CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-5**						R-1 ITEM NOMENCLATURE 0604504N, Air Control Engineering					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost			**13.793**	**12.708**	**4.951**	**6.465**	**3.643**	**2.889**	**2.929**	**Continuing**	**Continuing**
W0718 MARINE AIR TRAFFIC CONTROL AND LANDING SYSTEMS (MATCALS)			**9.856**	**7.988**	**1.668**	**1.194**	**0.914**	**0.916**	**0.901**	**Continuing**	**Continuing**
W0993 SHIPBOARD AIR TRAFFIC CONTROL SYSTEMS			**1.705**	**2.389**	**2.973**	**4.961**	**2.382**	**1.580**	**1.582**	**Continuing**	**Continuing**
W1657 SHORE AIR TRAFFIC CONTROL SYSTEMS			**2.232**	**2.331**	**0.310**	**0.310**	**0.347**	**0.393**	**0.446**	**Continuing**	**Continuing**
Quantity of RDT&E Articles	**3**										**3**

(U) 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 capabilities ashore and afloat. Funded programs are required to upgrade or replace aging ATC and approach/landing equipment on aircraft, aircraft carriers, amphibious ships, Naval Air Stations, Marine Corps Air Stations and Navy/Marine Corps tactical/expeditionary airfields and remote landing sites. Development of a Global Positioning System (GPS) data link is required to enable the transfer of precise positioning information between ships and aircraft.

(U) B. JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

NOTE: Realignment of costs from W1657 to W0993 for FY 2003 through FY 2007 reflect an administrative restructuring of various developmental projects in order to promote more efficient administration. The new alignment also more clearly delineates two product lines: one for shipboard ATC systems (W0993) and the other for shore ATC systems (W1657). This was a zero sum restructuring.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**	PROGRAM ELEMENT NUMBER AND NAME 0604504N, Air Control Engineering					PROJECT NUMBER AND NAME W0718 Marine Air Traffic Control and Landing System (MATCALS)					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost			**9.856**	**7.988**	**1.668**	**1.194**	**0.914**	**0.916**	**0.901**	**Continuing**	**Continuing**
RDT&E Articles Qty	**2**										**2**

(U) 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 (ATC&LS) at Navy/Marine Corps (MC) expeditionary airfields. Current program includes approved transition to Phase I for the Air Surveillance and Precision Approach Radar Control System (ASPARCS). ASPARCS Phase II is for the Preplanned Product Improvements (PPIs).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:

(U) (7.820) Continued to provide systems integration, incremental funding for the First Article and demonstrate the Air Surveillance Radar and the Precision Approach Radar Subsystem in the ASPARCS.

(U) (1.964) Performed systems integration engineering in support of systems engineering functions for the ASPARCS. This effort included assistance in test and evaluation, and technical oversight of the ASPARCS program.

(U) (.072) Continued management support to the program office for the development of the ASPARCS.

2. FY 2002 PLANS:

(U) (4.072) Final incremental funding for the First Article to provide systems integration and demonstration of the Air Surveillance Radar and the Precision Approach Radar System (ASPARCS).

(U) (1.534) Perform systems integration engineering in support of systems engineering functions for the ASPARCS. This effort will include assistance in test and evaluation, Developmental Testing (DT) and technical oversight of the ASPARCS program.

(U) (2.000) Development of Transportable Transponder Landing System (TTLS).

(U) (.140) Continue management support to the program office for the development of the ASPARCS.

(U) (.242) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

3. FY 2003 PLANS:

(U) (1.528) Perform systems integration engineering in support of systems engineering functions for the ASPARCS. This effort will include assistance in test and evaluation, DT and technical oversight of the ASPARCS program.

(U) (.140) Continue management support to the program office for the development of the ASPARCS.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-5	0604504N, Air Control Engineering	W0718 Marine Air Traffic Control and Landing System (MATCALS)

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	9.291	8.058	
(U) Adjustments from the FY 2002 President's Budget:	0.565	-0.070	
(U) FY 2003 President's Budget Submit:	9.856	7.988	1.668

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2001 net increase of $.565 million consists of a $.845 million increase for the ASPARCS offset by a $.243 million decrease for a Small Business Innovation Research (SBIR) assessment and a $.037 million decrease for the reprioritization of requirements within the Navy. The FY 2002 net decrease of $.070 million reflects a $.001 million increase for APSARCS integration efforts and a $.071 decrease for an undistributed congressional reduction.

(U) Schedule: DT and OT slippage due to Congressional direction to fund the TTLS in FY 2002.

(U) Technical: Not Applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete
OPN BLI 281500, MATCALS	3.637	0.991	14.318	15.938	16.343	16.652	17.013	Continuing

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-5	0604504N, Air Control Engineering	W0718 Marine Air Traffic Control and Landing System (MATCALS)	

(U) D. ACQUISITION STRATEGY: Air Surveillance and Precision Approach Radar System (ASPARCS), a ACAT IVT program, will replace the legacy ATC Precision Approach Radar (PAR), an Air Surveillance Radar (ASR), and an Operation Subsystem/Communications Subsystem (OS/CS) with a HMMWV based PAR, ASR and OS/CS system. Lockheed Martin was awarded the Phase I effort in June of 2000. This effort included First Article development (Fixed Price Incentive) with (Firm Fixed Priced) production options.

	FY 2001	FY 2002	FY 2003	TO COMPLETE
(U) Program Milestones			4Q/03 MSIII (ASPARCS)	
(U) Engineering Milestones	2Q/01 CDR (ASPARCS)			
(U) T&E Milestones		4Q/02-1Q/03 DT (ASPARCS)		
			2Q/03 OT (ASPARCS)	
(U) Contract Milestones				

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**		PROGRAM ELEMENT 0604504N, Air Control Engineering			PROJECT NUMBER AND NAME W0718 Marine Air Traffic Control and Landing System (MATCALS)							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/FFP	Lockheed Martin	3.000	7.486	11/00	3.320	11/01			4.196	18.002	18.002
Systems Engineering	WX	NAWCAD S.I.	2.391	1.123	11/00	1.448	11/01				4.962	
MATCALS Related Program Dev	SS/FFP	Rockwell Collins		0.424	04/01						0.424	0.424
TTLS	FFP	ANPC				2.000	05/02				2.000	2.000
Subtotal Product Development			5.391	9.033		6.768				4.196	25.388	
Remarks: Lockheed Martin cost to complete is for the Phase II portion of the program.												
Training Development	WX	NAWCAD S.I.		0.100	11/00	0.075	11/01			Continuing	Continuing	
Integrated Logistics Support	WX	NAWCAD S.I.		0.191	10/00	0.045	10/01				0.236	
Configuration Management	WX	NAWCAD S.I.	0.205	0.100	11/00	0.048	11/01				0.353	
Technical Data	WX	NAWCAD S.I.		0.200	11/00	0.194	11/01				0.394	
MATCALS Support	WX	NAWCAD S.I.	0.205								0.205	
Subtotal Support			0.410	0.591		0.362				Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)

DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-5**

PROGRAM ELEMENT: 0604504N, Air Control Engineering

PROJECT NUMBER AND NAME: W0718 Marine Air Traffic Control and Landing System (MATCALS)

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NAWCAD S.I.				0.286	10/01	1.353	11/02	0.532	2.171	
Operational Test & Evaluation	WX	MCOTEA	0.056	0.126	11/00	0.160	11/01	0.145	11/02	0.211	0.698	
Subtotal T&E			0.056	0.126		0.446		1.498		0.743	2.869	
Remarks: MCOTEA cost to complete is for Phase II testing.												
Program Management Support	WX	NAWCAD S.I.		0.072	07/01	0.140	11/01	0.140	11/02	Continuing	Continuing	
Travel	WX	NAVAIR	0.017	0.034	10/00	0.030	10/01	0.030	11/02		0.111	
SBIR Assessment						0.242					0.242	
Subtotal Management			0.017	0.106		0.412		0.170		Continuing	Continuing	
Remarks:												
Total Cost			5.874	9.856		7.988		1.668		Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification									DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**	PROGRAM ELEMENT NUMBER AND NAME 0604504N, Air Control Engineering					PROJECT NUMBER AND NAME W0993, Shipboard Air Traffic Control Systems					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost			**1.705**	**2.389**	**2.973**	**4.961**	**2.382**	**1.580**	**1.582**	**Continuing**	**Continuing**
RDT&E Articles Qty	1										**1**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Shipboard Air Traffic Control Centers, using versions of the AN/TPX-42(V) Direct Altitude and Identity Readout system (DAIR), identify, marshal, and direct aircraft within a 50 Nautical Mile (NM) radius. At closer range (8 NM) 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 ACLS and ILM provide precise automatic control and verification of aircraft during their final approach and landing sequence. Due to acquisition limitations in rain, the Moving Target Detection (MTD) technology used in the AN/SPN-46 is being adapted for the AN/SPN-43 search surveillance radar and in the AN/SPN-35B precision approach radar. The insertion of MTD technology plus an antenna pedestal upgrade constitute the AN/SPN-35C upgrade. This AN/SPN-35C configuration will also require development of an interface with the Battle Force Tactical Trainer (BFTT). The AN/SPN-46 radar currently functions in cooperation with an active beacon on the controlled aircraft, and this beacon has an obsolescence problem. Passive Point Source (PPS) development will replace the beacon, if proven successful. Other performance upgrades to the AN/SPN-46 include a rearchitecture of its Unit 19 processor, replacement of the AN/AYK-14 hardware and software, as well as various Engineering Change Proposals to improve system accuracy, availability and supportability. In recent years, the top 25% of the AN/SPN-43 frequency band has been reallocated to the Fixed Wireless Access community. Since 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 will undergo several phased upgrades that will eventually result in the AN/TPX-42B(V)15 version. System improvements include replacing militarized front-end equipment in the track processor with COTS technology, converting the operational program software to the more commonly used and flexible 'C' language, and integrating a flat panel monitor into the AN/UYQ-70 console. Some of the performance upgrades to the AN/SPN-46(V) and the AN/TPX-42A(V) mentioned above were previously funded under project unit W1657 but will now be funded with this project unit beginning in FY 2003. The efforts involving the AN/SPN-46(V) are referred to collectively in the W1657 exhibit as "ACLS Improvements". The realignment of all shipboard ATC system improvements from W1657 (formerly titled Air Traffic Control Improvements) to this related project W0993 will more clearly differentiate the separate product lines for ship and shore-based ATC systems, and will facilitate more efficient management of their respective programs. The realigned costs are as follows: FY 2003 - $2.080 million; FY 2004 - $2.125 million; FY 2005 - $1.728 million; FY 2006 - $1.712 million; FY 2007 - $1.689 million.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:

(U) (.749) Continued systems engineering, design and development of AN/SPN-43 MTD.
(U) (.325) Developed AN/SPN-35C/Battle Force Tactical Trainer interface.
(U) (.300) Completed development of technical documentation for AN/SPN-35C.
(U) (.161) Initiated development of AN/SPN-46 Power Monitor engineering change.
(U) (.150) Initiated development of AN/SPN-46 Test Support Fixtures.
(U) (.020) Completed systems engineering and test & evaluation for Passive Point Source for AN/SPN-46.

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APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-5	0604504N, Air Control Engineering	W0993, Shipboard Air Traffic Control Systems

3. FY 2002 PLANS:

(U) (.197) Complete development of AN/SPN-46 Test Support Fixtures ECP.
(U) (.203) Complete development of AN/SPN-46 Power Monitor ECP.
(U) (.903) Complete shipboard testing (DT-IIC), OPEVAL support, and safety certification for AN/SPN-35C.
(U) (1.014) Complete development of AN/SPN-43 MTD.
(U) (.072) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15USC 638.

4. FY 2003 PLANS:

(U) (1.125) Continue flight testing with the redesigned AN/SPN-46 Unit 19 module.
(U) (.065) Complete OPEVAL support for AN/SPN-35C.
(U) (.900) Initiate development of an AN/SPN-43 replacement or upgrade.
(U) (.883) Continue testing of AN/TPX-42 Track Processor.

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EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-5	0604504N, Air Control Engineering	W0993, Shipboard Air Traffic Control Systems

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	1.776	2.410	
(U) Adjustments from the President's Budget:	-0.071	-0.021	
(U) FY 2003 President's Budget Submit:	1.705	2.389	2.973

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2001 decrease of $.071 million includes a reduction of $.047 million for reprioritization of requirements within the Navy and a reduction of $.024 million for a Small Business Innovative Research assessment. The FY 2002 decrease of $.021 million is for an undistributed Congressional reduction.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
OPN BLI 283200 Automatic Carrier Landing Sys	17.421	15.399	17.447	17.870	17.062	18.449	19.071	Continuing	Continuing
OPN BLI 283100 Shipboard Air Traffic Control	7.701	7.923	7.815	8.023	8.038	8.282	8.448	Continuing	Continuing

Related RDT&E:

(U) P.E. 0603512N (Carrier Systems Development)
(U) P.E. 0604512N (Shipboard Aviation Systems)

CLASSIFICATION:

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APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-5	0604504N, Air Control Engineering	W0993, Shipboard Air Traffic Control Systems

(U) D. ACQUISITION STRATEGY: The AN/SPN-35C upgrade acquisition will consist of several commercial procurements that will be integrated by the NAWCAD into the final configuration. Four primary contracts will be used, with CLINs for a base year and four options. In addition, several miscellaneous or ancillary hardware requirements will also be required that will take the form of small purchases, to be made from the open market (for items such as cables, connectors and backshells).

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.

(U) E. SCHEDULE PROFILE:

	FY 2001	FY 2002	FY 2003	TO COMPLETE
(U) Program Milestones	3Q-4Q/01 SPN-35C Documentation Release		3Q/03 SPN-35C Milestone III Decision	3Q/04 TPX-42 Track Processor Production
	4Q/01 SPN-35C BFTT Specification Release		2Q/03 SPN-46 Test Fixtures Production (see * NOTE)	4Q/05 Complete SPN-46 H/W and S/W Upgrade (AYK-14)
	4Q/01 PPS Production Decision		2Q/03 SPN-46 Power Monitor Production (see ** NOTE)	TBD SPN-43 Replacement production decision & start
				2Q/04 ACLS Unit 19 Mod Kit Production
				2Q/06 SPN-46 Computer (AYK-14) Mod Kit Production
(U) Engineering Milestones	4Q/01 SPN-46 Test Support Fixtures PECP & Prod. Prototype	3Q/02 Complete SPN-46 Test Support Fixtures ECP *		
	4Q/01 SPN-46 Power Monitor PECP and Prototype	3Q/02 Complete SPN-46 Power Monitor ECP **		
		4Q/02 Complete SPN-43 MTD Development		

* NOTE: SPN-46 Test Support Fixtures are a one-of-a-kind test apparatus that meets the unique requirements of the ACLS Land Based Test Facility at Patuxent River, MD.

** NOTE: SPN-46 Power Monitor and X-band Calibration engineering changes will be introduced into production of the PIP field change beginning in FY 2003.

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EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**	PROGRAM ELEMENT NUMBER AND NAME 0604504N, Air Control Engineering	PROJECT NUMBER AND NAME W0993, Shipboard Air Traffic Control Systems	

(U) E. SCHEDULE PROFILE CONTINUED:

	FY 2001	FY 2002	FY 2003	TO COMPLETE
(U) T&E Milestones	3Q/01 Complete PPS Testing	2Q/02 Complete SPN-46 Test Support Fixtures testing	3Q/03 SPN-35C OPEVAL	1Q/04 Complete ACLS Unit 19 flight test & ILS documentation
		2Q/02 Complete SPN-46 Pwr Monitor Prototype testing		2Q/04 TPX-42 Track Processor system test completed
		3Q/02 Complete SPN-35C DT-IIC Testing		TBD SPN-43 Replacement test events
		4Q/02 Complete SPN-43 MTD testing		
(U) Contract Milestones				

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Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**		PROGRAM ELEMENT 0604504N, Air Control Engineering			PROJECT NUMBER AND NAME W0993, Shipboard Air Traffic Control Systems							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	NAWCAD Pax River MD	24.029	1.574	11/00	1.374	11/01	0.900	11/02	Continuing	Continuing	
Subtotal Product Development			24.029	1.574		1.374		0.900		Continuing	Continuing	
Remarks:												
Training Development	Compet.	Various		0.060	12/00	0.060	12/01	0.090	12/02	Continuing	Continuing	
	(T&M)											
Subtotal Support				0.060		0.060		0.090		Continuing	Continuing	
Remarks:												

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Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**		PROGRAM ELEMENT 0604504N, Air Control Engineering				PROJECT NUMBER AND NAME W0993, Shipboard Air Traffic Control Systems						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD Pax River MD	1.419	0.020	11/00	0.666	11/01	1.665	11/02	Continuing	Continuing	
Subtotal T&E			1.419	0.020		0.666		1.665		Continuing	Continuing	
Remarks:												
Program Management Support	Various	NAVAIR & NAWCAD Pax	0.866	0.051	11/00	0.217	11/01	0.318	11/02	Continuing	Continuing	
SBIR Assessment						0.072					0.072	
Subtotal Management			0.866	0.051		0.289		0.318		Continuing	Continuing	
Remarks:												
Total Cost			26.314	1.705		2.389		2.973		Continuing	Continuing	
Remarks:												

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EXHIBIT R-2a, RDT&E Project Justification									DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**	PROGRAM ELEMENT NUMBER AND NAME 0604504N, Air Control Engineering					PROJECT NUMBER AND NAME W1657, Shore Air Traffic Control Systems					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost			**2.232**	**2.331**	**0.310**	**0.310**	**0.347**	**0.393**	**0.446**	**Continuing**	**Continuing**
RDT&E Articles Qty **NOT APPLICABLE**											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program provides for engineering development, integration, adaptation, and testing of new and/or modernized real-time Air Traffic Control (ATC) systems, air navigational aids, landing systems, and ATC communications systems for Navy and Marine Corps Air Stations and air traffic control facilities including Fleet Area Control and Surveillance Facility (FACSFAC) worldwide. These systems are critical to Naval Aviation and provide for safe, efficient air operations. Additionaly the FAA is effecting major modernization of the National Airspace System (NAS); e.g.; transitioning from radar-based to space-based technology, usage of digital technology in communications, display, etc. The Navy must maintain compatibility in order to ensure seamless interoperability within the NAS. NAS modernization initiatives in Project W1657 include the Visual Information Display System (VIDS), as well as studies and RDT&E efforts for Pre-planned Product Improvements for TACAN and Precision Approach Radar (PAR) equipment through 2025. Prior to FY 2003 this project unit also funded shipboard projects involving Automatic Carrier Landing System (ACLS) and AN/TPX-42A(V) Direct Altitude and Identity Readout (DAIR) performance upgrades. These upgrades include computer hardware and software processing improvements to various components in the AN/SPN-46(V) ACLS and AN/TPX-42A(V) DAIR systems. Efforts involving the AN/SPN-46(V) have been referred to collectively as "ACLS Improvements", which include the Unit 19 and IT-21 upgrade projects. The realignment of all shipboard ATC system improvements from this project to the related project W0993 (Carrier Air Traffic Control) will more clearly differentiate the separate product lines for ship and shore-based ATC systems, and will facilitate more efficient management of their respective programs. The realigned costs are as follows: FY 2003 - $2.080 million; FY 2004 - $2.125 million; FY 2005 - $1.728 million; FY 2006 - $1.712 million; FY 2007 - $1.689 million.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:
   (U) (1.283) Continued development of AN/TPX-42 track processor and associated software upgrade prototype.
   (U) (.652) Continued development and testing of ACLS Improvements upgrade.
   (U) (.148) Continued engineering development for the Visual Information Display System.
   (U) (.149) Continued initial development efforts associated with Next-Generation Landing Systems.

2. FY 2002 PLANS:
   (U) (.894) Continue development and testing of ACLS Improvements upgrade.
   (U) (1.076) Initiate integration of Track Processor into AN/TPX-42 system and began testing.
   (U) (.145) Continue engineering development of the Visual Information Display System.
   (U) (.145) Continue initial development efforts associated with Next-Generation Landing Systems.
   (U) (.071) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15USC 638.

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APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-5	0604504N, Air Control Engineering	W1657, Shore Air Traffic Control Systems

2. FY 2003 PLANS:

(U) (.155) Begin development of pre-planned product improvements for the Visual Information Display System.
(U) (.078) Start initial development efforts associated with Fiber Optic Intersite System upgrade.
(U) (.077) Start initial development efforts for Next Generation Communication System Upgrade.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-5	0604504N, Air Control Engineering	W1657, Shore Air Traffic Control Systems

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	2.327	2.352	
(U) Adjustments from the President's Budget:	-0.095	-0.021	
(U) FY 2003 President's Budget Submit:	2.232	2.331	0.310

CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 2001 reduction of $.095 million includes $.075 million for reprioritization of requirements within the Navy and $.020 million for a Small Business Innovative Research assessment. The FY 2002 decrease of $.021 million is for an undistributed Congressional reduction.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete
OPN BLI 284000 National Air Space System	30.035	21.496	20.000	30.748	31.162	35.802	28.727	Continuing
OPN BLI 284500 Air Station ATC Equip	6.499	7.316	7.012	7.815	7.704	7.838	8.001	Continuing
OPN BLI 284600 Microwave Landing System	4.966	5.334						0.000
OPN BLI 284700 FACSFAC	4.183	1.135	4.356	4.539	4.620	4.719	4.819	Continuing
OPN BLI 283100 Shipboard Air Traffic Contro	7.701	7.923						
OPN BLI 283200 ACLS	17.421	15.399						

Related RDT&E:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**	PROGRAM ELEMENT NUMBER AND NAME 0604504N, Air Control Engineering	PROJECT NUMBER AND NAME W1657, Shore Air Traffic Control Systems	

(U) 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 user requirements or address supportability and cost of ownership problems.

(U) E. SCHEDULE PROFILE:

	FY 2001	FY 2002	FY 2003	TO COMPLETE
(U) Program Milestones	2Q/01 VIDS Software Production Development	3Q/02 VIDS Production Decision	VIDS P3 I (Pre-planned Product Improvement)	VIDS P3 I (Pre-planned Product Improvement)
	2Q/01 TPX-42 Computer Upgrade Production	2Q/02 IT21 insertion into SPN-46 PIP production		
(U) Engineering Milestones	3Q/01 TPX-42 Track Proc. Production Prototype			
(U) T&E Milestones		2Q/02 VIDS Developmental Testing - 2		
(U) Contract Milestones				

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)

DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-5**

PROGRAM ELEMENT: 0604504N, Air Control Engineering

PROJECT NUMBER AND NAME: W1657, Shore Air Traffic Control Systems

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	NAWCAD Pax River MD	36.713	1.849	11/00	1.705	11/01			Continuing	Continuing	
Primary Hardware Development	WR	SPAWARCEN Chasn SC	0.328	0.148	11/00	0.145	11/01	0.310	11/02	Continuing	Continuing	
Systems Engineering	WR	SPAWARCEN S.Diego CA	0.050	0.094	11/00	0.145	11/01				0.289	
Primary Hardware Development	WR	NAWCTSD Orlando FL	0.075								0.075	
Subtotal Product Development			37.166	2.091		1.995		0.310		Continuing	Continuing	

Remarks:

Training Development	Cmp/TM	Apex Technology	0.060	0.030	01/01	0.030	01/02				0.120	0.120
Subtotal Support			0.060	0.030		0.030					0.120	

Remarks:

R-1 SHOPPING LIST - Item No. 117

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)

DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-5**

PROGRAM ELEMENT: 0604504N, Air Control Engineering

PROJECT NUMBER AND NAME: W1657, Shore Air Traffic Control Systems

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD Pax River MD	2.456								2.456	
Subtotal T&E			2.456								2.456	
Remarks:												
Program Management Support	Various	NAVAIR & NAWCAD Pax	2.854	0.111	11/00	0.235	11/01			Continuing	Continuing	
SBIR Assessment						0.071					0.071	
Subtotal Management			2.854	0.111		0.306				Continuing	Continuing	
Remarks:												
Total Cost			42.536	2.232		2.331		0.310		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 117