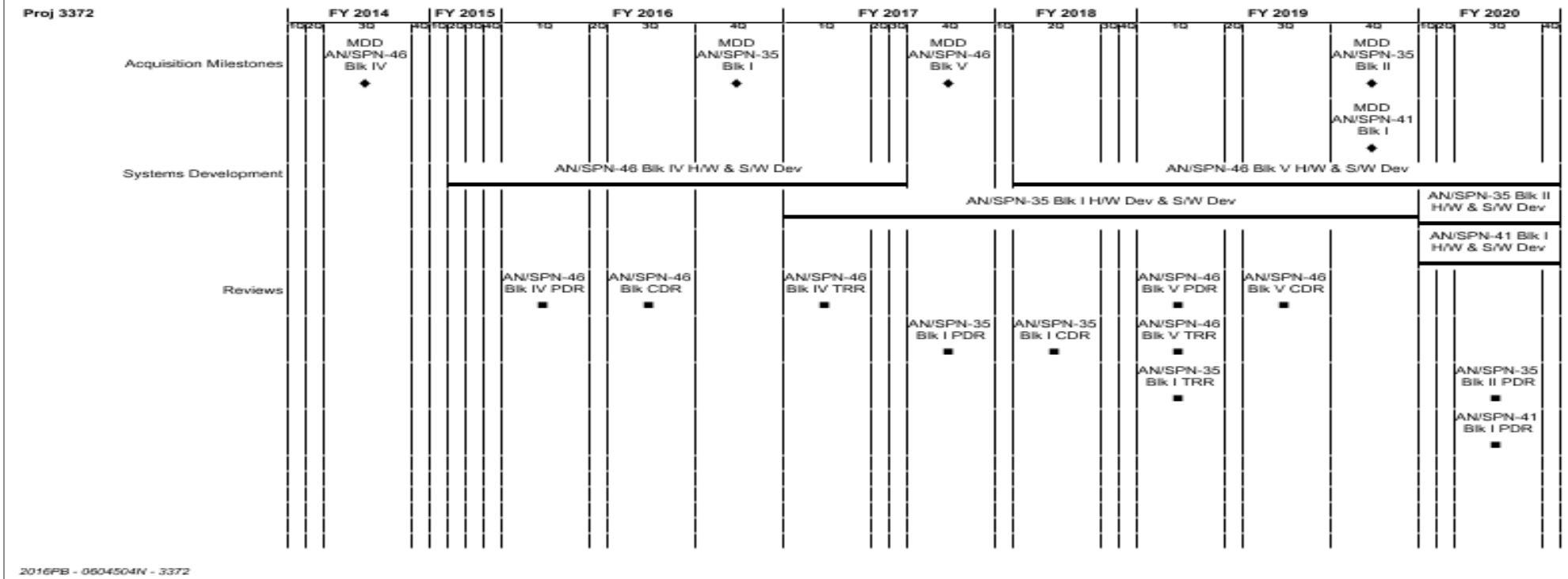
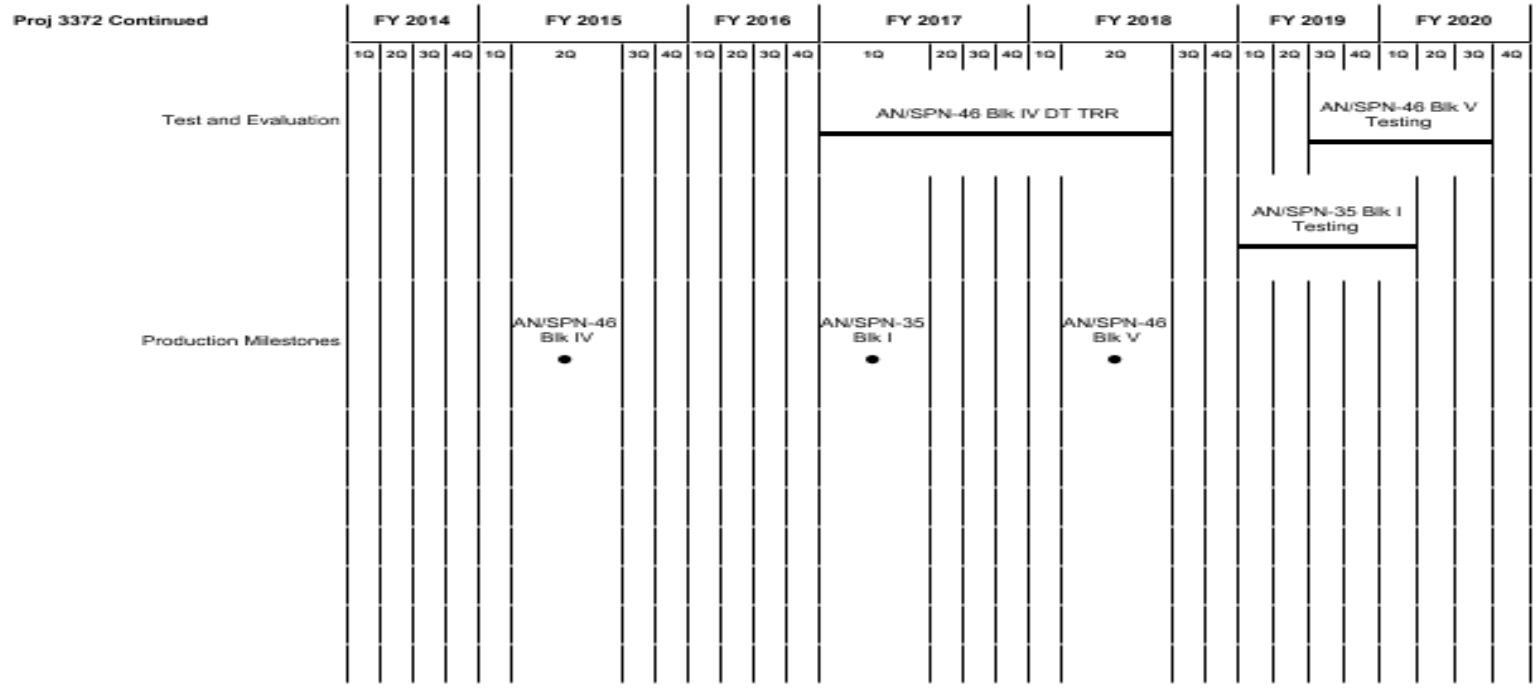


Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604504N / *Air Control*	**Project (Number/Name)** 3372 / *ATC Systems*



2016PB - 0604504N - 3372

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604504N / *Air Control*	**Project (Number/Name)** 3372 / *ATC Systems*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3372				
Acquisition Milestones: MDD AN/SPN-46 Blk IV	3	2014	3	2014
Acquisition Milestones: MDD AN/SPN-46 Blk V	4	2017	4	2017
Acquisition Milestones: MDD AN/SPN-35 Blk I	4	2016	4	2016
Acquisition Milestones: MDD AN/SPN-35 Blk II	4	2019	4	2019
Acquisition Milestones: MDD AN/SPN-41 Blk I	4	2019	4	2019
Systems Development: AN/SPN-46 Blk IV H/W and S/W Dev	2	2015	3	2017
Systems Development: AN/SPN-46 Blk V H/W and S/W Dev	2	2018	4	2020
Systems Development: AN/SPN-35 Blk I H/W and S/W Dev	1	2017	4	2019
Systems Development: AN/SPN-35 Blk II H/W and S/W Dev	1	2020	4	2020
Systems Development: AN/SPN-41 Blk I H/W and S/W Dev	1	2020	4	2020
Reviews: AN/SPN-46 Blk IV PDR	1	2016	1	2016
Reviews: AN/SPN-46 Blk IV CDR	3	2016	3	2016
Reviews: AN/SPN-46 Blk IV TRR	1	2017	1	2017
Reviews: AN/SPN-46 Blk V PDR	1	2019	1	2019
Reviews: AN/SPN-46 Blk V CDR	3	2019	3	2019
Reviews: AN/SPN-46 Blk V TRR	1	2019	1	2019
Reviews: AN/SPN-35 Blk I PDR	4	2017	4	2017
Reviews: AN/SPN-35 Blk I CDR	2	2018	2	2018
Reviews: AN/SPN-35 Blk I TRR	1	2019	1	2019
Reviews: AN/SPN-35 Blk II PDR	3	2020	3	2020
Reviews: AN/SPN-41 Blk I PDR	3	2020	3	2020
Proj 3372 Continued				

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604504N / *Air Control*	**Project (Number/Name)** 3372 / *ATC Systems*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Test and Evaluation: AN/SPN-46 Blk IV Testing	1	2017	2	2018
Test and Evaluation: AN/SPN-46 Blk V Testing	3	2019	3	2020
Test and Evaluation: AN/SPN-35 Blk I Testing	1	2019	1	2020
Production Milestones: Contract Award AN/SPN-46 Blk IV	2	2015	2	2015
Production Milestones: Contract Award AN/SPN-46 BLK V	2	2018	2	2018
Production Milestones: Contract Award AN/SPN-35 Blk I	1	2017	1	2017