Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	7.967	6.506	5.665	0.000	5.665	6.023	6.157	6.781	6.921	Continuing	Continuing
0718: *MATCALS*	2.156	0.508	0.369	0.000	0.369	0.632	0.646	0.661	0.676	Continuing	Continuing
0993: *Carrier ATC*	5.379	5.557	4.882	0.000	4.882	4.963	5.073	5.672	5.790	Continuing	Continuing
1657: *ATC Improvement*	0.432	0.441	0.414	0.000	0.414	0.428	0.438	0.448	0.455	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.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	8.063	6.533	0.000	0.000	0.000
Current President's Budget	7.967	6.506	5.665	0.000	5.665
Total Adjustments	-0.096	-0.027	5.665	0.000	5.665
• Congressional General Reductions		-0.027			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.150	0.000			
• SBIR/STTR Transfer	-0.246	0.000			
• Program Adjustments	0.000	0.000	5.665	0.000	5.665

Change Summary Explanation

Schedule:

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604504N: *Air Control*

Proj. 0993: System Requirements Review has been extended beyond 4Q FY 2009 and will now end in 2Q FY 2010. This extended effort has caused the Preliminary Design Review (PDR), Critical Design Review (CDR) and beginning of System Development to occur six months later than planned, respectively. The Quality Design and Build has also moved to the right and will begin 4Q FY 2011, upon completion of the CDR.

Technical:

Not applicable.

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

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0718: *MATCALS*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
0718: *MATCALS*	2.156	0.508	0.369	0.000	0.369	0.632	0.646	0.661	0.676	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 (HMMWV) based PAR, ASR, and Command and Control (C2) Subsystem. Efforts will commence for requirements definition, development and engineering for the ASPARCS Preplanned 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 Command and Control System (C2S) input/output to existing software, incorporating Radar Range Extension and Mapping functionality, enhanced simulation and training and providing increased operator workstations.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
ASPARCS Improvements	1.915	0.508	0.369	0.000	0.369
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 2009 Accomplishments: Investigated and resolved obsolescence issues. Performed studies and analyses to implement P3I and other evolutionary improvements. Developed criteria for existing ASPARCS software to achieve					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0718: *MATCALS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
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. Performed studies and analyses. *FY 2010 Plans:* Continue to 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 2011 Base Plans:* Investigate alternatives and develop planned replacement of Air Surveillance Radar (ASR).					
ATC Interface with C2S Develop the ATC interface increment for the Command and Control System (C2S) , which will allow the ATC detachment to exchange radar track data with the Marine Air Command and Control Squadron and joint agencies. *FY 2009 Accomplishments:* Developed ATC interface for Command and Control System (C2S).	0.241	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	2.156	0.508	0.369	0.000	0.369

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0718: *MATCALS*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN/2815: *MATCALS*	51.638	15.123	16.747	27.080	43.827	2.569	2.451	2.493	2.676	Continuing	Continuing

D. Acquisition Strategy

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 ASPARCS requirement for July 2006. The Marine Corps Requirements Oversight Council (MROC) Decision Memorandum 11-2005 of December 2004 outlined the evolutionary improvements envisioned by Headquarters Marine Corps (HQMC). This program has joined with the Army to implement Pre-Planned Product Improvements (P3I) and evolutionary product improvements.

E. Performance Metrics

The MATCALS RDTEN funding will develop a planned replacement for the current Air Surveillance Radar (ASR).

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0993: *Carrier ATC*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
0993: *Carrier ATC*	5.379	5.557	4.882	0.000	4.882	4.963	5.073	5.672	5.790	Continuing	Continuing
Quantity of RDT&E Articles	0	0	1	0	1	0	0	0	0		

A. Mission Description and Budget Item Justification

Shipboard Air Traffic Control 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 effect 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 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 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 IFF, and integrating a flat panel monitor into the AN/UYQ-70 console. The development of an Air Traffic Control common console will reduce operational costs, improve reliability, and provide compatible interfaces and commonality for all ATC workstations.

Test Article Descriptions:

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

B. Accomplishments/Planned Program ($ in Millions)

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0993: *Carrier ATC*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
SPN-46 Computer Group	4.505	0.000	0.000	0.000	0.000
This subproject replaces the AN/AYK-14 processor and converts software from CMS to "C" language. Conduct a software requirements review and develop a specification. *FY 2009 Accomplishments:* Developed software and hardware, built a test article, and integrated and tested it in a lab environment. Conducted a test readiness review, developmental test and operational test. The test article is required to perform a series of tests from December 2007 to September 2009. This test article replaced two existing computer racks with a single rack utilizing a set of state-of-the-art Versa Module Eurocard processors and software rewritten in a high order program language ("C").					
AN/TPX-42 Improvements	0.874	5.557	4.882	0.000	4.882
This project funds development of the final Air Traffic Control Console configuration to include JPALS interface, Dual Band Radar interface, and replacement of SPN-35 Operator displays. It is anticipated that this technology insertion will result in a formal nomenclature change for the AN/TPX-42 system, so 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 2009 Accomplishments:* Continued identification and testing AN/SPN-43C replacement system. Completed development of Field Change 3 to AN/TPX-42. *FY 2010 Plans:* Continue identification and testing and begin system development of AN/SPN-43C replacement system. Start development of Field Change 4 to AN/TPX-42.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0993: *Carrier ATC*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Complete system development and begin quality design and build of AN/SPN-43C replacement system. Continue development of Field Change 4 to AN/TPX-42.					
Accomplishments/Planned Programs Subtotals	5.379	5.557	4.882	0.000	4.882

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN/2831: *Shipboard Air Traffic Control*	8.221	7.945	7.658	0.000	7.658	7.791	8.939	10.066	10.797	Continuing	Continuing
• OPN/2832: *Automatic Carrier Landing Systems*	16.239	18.823	15.169	0.000	15.169	19.320	16.811	18.894	20.169	Continuing	Continuing

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 Common Console is an anticipated Engineering Change Proposal (ECP), with improvements being incorporated into the production of AN/TPX-42 upgrade kits.

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

TPX-42B Critical Design Review planned for 3Q FY11.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0993: *Carrier ATC*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary HDW Develop-SPN-46	WR	NAWCAD PAX River, MD	11.548	0.000		0.000		0.000		0.000	0.000	11.548	Continuing
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	2.623	0.000		0.350	Dec 2010	0.000		0.350	Continuing	Continuing	Continuing
		Subtotal	20.527	0.000		0.350		0.000		0.350			

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	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	Continuing
Software Development-TPX-42	WR	NAWCAD PAX River, MD	2.929	4.785	Dec 2009	3.658	Dec 2010	0.000		3.658	Continuing	Continuing	Continuing
Integrated Logistics Support- TPX-42	WR	NAWCAD PAX River, MD	0.632	0.000		0.100	Dec 2010	0.000		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	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0993: *Carrier ATC*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Studies & Analysis- SPN-43	WR	NAWCAD PAX River, MD	0.874	0.231	Dec 2009	0.250	Dec 2010	0.000		0.250	Continuing	Continuing	Continuing
Studies & Analysis- TPX-42	WR	NAWCAD PAX River, MD	0.000	0.000		0.250	Dec 2010	0.000		0.250	Continuing	Continuing	Continuing
		Subtotal	17.828	5.016		4.258		0.000		4.258			

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	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	Continuing
Developmental Test & Evaluation- TPX-42	WR	NAWCAD PAX River, MD	0.748	0.143	Dec 2009	0.159	Dec 2010	0.000		0.159	Continuing	Continuing	Continuing
OperationalTest & Evaluation- TPX-42	WR	OPTEVOR Norfolk, VA	0.062	0.000		0.000		0.000		0.000	0.000	0.062	Continuing
		Subtotal	2.455	0.143		0.159		0.000		0.159			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0993: *Carrier ATC*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	American Electronics, Inc. California, MD	1.454	0.383	Dec 2009	0.100	Dec 2010	0.000		0.100	Continuing	Continuing	Continuing
Travel	WR	NAVAIRHQ PAX River, MD	0.105	0.015	Dec 2009	0.015	Nov 2010	0.000		0.015	Continuing	Continuing	Continuing
		Subtotal	1.559	0.398		0.115		0.000		0.115			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	42.369	5.557		4.882		0.000		4.882			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604504N: *Air Control*	**PROJECT** 0993: *Carrier ATC*

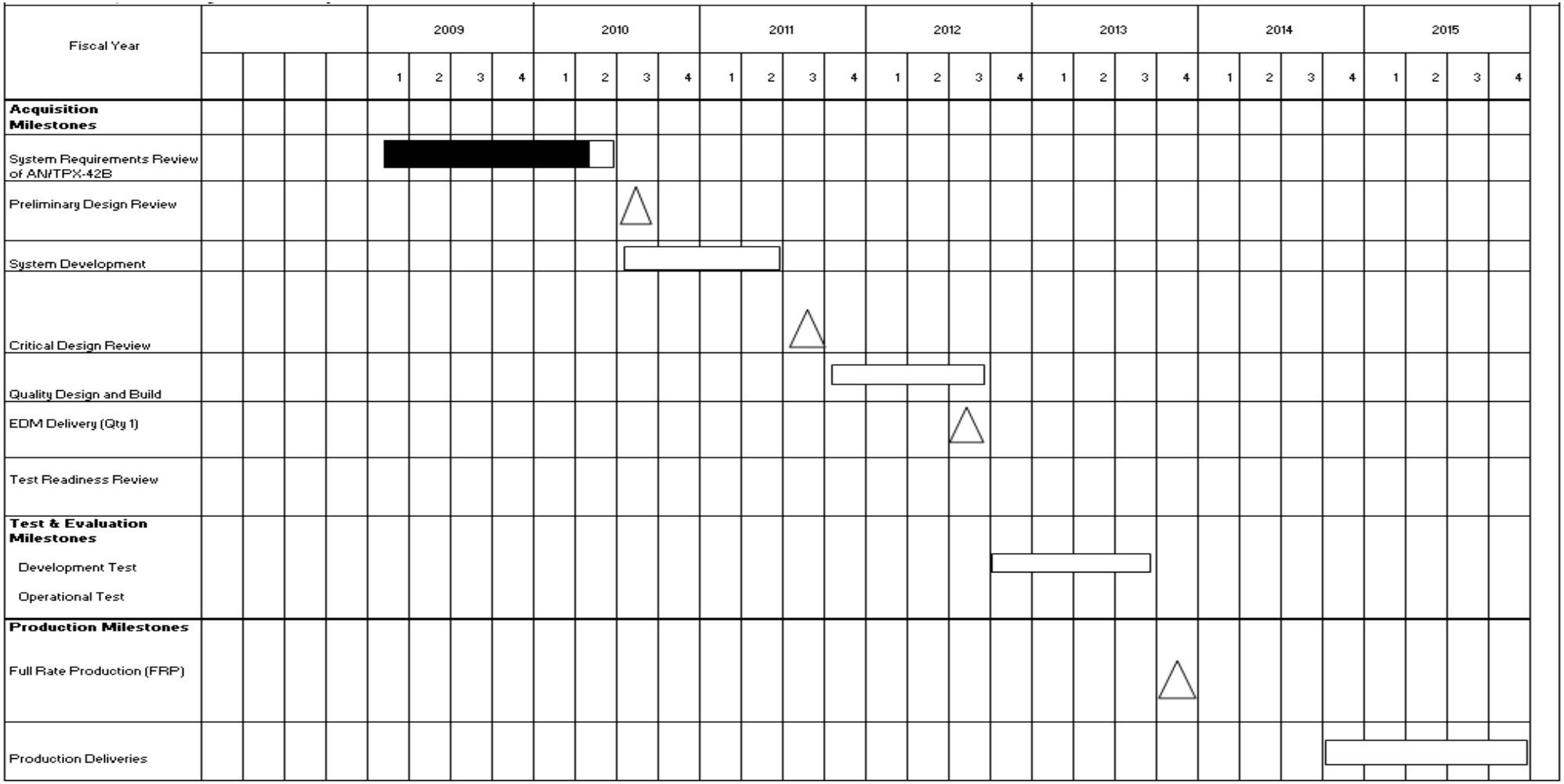

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604504N: *Air Control*	**PROJECT** 0993: *Carrier ATC*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
System Requirement Review (SRR)	1	2009	2	2010
Preliminary Design Review (PDR)	3	2010	3	2010
System Development	3	2010	2	2011
Critical Design Review (CDR)	3	2011	3	2011
Quality Design and Build	4	2011	3	2012
EDM Delivery	3	2012	3	2012
Developmental Testing	4	2012	3	2013
Full Rate Production	4	2013	4	2013
Product Deliveries	4	2014	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 1657: *ATC Improvement*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
1657: *ATC Improvement*	0.432	0.441	0.414	0.000	0.414	0.428	0.438	0.448	0.455	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 effecting 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 Preplanned Product Improvements, with additional RDT&E efforts required for modified commercial-off-the-shelf (COTS) 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 (PAR), Tactical Air Navigation System (TACAN), and other landing systems.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
NAS MOD VIDS	0.406	0.419	0.397	0.000	0.397
Continue engineering development of pre-planned product improvements for the Visual Information Display Systems (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 2009 Accomplishments: Completed development of pre-planned product improvements for VIDS Increment Three. Continued efforts to incorporate VIDS into FACSFACS.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 1657: *ATC Improvement*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Continue engineering development of Pre-Planned Product Improvements for VIDS to develop visual communication capability in VIDS. *FY 2011 Base Plans:* Continue engineering development of Pre-Planned Product Improvements for VIDS to incorporate multiple weather source inputs.					
Fleet ATC Systems 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 into the FACSFAC FACTS 3200 system. Evaluate alternatives for future processor/display, sensor and communication systems. *FY 2009 Accomplishments:* Completed efforts to incorporate ADS-B capability in FACTS 3200 Processor/Display System software. *FY 2010 Plans:* Complete Digital Airport Surveillance Radar (DASR) interface with FACTS software. *FY 2011 Base Plans:* Plan and identify components for NAVSKED Tech Refresh.	0.026	0.022	0.017	0.000	0.017
Accomplishments/Planned Programs Subtotals	0.432	0.441	0.414	0.000	0.414

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *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 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN/2840: *National Air Space System Modernization*	28.980	28.899	17.531	0.000	17.531	26.620	17.831	20.685	30.744	Continuing	Continuing
• OPN/2845: *Fleet Air Traffic Control Systems*	7.914	8.178	6.851	0.000	6.851	7.435	7.217	8.115	8.697	Continuing	Continuing

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.