DEPARTMENT OF THE NAVY
FISCAL YEAR (FY) 2005
BUDGET ESTIMATES

JUSTIFICATION OF ESTIMATES
FEBRUARY 2004

RESEARCH, DEVELOPMENT, TEST & EVALUATION, NAVY
BUDGET ACTIVITY 4

DEPARTMENT OF THE NAVY
FY 2005 RDT&E PROGRAM EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy Date: February 2004

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 2003	FY 2004	FY 2005	SEC
30	0603207N	Air/Ocean Tactical Applications	4	31,937	22,575	24,431	U
31	0603216N	Aviation Survivability	4	20,359	21,628	10,820	U
32	0603237N	Deployable Joint Command and Control	4	31,527	63,541	42,394	U
33	0603254N	ASW Systems Development	4	25,011	14,340	4,541	U
34	0603261N	Tactical Airborne Reconnaissance	4	1,877	2,029	6,448	U
35	0603382N	Advanced Combat Systems Technology	4	3,214	5,730	67,605	U
36	0603502N	Surface and Shallow Water Mine Countermeasures	4	140,512	145,678	103,308	U
37	0603506N	Surface Ship Torpedo Defense	4	13,929	44,891	46,896	U
38	0603512N	Carrier Systems Development	4	88,360	156,603	157,479	U
39	0603513N	Shipboard System Component Development	4	247,513	36,664	18,993	U
40	0603525N	PILOT FISH	4	71,613	93,860	78,223	U
41	0603527N	RETRACT LARCH	4	29,644	73,181	82,532	U
42	0603536N	RETRACT JUNIPER	4		20,258	36,915	U
43	0603542N	Radiological Control	4	1,053	1,097	946	U
44	0603553N	Surface ASW	4	3,108	4,456	17,633	U
45	0603559N	SSGN Conversion	4	79,126	69,405	19,970	U
46	0603561N	Advanced Submarine System Development	4	126,891	92,539	81,160	U
47	0603562N	Submarine Tactical Warfare Systems	4	12,502	6,948	5,957	U
48	0603563N	Ship Concept Advanced Design	4	24,685	20,846	3,723	U
49	0603564N	Ship Preliminary Design & Feasibility Studies	4	2,180			U
50	0603570N	Advanced Nuclear Power Systems	4	211,314	198,999	169,733	U

DEPARTMENT OF THE NAVY
FY 2005 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: February 2004

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 2003	FY 2004	FY 2005	SEC
51	0603573N	Advanced Surface Machinery Systems	4	2,807	6,534		U
52	0603576N	CHALK EAGLE	4	29,815	17,127	47,786	U
53	0603581N	Littoral Combat Ship (LCS)	4	35,322	166,180	352,089	U
54	0603582N	Combat System Integration	4	57,957	97,969	80,840	U
55	0603609N	Conventional Munitions	4	17,613	42,063	34,151	U
56	0603611M	Marine Corps Assault Vehicles	4	263,299	237,893	236,969	U
57	0603612M	USMC Mine Countermeasures Systems - Adv Dev	4	310	1,202	4,522	U
58	0603635M	Marine Corps Ground Combat/ Support System	4	31,622	26,009	22,440	U
59	0603654N	Joint Service Explosive Ordnance Development	4	12,360	16,868	18,047	U
60	0603658N	Cooperative Engagement	4	106,020	86,725	103,452	U
61	0603713N	Ocean Engineering Technology Development	4	24,585	17,977	26,232	U
62	0603721N	Environmental Protection	4	43,048	31,855	24,641	U
63	0603724N	Navy Energy Program	4	14,712	4,636	1,494	U
64	0603725N	Facilities Improvement	4	3,276	1,424	1,621	U
65	0603734N	CHALK CORAL	4	67,617	60,718	58,467	U
66	0603739N	Navy Logistic Productivity	4	28,844	17,989	7,421	U
67	0603746N	RETRACT MAPLE	4	244,120	297,370	275,407	U
68	0603748N	LINK PLUMERIA	4	80,453	104,186	112,997	U
69	0603751N	RETRACT ELM	4	24,390	43,210	48,130	U
70	0603755N	Ship Self Defense	4	9,101	9,625	9,493	U
71	0603764N	LINK EVERGREEN	4	47,820	94,470	63,346	U

DEPARTMENT OF THE NAVY
FY 2005 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: February 2004

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 2003	FY 2004	FY 2005	SEC
72	0603787N	Special Processes	4	47,104	52,855	44,232	U
73	0603790N	NATO Research and Development	4	12,804	11,338	10,151	U
74	0603795N	Land Attack Technology	4	122,032	119,684	82,049	U
75	0603851M	Nonlethal Weapons	4	24,797	43,929	43,321	U
76	0603857N	All Service Combat Identification Evaluation Team (ASCIET)	4	13,715	14,886	13,626	U
77	0603860N	Joint Precision Approach and Landing Systems	4	12,217	24,034	32,391	U
78	0603879N	Single Integrated Air Picture (SIAP) System Engineer (SE)	4	67,034	14,411	20,252	U
79	0603889N	Counterdrug RDT&E Projects	4	16,200			U
80	0604272N	Tactical Air Directional Infrared Countermeasures (TADIRCM)	4		11,866		U
81	0604707N	Space and Electronic Warfare (SEW) Architecture/Engineering Support	4	33,598	37,172	25,943	U
82	0604787N	Joint Warfare Transformation Programs	4			22,450	U
		TOTAL Advanced Component Development & Prototypes		2,660,947	2,807,473	2,803,667	

Fiscal Year 2005 Budget Estimates
Budget Appendix Extract Language

RESEARCH, DEVELOPMENT, TEST & EVALUATION, NAVY (RDTEN)

For expenses necessary for basic and applied scientific research, development, test and evaluation, including maintenance, rehabilitation, lease, and operation of facilities and equipment, **[**$15,146,383,000**]** *$16,346,391,000*, to remain available for obligation until September 30, **[**2005**]** *2006*: *Provided*, That funds appropriated in this paragraph which are available for the V–22 may be used to meet unique operational requirements of the Special Operations Forces: *Provided further*, That funds appropriated in this paragraph shall be available for the Cobra Judy program. *(10 U.S.C. 174, 2352–54, 7522; Department of Defense Appropriations Act, 2004.)*

[For an additional amount for ''Research, Development, Test and Evaluation, Navy'', $34,000,000, to remain available until September 30, 2005.**]** *(Emergency Supplemental Appropriations Act for Defense and for the Reconstruction of Iraq and Afghanistan, 2004.)*

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification									DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**						R-1 ITEM NOMENCLATURE PE 0603207N Air/Ocean Tactical Applications				
COST ($ in Millions)	Prior Years Cost		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Total PE Cost			**31.937**	**22.575**	**24.431**	**25.271**	**30.705**	**30.148**	**31.073**	**Continuing**	**Continuing**
2341 METOC Data Acquisition			**9.421**	**7.808**	**8.548**	**8.786**	**10.625**	**10.818**	**11.020**	**Continuing**	**Continuing**
2342 METOC Data Assimilation and Modeling			**12.107**	**7.142**	**7.927**	**8.188**	**9.872**	**10.013**	**10.766**	**Continuing**	**Continuing**
2343 Tactical METOC Applications			**7.820**	**6.477**	**6.695**	**6.998**	**8.635**	**8.811**	**8.991**	**Continuing**	**Continuing**
2344 Precise Timing and Astrometry			**1.399**	**1.148**	**1.261**	**1.299**	**1.573**	**0.506**	**0.296**	**Continuing**	**Continuing**
9168 Prototype Regional Forecast Hub			**1.190**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**1.190**
Quantity of RDT&E Articles											**0**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Air Ocean Tactical Applications (AOTA) Program Element is aligned with Navy's Sea Power 21 concept to enhance the future mission capabilities of the Navy-Marine Corps Team. New state-of-the art Government and commercial technologies are identified, transitioned, demonstrated and then integrated into FORCEnet-related programs of record that determine in realtime and near-realtime the operational effects of the physical environment on the performance of combat forces and their new and emerging platforms, sensors, systems and munitions. The AOTA program element focuses on sensing and characterizing the littoral and deep-strike battlespace in the context of regional conflicts and crisis response scenarios. Projects in this program element transition state-of-the art sensing, modeling and decision aid technologies from Government and commercial sources. Unique project development efforts include atmospheric and oceanographic data assimilation techniques, forecast models, data base management systems and associated software for use in mainframe, desktop and laptop computers. Global Geospatial Information and Services efforts within this program address the bathymetric and gravimetric needs of the Navy. Also developed are algorithms to process new satellite sensor data for integration into Navy and Marine Corps decision support systems and for display as part of the common operational and tactical pictures. In addition, the projects provide for demonstration and validation of specialized atmospheric and oceanographic instrumentation and measurement techniques, new sensors, communications and interfaces. Included are new capabilities to assess, predict and enhance the performance of current and emerging undersea warfare and mine warfare weapons systems. AOTA capabilities are designed to support the last versions of the Global Command and Control System (GCCS), the new Joint Command and Control (JC2) system, and specific unit-level combat systems. This program also develops representations of the physical environment for incorporation into Navy and Marine Corps warfare trainers and simulations. Finally, this program develops technological upgrades for the U.S. Naval Observatory's Master Clock system to keep pace with the demands of modern military communications, cryptographic, intelligence and targeting systems; develops near-real-time earth orientation predictions; develops very precise determination of positions of both faint and bright stars; and supports satellite tracking and space debris studies.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under DEMONSTRATION & VALIDATION because it develops and integrates systems for experimental test related to specific ship or aircraft applications. A congressional plus up for Prototype Regional Forecast (PRF) Hub is provided for FY03.

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications					PROJECT NUMBER AND NAME 2341 METOC Data Acquisition					
COST ($ in Millions)	Prior Years Cost		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost			**9.421**	**7.808**	**8.548**	**8.786**	**10.625**	**10.818**	**11.020**	**Continuing**	**Continuing**
RDT&E Articles Qty											**0**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The major thrust of the meteorology and oceanography (METOC) Data Acquisition Project is to provide future mission capabilities for warfighters to sense and monitor the physical environment within the battlespace. New sensing technologies are identified and the most promising candidates are transitioned from the Government's and Commercial Industry's technology base to this project. These new sensing technologies are then demonstrated, validated and integrate into operational programs of record for use by warfighters. These new sensing capabilities provide timely and accurate METOC data and products to Operational and Tactical level of war commanders. As the emphasis on Naval Warfare has evolved from blue water operations to the littoral and hinterland battlespace, METOC data requirements have likewise evolved. The littoral and hinterland regions are extremely dynamic and complex, characterized by strong and highly variable oceanographic and atmospheric conditions. As a result, the need to accurately characterize these parameters is more crucial than ever in planning and executing Amphibious Warfare, Mine Warfare, Special Operations, Anti-Submarine Warfare, and Strike Warfare operations. Routinely available data sources, such as climatology, oceanographic and meteorological numerical models, and satellite remote sensing are inadequate to support these warfare areas in the littoral and hinterland regions. Current operational sensors, such as the standard balloon launched radiosonde, are deployed from platforms that are frequently located great distances from the area of interest. The principal challenge is to provide a means for the collection and dissemination of METOC data in highly variable and dynamic littoral environmental conditions or in denied, remote or inaccessible areas over extended periods of time. The principal goals of this project are to: 1) Provide the means to rapidly and automatically acquire a broad array of METOC data using both off-board and on-board sensors; 2) provide an on-scene assessment capability for the tactical commander; 3) provide the tactical commander with real-time METOC data and products for operational use; 4) demonstrate and validate the use of tactical workstations and desktop computers for processing and display of METOC data and products using latest networking technologies; 5) demonstrate and validate techniques which employ data compression, connectivity and interface technologies to ingest, store, process, distribute and display these METOC data and products; 6) develop new charting and bathymetric survey techniques necessary to reduce the existing 300 ship year shortfall in coastal hydrographic survey requirements; and, 7) develop an expanded database for predictive METOC models in areas of potential interest.

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2341 METOC Data Acquisition

(U) B. Accomplishments/Planned Program

UAV Sensors	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.230	0.972	1.263
RDT&E Articles Quantity			

FY03 - Continued developments of prototype sensor suites for Unmanned Air Vehicles (UAV). Delivered prototype sensor package.
FY04 - Complete developments and testing of prototype sensor suites for UAVs. Continue development of miniaturized UAV sensor suites for mini/micro UAV platforms.
FY05 - Continue development of miniaturized sensor suites for mini/micro UAV platforms.

Acoustic Data Inversion	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.590	1.241	1.270
RDT&E Articles Quantity			

FY03 - Continued assessments of temporal and spatial variability of littoral environments for acoustic data inversion.
FY04 - Continue assessments of temporal and spatial variability of littoral environments for acoustic data inversion. Deliver Version 1.0 of the Geophysical Acoustic Inversion Toolkit (GAIT)
FY05 - Complete assessments of temporal and spatial variability of littoral environments for acoustic data inversion. Deliver GAIT Version 2.0. Continue development of advanced acoustic data inversion techniques incorporating Expert System technology.

Ambient Noise Data	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.340	1.071	1.230
RDT&E Articles Quantity			

FY03 - Continued development of advanced techniques to acquire and manage ambient noise data.
FY04 - Continue development of advanced techniques to acquire and manage ambient noise data. Deliver Dynamic Ambient Noise Prediction System (DAPS) V1.1.
FY05 - Continue development of advanced techniques to acquire and manage ambient noise data. Deliver DAPS V2.0.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2341 METOC Data Acquisition

(U) B. Accomplishments/Planned Program

Autonomous Clandestine Sensors	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.292	1.062	1.320
RDT&E Articles Quantity			

FY03 - Continued development of autonomous clandestine sensors for measurements in denied areas.
FY04 - Complete development of autonomous clandestine sensors for measurements in denied areas. Deliver web enabled prototype.
FY05 - Continue development of next-generation autonomous clandestine sensors for data acquisition in denied areas. Deliver final version of web enabled system.

Data Connectivity	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.320	1.071	1.225
RDT&E Articles Quantity			

FY03 - Continued development of data connectivity with GCCS/M and Joint C4ISR. Delivered prototype Tactical Environmental Data Server (TEDServices).
FY04 - Complete development of data connectivity with GCCS/M. Deliver TEDServices V1.0 software. Continue development improvements.
FY05 - Complete development of data connectivity with Joint C4ISR. Deliver TEDServices V2.0 prototype. Continue development of data connectivity methods for next-generation command and control systems.

Acoustic Data Acquisition	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.499	1.493	1.144
RDT&E Articles Quantity			

FY03 - Completed development of next-generation acoustic data acquisition techniques. Delivered Precision Undersea Mapper (PUMA) data decimation and fusion software V1.0. Continued development of advanced technology through the sensor data acquisition techniques.
FY04 - Continue development of advanced technology through the sensor data acquisition techniques. Deliver AQS-20 prototype software and PUMA V2.0 prototype software.
FY05 - Complete development of advanced technology through the sensor data acquisition techniques. Deliver AQS-20 V1.0 and PUMA V2.0 software. Continue spiral development of expert system acoustic data acquisistion techniques to directly ingest data obtained from tactical sensors.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2341 METOC Data Acquisition

(U) B. Accomplishments/Planned Program

DMAP	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.150	0.898	1.096
RDT&E Articles Quantity			

FY03 - Continued information management and DMAP functions. Delivered Navy-unique requirements to NIMA.
FY04 - Continue information management and DMAP functions. Annual delivery of Navy-unique requirements to NIMA.
FY05 - Continue information management and DMAP functions. Annual delivery of Navy-unique requirements to NIMA.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000
RDT&E Articles Quantity			

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000
RDT&E Articles Quantity			

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Application	2341 METOC Data Acquisition

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
FY04 President's Budget	9.823	7.896	8.627
FY05 President's Budget	9.421	7.808	8.548
Total Adjustments	-0.402	-0.088	-0.079
Summary of Adjustments			
SBIR	-0.124		
MANPOWER			-0.040
NWCF Rates - NRL Rates			-0.006
NWCF Rates - NSWC Rates			-0.003
FY 2003 Update	-0.278		
Section 8094: Management Improvements		-0.021	
Sec. 8126 Efficiencies/Revised Econ Assumptions		-0.067	
WCF - R&D - NRL			-0.015
Rates - NSWC			0.001
Rates - NRL			0.012
Inflation			-0.023
Non purchase inflation			-0.005
Subtotal	-0.402	-0.088	-0.079

(U) Schedule:

Not applicable.

(U) Technical:

Not applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2341 METOC Data Acquisition

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name

RELATED RDT&E: PE 0604218N, Air/Ocean Equipment Engineering - AN/SMQ-11 satellite receiver/recorder system engineering to receive data from DMSP onboard selected ships and shore sites.

(U) E. ACQUISITION STRATEGY:

Acquisition, management and contracting strategies are to support the meteorology and oceanography (METOC) Data Acquisition Project to develop, demonstrate, and validate METOC data collection methods and sensors, and to evolve the ability to provide timely and accurate METOC data and products to the Tactical Commander, all with management oversight by SPAWAR Headquarters.

(U) F. MAJOR PERFORMERS:

N/A

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications				PROJECT NUMBER AND NAME 2341 METOC Data Acquisition						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software Development	WX	NRL		3.208	N/A	3.870	N/A	4.426	N/A	CONT	CONT	
	WX	NAWC-AD Lake		0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	CP	ARL/APL		0.218	N/A	0.350	N/A	0.400	N/A	CONT	CONT	
	WX	NSWC		0.400	N/A	0.275	N/A	0.300	N/A	CONT	CONT	
	CP	New Age		1.095	N/A	0.650	N/A	0.705	N/A	CONT	CONT	
	CP	PSI/R.L.Phillips		0.560	N/A	0.450	N/A	0.500	N/A	CONT	CONT	
	CP	Neptune		0.350	N/A	0.375	N/A	0.400	N/A	CONT	CONT	
	WX	FNMOC		0.516	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	N/A	MISC		3.074	N/A	1.708	N/A	1.682	N/A	CONT	CONT	
											0.000	
											0.000	
Subtotal Software Development			0.000	9.421		7.678		8.413		CONT	CONT	
Remarks:												
Systems Engineering	CP	SSA	1.395	0.000	N/A	0.130	N/A	0.135	N/A	CONT	CONT	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			1.395	0.000		0.130		0.135		CONT	CONT	
Remarks:												

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 2341 METOC Data Acquisition						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			1.395	9.421		7.808		8.548		CONT	CONT	
Remarks:												

R-1 SHOPPING LIST - Item No. 30

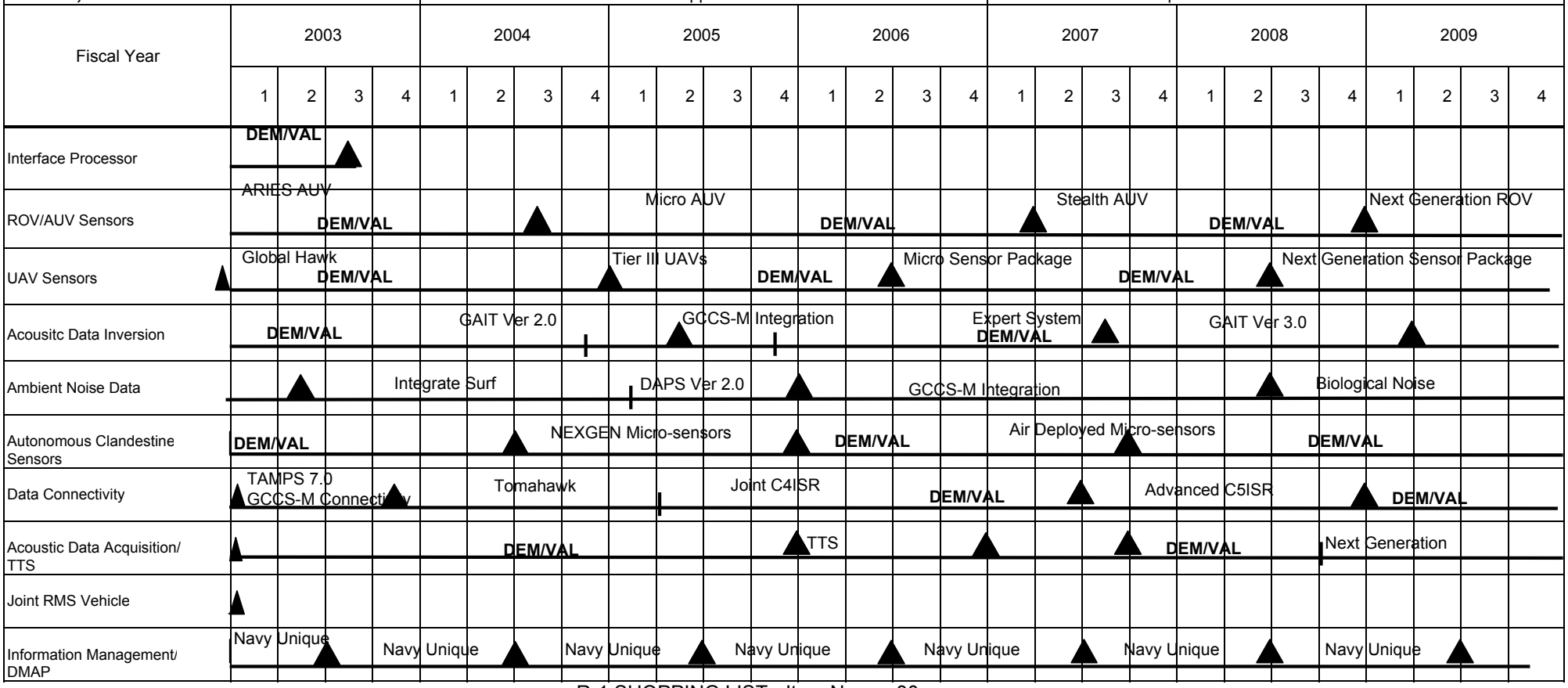
CLASSIFICATION:

EXHIBIT R4, Schedule Profile | DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4**

PROGRAM ELEMENT NUMBER AND NAME: PE 0603207N Air/Ocean Tactical Applications

PROJECT NUMBER AND NAME: 2341 METOC Data Acquisition



R-1 SHOPPING LIST - Item No. 30

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 2341 METOC Data Acquisition			
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Interface Processor	3Q						
ROV/AUV Sensors		3Q			1Q	4Q	
UAV Sensors		4Q		2Q		2Q	
Acoustic Data Inversion			2Q		3Q		1Q
Ambient Noise Data	2Q		4Q			2Q	
Autonomous Clandestine Sensors		2Q	4Q		3Q		
Data Connectivity	4Q				2Q	4Q	
Acoustic Data Acquisition/TTS			4Q	4Q	3Q		
Joint RMS Vehicle							
DMAP	2Q	2Q	2Q	2Q	2Q	2Q	2Q

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications					PROJECT NUMBER AND NAME 2342 METOC Data Assimilation and Modeling					
COST ($ in Millions)	Prior Years Cost		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost	**0.000**		**12.107**	**7.142**	**7.927**	**8.188**	**9.872**	**10.013**	**10.766**	**Continuing**	**Continuing**
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The meteorological and oceanographic (METOC) Data Assimilation Project is a multi-faceted project that provides future mission capabilities for warfighters to characterize the physical environment within their battlespace. This project includes: 1) development, demonstration and validation of atmospheric and oceanographic data assimilation techniques, forecast models, database management systems, and associated software for use in both mainframe and tactical scale computers. Included are numerical oceanographic and atmospheric models for the Large Scale Computers at the Navy Fleet Numerical Meteorology and Oceanography Center, Monterey, CA and the Naval Oceanographic Office, Stennis Space Center, MS. These models, combined with a global communications network for data acquisition and distribution, form a prediction system which provides METOC data and products necessary to support naval operations worldwide in virtually every mission area; 2) other models, which focus on ocean thermal structure and circulation, and surf and tide prediction; 3) techniques to process and manage satellite remotely-sensed environmental data at Oceanography Centers ashore and on ships equipped with the AN/SMQ-11 satellite receiver/recorder. These techniques allow for the integration and tactical application of significant oceanographic and atmospheric data derived from satellite □borne sensors. Included are techniques and algorithms for the processing of sensor measurements, conversion of raw signal data to geophysical information, analysis schemes encompassing Artificial Intelligence and Expert Systems, and other satellite data applications and field validation of end products; and, 4) a family of acoustic system performance models beginning with active system models and databases in the low-, mid-, and high-frequency regimes and culminating with high fidelity simulation products. As weapons and sensors become more sophisticated and complex, the marine environment has an increasingly significant impact on system performance. Operational limitations induced by the ocean and atmosphere must be understood, and the resulting constraints on mission effectiveness and system employment minimized. Hence, the operating forces require more accurate worldwide forecasts of METOC conditions with increased temporal and spatial resolution. An additional challenge is posed by the emergence of new satellite sensors, which are continually adding new sources of disparate data types. In order to fully exploit this dynamic and massive volume of data, modern data base management systems (DBMS) are required, and must be tailored for individual computer configurations. Improved representation of smaller-scale phenomena, particularly in the littoral, is also an important consideration.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2342 METOC Data Assimilation and Modeling

(U) B. Accomplishments/Planned Program

Modeling and Simulation	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.360	0.715	0.920
RDT&E Articles Quantity			

FY03 - Continued modeling and simulation of atmospheric and ocean environmental effects on Navy systems. Delivered ocean volume data to DoD M&S community.
FY04 - Continue modeling and simulation of atmospheric and ocean environmental effects on Navy systems. Deliver atmospheric volume data to DoD M&S community. Continue spiral development of improved ocean volume data.
FY05 - Continue modeling and simulation of atmospheric and ocean environmental effects on Navy systems. Deliver Navy data inputs to support establishment of the Joint M&S Center (USAF Combat Climatology Center).

Coupled Data Assimilation	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.280	0.320	0.440
RDT&E Articles Quantity			

FY03 - Continued development of variational techniques for coupled assimilations. Delivered Naval Data Assimilation Sytem (NAVDAS) V1.0.
FY04 - Complete development of variational techniques for coupled assimilations. Continue spiral development of NAVDAS V2.0 prototype and coupled data assimilation techniques incorporating Artificial Intelligence.
FY05 - Continue development of coupled assimilation techniques incorporating Artificial Intelligence. Deliver NAVDAS V2.0.

Fleet Exercises	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.650	0.524	0.530
RDT&E Articles Quantity			

FY03 - Participated in selected Naval Exercises and delivered post exercise strawman and final reports.
FY04 - Participate in selected Naval Exercises and deliver post exercise strawman and final reports.
FY05 - Participate in selected Naval Exercises and deliver post exercise strawman and final reports.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2342 METOC Data Assimilation and Modeling

(U) B. Accomplishments/Planned Program

High-Resolution Forecast Models	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.446	0.681	0.824
RDT&E Articles Quantity			

FY03 - Continued development of next generation high-resolution coupled air/ocean forecast models. Delivered Coupled Ocean-Atmospheric Mesoscale Prediction System (COAMPS) V3.0.
FY04 - Continue development of next generation high-resolution coupled air/ocean forecast models. Deliver Message Passage Interface (MPI)/ Distributed Shared Memory (DSM) version of COAMPS.
FY05 - Continue development of next generation high-resolution coupled air/ocean forecast models. Deliver prototype advanced land-surface modeling system for integration into COAMPS.

Basin Scale Ocean Models	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.363	1.100	0.851
RDT&E Articles Quantity			

FY03 - Continued development of coastal and enclosed basin tactical scale oceanographic models. Delivered prototype degree East Asian Sea (EAS) model.
FY04 - Continue development of coastal and enclosed basin tactical scale oceanographic models. Complete the validation/transition of the EAS model
FY05 - Complete development of coastal and enclosed basin tactical scale oceanographic models. Deliver prototype Adriadic Sea model. Continue development of coupled air/ocean models for selected geographical locations in response to emergent requirements.

Data Assimilation	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.120	0.327	0.410
RDT&E Articles Quantity			

FY03 - Continued development of new capabilities to assimilate and quality control METOC data from satellite sensors and conventional data sources. Delivered dust detection and enhancement software using MODIS and SeaWiFS digital data.
FY04 - Continue development of new capabilities to assimilate and quality control METOC data from satellite sensors and conventional data sources. Transition FMQ-17 modules
FY05 - Continue development of new capabilities to assimilate and quality control METOC data from satellite sensors and conventional data sources. Transition applications

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2342 METOC Data Assimilation and Modeling

(U) B. Accomplishments/Planned Program

Automated Objective Processing	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.493	0.694	0.976
RDT&E Articles Quantity			

FY03 - Continued development of techniques for bathymetry and surf zone and high-resolution micro-topography algorithms and automated objective processing in the littoral. Delivered report from the Naval Coastal Ocean Model (NCOM) validation tests.
FY04 - Complete development of techniques for bathymetry and surf zone and high-resolution micro-topography algorithms and automated objective processing in the littoral. Deliver performance metrics for the baseline global NCOM prediction system. Continue development of assimilation methods for high-resolution surf zone bathymetry into coupled air/ocean forecast models and automated objective preocessing in the littoral.
FY05 - Continue development of assimilation methods for high-resolution surf zone bathymetry into coupled air/ocean forecast models. Deliver data assimilation upgrades.

Tide/Surf Data Visualization	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.675	0.350	0.370
RDT&E Articles Quantity			

FY03 - Continued development of next-generation tide and surf models. Completed OPTEST of PCTides.
FY04 - Continue development of next-generation tide and surf models. Deliver UNIX version of PCTides. Incorporate TOPEX/Poseidon data into Surf Model.
FY05 - Continue development of next-generation tide and surf models. Deliver documentation for AMOP Transition.

NEXGEN Acoustive Models	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.260	0.978	1.170
RDT&E Articles Quantity			

FY03 - Continued development of next-generation active and passive acoustic models. Transitioned the prototype Scalable Tactical Propagation Loss Engine (STAPLE) for tactical decision aids and netcentric applications.
FY04 - Continue development of next-generation active and passive acoustic models. Upgrade to new OAML models for PE and CASS/GRAB. Semi-Empirical Surface Scattering Strength Algorithm
FY05 - Continue development of next-generation active and passive acoustic models. Incorporate DBDBV 5.0 APIs and database, upgrade NAUTILUS run options. Deliver OAML Version of SESSS.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2342 METOC Data Assimilation and Modeling

(U) B. Accomplishments/Planned Program

Shallow Water Acoustics	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.245	0.838	0.750
RDT&E Articles Quantity			

FY03 - Continued developments of mid-frequency bottom loss/bottom scatter models and databases for shallow water environments. Delivered SWDG R&A tools to incorporate OMAL-approved SPP models to provide Signal Excess calculations necessary to support Detection Opportunity Analysis.
FY04 - Continue developments of mid-frequency bottom loss/bottom scatter models and databases for shallow water environments. Complete assessment of CASS and ASPM and deliver final report.
FY05 - Continue developments of mid-frequency bottom loss/bottom scatter models and databases for shallow water environments. Integrate multistatics modeling and performance prediction techniques.

Fleet Applications and Data V&V	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.215	0.615	0.686
RDT&E Articles Quantity			

FY03 - Continued the verification and validation of products and data assimilation techniques developed for fleet applications. Delivered Annual Report.
FY04 - Continue the verification and validation of products and data assimilation techniques developed for fleet applications. Deliver Annual Report.
FY05 - Continue the verification and validation of products and data assimilation techniques developed for fleet applications. Deliver Annual Report.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			
RDT&E Articles Quantity			

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Application	2342 METOC Data Assimilation and Modeling

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
FY04 President's Budget	12.479	7.222	7.966
FY05 President's Budget	12.107	7.142	7.927
Total Adjustments	(0.372)	(0.080)	(0.039)
Summary of Adjustments			
66556 SBIR	(0.117)		
NWCF Rates - NRL Rates			(0.009)
NWCF Rates - NSWC Rates			(0.001)
FY 2003 Update	(0.255)		
Section 8094: Management Improvements		(0.019)	
Sec. 8126 Efficiencies/Revised Econ Assumptions		(0.061)	
WCF - R&D - NAWC			0.001
WCF - R&D - NRL			(0.021)
Rates - NSWC			0.001
Rates - NRL			0.016
Inflation			(0.021)
Non purchase inflation			(0.005)
Subtotal	(0.372)	(0.080)	(0.039)

(U) Schedule:

Not applicable.

(U) Technical:

Not applicable.

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2342 METOC Data Assimilation and Modeling

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name

Not applicable.

(U) E. ACQUISITION STRATEGY:

Acquisition, management and contracting strategies to support the meteorological and oceanographic (METOC) Data Assimilation Project which is a multi-faceted program which includes: 1) development, demonstration and validation of atmospheric and oceanographic data assimilation techniques, forecast models, database management systems, and associated software for use in both mainframe and tactical scale computers; 2) other models, which focus on ocean thermal structure and circulation, and surf and tide prediction; 3) techniques to process and manage satellite remotely-sensed environmental data at Oceanography Centers ashore and on ships equipped with the AN/SMQ-11 satellite receiver/recorder; and, 4) a family of acoustic system performance models beginning with active system models and databases in the low-, mid-, and high-frequency regimes and culminating with high fidelity simulation products, all with management oversight by SPAWAR.

(U) F. MAJOR PERFORMERS:

N/A

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications				PROJECT NUMBER AND NAME 2342 METOC Data Assimilation and Modeling						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software Development	WX	NRL		9.319	N/A	5.574	N/A	6.324	N/A	CONT	CONT	
	WX	NAWC-WD, Pax		0.000	N/A	0.185	N/A	0.208	N/A	CONT	CONT	
	PD	APL		0.487	N/A	0.208	N/A	0.290	N/A	CONT	CONT	
	Grant	Univ. S. Miss.		0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	CP	Neptune		0.325	N/A	0.295	N/A	0.325	N/A	CONT	CONT	
	CP	New Age		0.000	N/A	0.300	N/A	0.325	N/A	CONT	CONT	
	N/A	MISC		1.976	N/A	0.580	N/A	0.455	N/A	CONT	CONT	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Software Development			0.000	12.107		7.142		7.927		CONT	CONT	

Remarks:

Systems Engineering	CP	SSA	0.295	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			0.295	0.000		0.000		0.000		CONT	CONT	

Remarks:

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 2342 METOC Data Assimilation and Modeling						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			0.295	12.107		7.142		7.927		CONT	CONT	
Remarks:												

R-1 SHOPPING LIST - Item No. 30

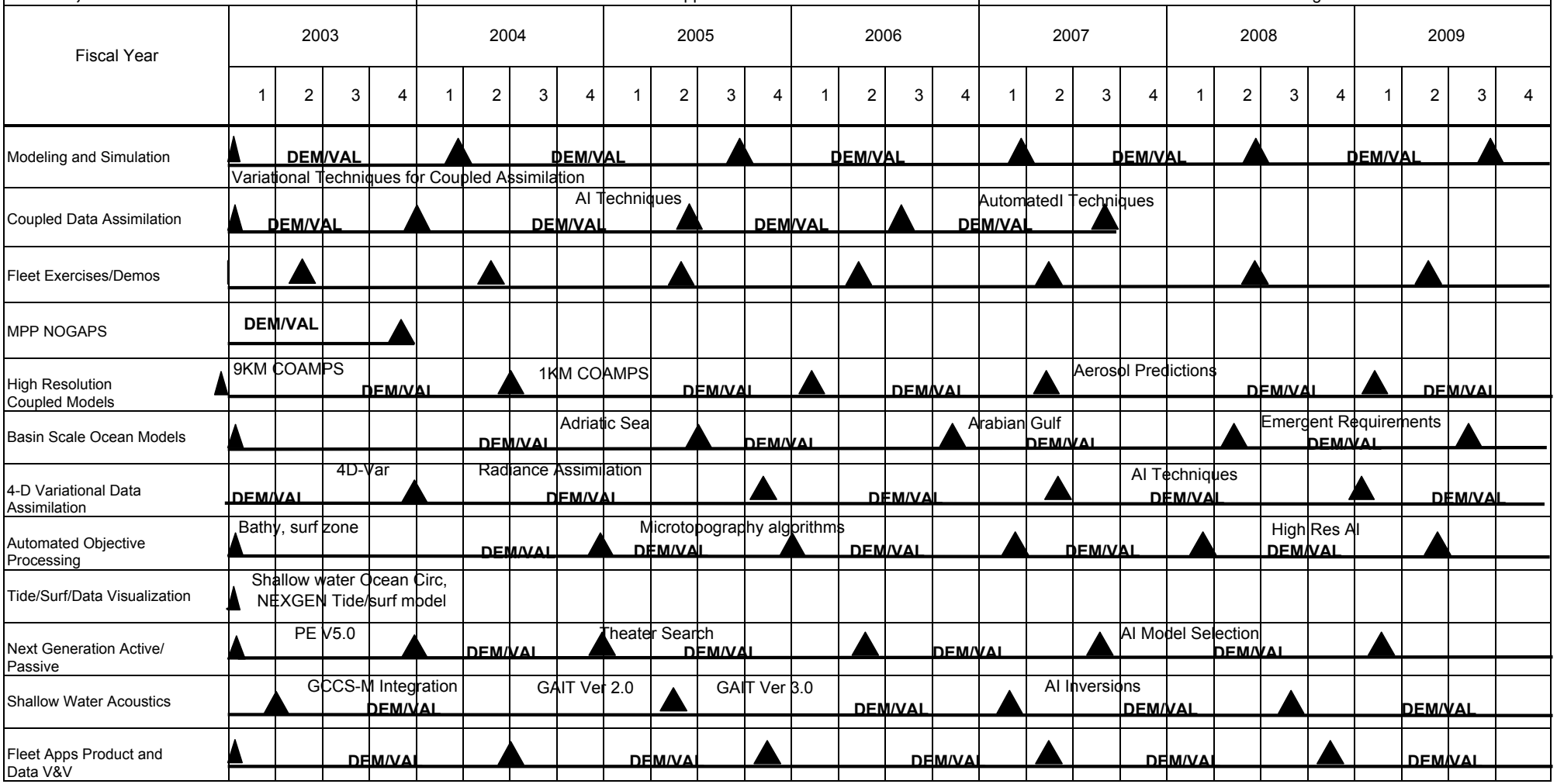
CLASSIFICATION:

EXHIBIT R4, Schedule Profile | DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4**

PROGRAM ELEMENT NUMBER AND NAME: PE 0603207N Air/Ocean Tactical Applications

PROJECT NUMBER AND NAME: 2342 METOC Data Assimilation and Modeling



R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 2342 METOC Data Assimilation and Modeling			
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Modeling and Simulation		1Q	3Q		1Q	2Q	3Q
Coupled Data Assimilation	4Q		2Q	3Q	3Q		
Fleet Exercises/Demonstrations	2Q	2Q	2Q	2Q	2Q	2Q	2Q
MPP NOGAPS	4Q						
High-Resolution Coupled Models		2Q		1Q	2Q		1Q
Basin Scale Ocean Models			2Q	4Q		2Q	3Q
4D-VAR Data Assimilation	4Q		4Q		2Q		1Q
Automated Objective Processing		4Q	4Q		1Q	1Q	2Q
Tide/Surf/Data Visualization							
NEXGEN Active and Passive Acoustic Models	4Q	4Q		2Q	3Q		1Q
Shallow Water Acoustics	1Q		2Q		1Q	3Q	
Fleet Applications and Data V&V		2Q	4Q		2Q	4Q	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2004			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications					PROJECT NUMBER AND NAME 2343 Tactical METOC Applications					
COST ($ in Millions)	Prior Years Cost		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost	**0.000**		**7.820**	**6.477**	**6.695**	**6.998**	**8.635**	**8.811**	**8.991**	**Continuing**	**Continuing**
RDT&E Articles Qty											**0**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The METOC Data Applications Project provides future operational effects decision aid capabilities for Navy and Marine Corps warfighters in the context of Joint Operations. This project identifies and transitions state-of-the-art decision support software technologies from the Government's and Commercial Industry's technology base and then demonstrates and validates these capabilities before fielding. These future software decision support tools are intended to provide platform, sensor, communications, and weapon systems performance assessments for warfighters in terms of their littoral and deep-strike battlespace environments. These assessments allow mission planners and warfighters, from the unit to theater level, to optimize their sensor employment on airborne, surface, and subsurface platforms in support of all Naval Composite Warfare mission areas including Undersea Warfare (USW), Anti-Submarine Warfare (ASW), Mine Warfare (MIW), Amphibious Warfare (AMW), Anti-Surface Warfare (ASUW), Anti-Air Warfare (AAW), Strike Warfare (STW), and Special Warfare. Performance assessments leading to improvements in operational and tactical control are conducted through a two-tiered approach: 1) METOC Decision Aids (MDAs); and, 2) Opeational Effects Decision Aids (OEDAs). MDAs consist of a series of analysis tools which characterize the physical environment conditions of the battlespace based on the best set of physical environment data available at the time (i.e., some combination of historical and/or real-time (or near real-time) in-situ data. OEDAs then use the MDA information by fusing it with relevant, often-classified sensor and target data to predict how own-force weapons and sensor systems will perform and hostile targets, Performance results are displayed in tabular and graphic formats for use by mission planners and combat/weapon system operators to develop ASW and MIW search and localization plans, USW/AAW/ASUW screens, STW profiles, AMW ingress and egress points, and for other warfare considerations. MDAs and OEDAs typically use data derived from sensors developed in Project X2341 (METOC Data Acquisition) and assimilated by software produced by Project X2342 (METOC Data Assimilation and Modeling). MDAs and OEDAs also use data obtained through direct interfaces to Navy combat systems. A current emphasis area of the project is the development of new combat system and mine warfare performance prediction and MDA/OEDA capabilities required to characterize and/or predict sensor and weapons system performance in the highly complex littoral environments in support of regional conflict scenarios. It addresses multi-warfare areas, particularly Mine Warfare, shallow water ASW, and missile and air defense/strike capabilities. □

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2343 Tactical METOC Applications

(U) B. Accomplishments/Planned Program

EM/EO Decision Aids	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.334	1.015	1.180
RDT&E Articles Quantity			

FY03 - Continued development of an advanced electromagnetic propagation (AREPS) model incorporating artificial intelligence techniques. Delivered NITES II Java version of AREPS. Continued development of an advanced electro-optical decision aid.
FY04 - Complete development of an advanced electro-optical decision aid incorporating artificial intelligence techniques. Deliver the Target Acquisition Weather Software (TAWS) V4.0. Continue to implement new sensor data and backgrounds consistent with USN and USMC mission. Continue development of next generation electromagnetic and electro-optical (EM/EO) performance prediction systems and applications.
FY05 - Complete development of (TAWS) and deliver V5.0 including new sensor data and backgrounds consistent with USN and USMC mission. Continue development of next generation electromagnetic and electro-optical (EM/EO) performance prediction systems and applications.

Mine Littoral Warfare TDAs	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	2.416	2.168	1.882
RDT&E Articles Quantity			

FY03- Continued to incorporate prototype Mine Warfare tactical decision aids in baseline surface ship, air and submarine performance prediction systems. Delivered the Mine Environmental Decision Aids Library (MEDAL) Build 9.
FY04 - Complete the incorporation of prototype Mine Warfare tactical decision aids in baseline surface ship, air and submarine performance prediction systems. Complete integration of MEDAL/TEDS integration. Continue development to incorporate additional mine littoral warfare decision aids in applicable performance prediction systems.
FY05 - Continue development to incorporate additional mine littoral warfare decision aids in applicable performance prediction systems. Deliver MEDAL Build 10.

TDA COTS Visualization	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.795	1.356	1.562
RDT&E Articles Quantity			

FY03 - Continued to apply advanced COTS visualization techniques to facilitate operator understanding of complex littoral environmental effects on sensor performance and integrated into appropriate platform ADMs. Performed at-sea evaluation of new capabilities. Delivered technical reports.
FY04 - Complete the application of advanced COTS visualization techniques to facilitate operator understanding of complex littoral environmental effects on sensor performance. Continue development of multi-dimensional TDA COTS visualization techniques and integrate into appropriate platform ADMs. Deliver prototypeTactical Tomahawk Weapon Control System METOC Interface. Perform at-sea evaluation of new capabilities. Deliver technical reports.
FY05 - Continue development of multi-dimensional TDA COTS visualization techniques and integrate into appropriate platform ADMs. Deliver 4d-Vis prototype. Deliver technical reports.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2343 Tactical METOC Applications

(U) B. Accomplishments/Planned Program

Platform Vulnerability	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.125	0.988	1.000
RDT&E Articles Quantity			

FY03- Delivered platform vulnerability assessment TDA V1.0 into surface ship, submarine and air ADMs to perform vulnerability assessment for acoustic and non-acoustic sensors and weapons. Evaluated functionality during at-sea tests. Delivered Technical reports. Continued spiral development of TDA.
FY04 - Deliver platform vulnerability assessment TDA V2.0 into surface ship, submarine and air ADMs to perform vulnerability assessment for acoustic and non-acoustic sensors and weapons. Evaluate functionality during at-sea tests. Deliver Technical reports. Continue spiral development of TDA.
FY05 - Deliver platform vulnerability assessment TDA V3.0 into surface ship, submarine and air ADMs to perform vulnerability assessment for acoustic and non-acoustic sensors and weapons. Evaluate functionality during at-sea tests. Deliver Technical reports. Continue spiral development of TDA.

Sensor Interface Capabilities	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.150	0.950	1.071
RDT&E Articles Quantity			

FY03 - Continued to incorporate additional environmental sensor interface capabilities to allow for real time monitoring and measurement of key environmental parameters in support of the Oceanographer of the Navy's Battlespace METOC Data Acquisition, Assimilation and Applications strategy. Implemented in the platform ADMs and evaluate at-sea. Delivered NITES II Build 2.
FY04 - Continue development of environmental sensor interface capabilities. Perform Preliminary Design Review (PDR) and Critical Design Review (CDR) for Build 2.5.
FY05 - Continue development of environmental sensor interface capabilities. Deliver Build 3.0. Evaluate functionality during at-sea tests. Deliver Technical reports. □

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2343 Tactical METOC Applications

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
FY04 President's Budget	8.068	6.553	7.12
FY05 Current BES/President's Budget	7.82	6.477	6.695
Total Adjustments	-0.248	-0.076	-0.425
Summary of Adjustments			
SBIR	-0.165		
SPAWAR Service Cost Center Adjustment		-0.003	-0.003
NWCF Rates - SPAWAR SSC Rates			-0.003
Section 8094: Management Improvements		-0.017	
Sec. 8126 Efficiencies/Revised Econ Assumptions		-0.056	
FY 2003 Update	-0.083		
WCF - R&D - NAWC			-0.001
WCF - R&D - NRL			-0.001
Rates - NSWC			0.004
Rates - NRL			0.001
JBMC2			-0.4
Inflation			-0.018
Non purchase inflation			-0.004
Subtotal	-0.248	-0.076	-0.425

(U) Schedule:

Not applicable.

(U) Technical:

Not applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2343 Tactical METOC Applications

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name

RELATED RDT&E: PE 0604218N (Air/Ocean Equipment Engineering). TESS/NITES will incorporate METOC data applications.

(U) E. ACQUISITION STRATEGY:

Acquisition, management and contracting strategies are to support the METOC Data Applications project to continue the development of state-of-the-art software capabilities that provide sensor, communication, and weapon system performance assessments across the full spectrum of open ocean and littoral operating environments, meteorology and oceanography , all with management oversight by SPAWAR Headquarters PMW 150.

(U) F. MAJOR PERFORMERS:

N/A

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications				PROJECT NUMBER AND NAME 2343 Tactical METOC Applications						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software Development	WX	NUWC		0.000	N/A	0.000	N/A	0.000	N/A		0.000	
	WX	SSC SD		0.600	N/A	0.320	N/A	0.335	N/A	CONT	CONT	
	WX	NRL		0.412	N/A	0.270	N/A	0.285	N/A	CONT	CONT	
	CP	NAVSEA		5.955	N/A	5.188	N/A	5.811	N/A	CONT	CONT	
	CP	LOCKHEAD		0.000	N/A	0.000	N/A	0.000	N/A		0.000	
	N/A	MISC		0.853	N/A	0.699	N/A	0.264	N/A	CONT	CONT	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			0.000	7.820		6.477		6.695		0.000	20.992	

Remarks:

	CP	IPD	0.595	0.000	N/A	0.000	N/A	0.000	N/A	CONT	#VALUE!	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			0.595	0.000		0.000		0.000		CONT	CONT	

Remarks:

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 2343 Tactical METOC Applications						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			0.595	7.820		6.477		6.695		CONT	CONT	
Remarks:												

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

EXHIBIT R4, Schedule Profile — DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4**

PROGRAM ELEMENT NUMBER AND NAME: PE 0603207N Air/Ocean Tactical Applications

PROJECT NUMBER AND NAME: 2343 Tactical METOC Applications

Fiscal Year	2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
EM/EO Decision Aids	▲	AREPS DEM/VAL		▲		TAWS DEM/VAL		▲		Adv EM/EO using AI DEM/VAL			▲					Next Gen EM/EO Adv EM/EO using AI DEM/VAL									▲		
Mine Warfare TDAs	DEM/VAL					▲	MEDAL Upgrades DEM/VAL			▲	MEDAL Upgrades DEM/VAL			▲				NEXGEN MIW TDA DEM/VAL				▲		DEM/VAL		▲		
TDA COTS Visualization	▲	4D VIS DEM/VAL				▲	Advanced VIS DEM/VAL			▲				▲				Advanced Interactive Holographic Techniques DEM/VAL				▲			DEM/VAL	▲		
Platform Vulnerability		Acoustic Vul			DEM/VAL		▲			Non-Acoustic Vul			DEM/VAL		▲			Multi-Ship Vul DEM/VAL					▲		Remote Sensing		▲	
Sensor Interface Capabilities			DEM/VAL		▲		Conventional Measurements						DEM/VAL				▲			Remote Sensing/Data Monitoring				DEM/VAL		▲		

R-1 SHOPPING LIST - Item No. 30

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail				DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 2343 Tactical METOC Applications			
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
EM/EO Decision Aids	4Q	4Q		1Q			3Q
Mine/Littoral Warfare TDAs		1Q	2Q	3Q		1Q	2Q
TDA COTS Visualization	1Q	3Q	4Q	4Q		2Q	3Q
Platform Vulnerability		4Q		3Q		2Q	4Q
Sensor Interface Capabilities		1Q			1Q		3Q

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications					PROJECT NUMBER AND NAME 2344 Precise Timing and Astrometry					
COST ($ in Millions)	Prior Years Cost		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost	**0.000**		**1.399**	**1.148**	**1.261**	**1.299**	**1.573**	**0.506**	**0.296**	**Continuing**	**Continuing**
RDT&E Articles Qty											**0**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The major thrust of the Precise Timing and Astrometry Project is to provide future capabilities that directly support the mission of the U.S. Naval Observatory (USNO). These future mission capabilities are intended to: 1) address DoD requirements for needed increases in positioning accuracies of modern weapons systems by the determination of star positions (including objects at other than optical wavelengths) and the stellar inertial reference system (to which all navigation, guidance, and positioning systems are ultimately referred); 2) develop techniques for the prediction of the Earth's instantaneous orientation with respect to the stellar inertial reference system; 3) oversee the determination and dissemination of precise time information using the Navy/DoD Master Clock System and precise time distribution networks; and, 4) develop advanced electronic light detectors and interferometry in the optical and infrared wavelength regions for very precise determination of the positions of both faint and bright stars, satellite tracking, and space debris studies. DoD Instruction 5000.2 assigns to the Navy the responsibility for coordinating Precise Time and Time Interval (PTTI) requirements and for maintaining a PTTI reference standard (astronomical and atomic) for use by all DoD Services, Federal agencies, and related scientific laboratories. The Navy is also responsible for providing astronomical data for navigation, positioning, and guidance, including space. Some operational and many emerging requirements surpass current support capabilities. In response to these DoD requirements, this project transitions Research (6.1) and Exploratory Development (6.2) efforts, as well as developments in the civilian sector, into the operational capabilities of the USNO.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2344 Precise Timing and Astrometry

(U) B. Accomplishments/Planned Program

Time Transfer	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.390	0.292	0.355
RDT&E Articles Quantity			

FY03 - Continued developments of next-generation time transfer capabilities.
FY04 - Complete developments of next-generation time transfer capabilities. Install upgraded capability. Continue spiral developments of time transfer techniques incorporating neural networks to improve accuracy.
FY05 - Continue developments of time transfer techniques incorporating neural networks to improve accuracy. Deliver technical reports.

Earth Orientation	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.430	0.338	0.375
RDT&E Articles Quantity			

FY03 - Continued VLBI/GPS demonstrations for earth orientation parameters. Delivered operational products to improve earth orientation database. Continued spiral developments of next-generation earth orientation techniques.
FY04 - Continue VLBI/GPS demonstrations for earth orientation parameters. Deliver improvements for GPS upgrades.
FY05 - Continue developments of next-generation earth orientation techniques. Deliver technical reports.

Master Clock	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.579	0.518	0.531
RDT&E Articles Quantity			

FY03 - Continued exploitation of emergent Master Clock technologies.
FY04 - Continue exploitation of emergent Master Clock technologies. Deliver and install upgraded Master Clock.
FY05 - Continue exploitation of emergent Master Clock technologies. Perform initial testing of next generation Master Clock.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2344 Precise Timing and Astrometry

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
FY04 President's Budget	1.443	1.161	1.265
FY05 President's Budget	1.399	1.148	1.261
Total Adjustments	-0.044	-0.013	-0.004
Summary of Adjustments			
FY03_SBIR	-0.024	0	0
Section 8094: Management Improvements	0	-0.003	0
Sec. 8126 Efficiencies/Revised Econ Assumptions	0	-0.010	0
FY 2003 Update	-0.020		
Inflation	0	0	-0.003
Non purchase inflation	0	0	-0.001
Subtotal	-0.044	-0.013	-0.004

(U) Schedule:

Not applicable.

(U) Technical:

Not applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2344 Precise Timing and Astrometry

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name

Not applicable.

(U) E. ACQUISITION STRATEGY:

Acquisition, management and contracting strategies are to support the the Precise Timing and Astrometry Project in direct support of the U.S. Naval Observatory (USNO) in: 1) addressing DoD requirements for needed increases in positioning accuracies of modern weapons systems by the determination of star positions and the stellar inertial reference system ; 2) developing techniques for the prediction of the Earth's instantaneous orientation with respect to the stellar inertial reference system; 3) overseeing the determination and dissemination of precise time information using the Navy/DoD Master Clock System and precise time distribution networks; and, 4) developing advanced electronic light detectors and interferometry in the optical and infrared wavelength regions for very precise determination of the positions of both faint and bright stars, satellite tracking, and space debris studies, all with management oversight by SPAWAR Headquarters.

(U) F. MAJOR PERFORMERS:

N/A

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 2344 Precise Timing and Astrometry							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software Development	WX	Naval Observatory		1.399	N/A	1.148	N/A	1.261	N/A	CONT	CONT	
	N/A	MISC		0.000	N/A	0.000	N/A	0.000	N/A		0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Software Development			0.000	1.399		1.148		1.261		0.000	3.808	
Remarks:												
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		CONT	CONT	
Remarks:												

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 2344 Precise Timing and Astrometry							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			0.000	1.399		1.148		1.261		CONT	CONT	
Remarks:												

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																													DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**					PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications												PROJECT NUMBER AND NAME 2344 Precise Timing and Astrometry												
Fiscal Year	2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Time Transfer		DEM/VAL			Neural Networks					DEM/VAL							Advanced Time Transfer					DEM/VAL						
Earth Orientation	VLBI/GPS demo					DEM/VAL			Full-Sky Astrometric Mapping Explorer										DEM/VAL									
Master Clock			Sigma Tau-model hydrogen masters							DEM/VAL			Mercury Ion Clocks					DEM/VAL					Pulsar Profile Technology					

R-1 SHOPPING LIST - Item No. 30

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 2344 Precise Timing and Astrometry			
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Time Transfer	4Q		4Q				2Q
Earth Orientation		4Q				2Q	
Master Clock	2Q			1Q		1Q	

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2004			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications					PROJECT NUMBER AND NAME 9168 Prototype Regional Forecast Hub					
COST ($ in Millions)	Prior Years Cost		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost	**0.000**		**1.190**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**1.190**
RDT&E Articles Qty											**0**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

A Congressional plus up for Prototype Regional Forecast (PRF) Hub was provided for FY03. The thrust of this project is to develop, integrate and demonstrate a prototype Prototype Regional Forecast (PRF) Hub. Currently there is no Regional Forecast Hub for METOC modeling in support of the CNMOC Centers of Excellence. This system will provide the tools for substantially reducing the time to develop, prototype, test, and validate METOC models, and will support collaboration between modelers and users. The PRF will integrate and demonstrate new technologies and techniques to allow the Navy to establish more efficient forecasting hubs to respond to geographically distributed operational needs of the Department of the Navy including air and water born contaminants. The PRF will:

· Provide Navy's operational personnel and forecasters at dispersed locations with Web based access to regionally specific numerical forecasts of both the oceanographic and meteorological conditions.

· Incorporate computer models, high performance computing, including hardware, software and databases, and communications into a single architecture.

· Use advanced communications technology such as the NCSA Access Grid to allow forecasters and decision support personal to meet in a virtual room with collaborative access to the latest METOC conditions and forecasts.

· Integrate a suite of high-resolution ocean and atmospheric forecast and contaminant dispersion/ transport models. The SRC will require the development and incorporation of an adaptive refinement ocean model with chemical tracking capabilities.

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	9168 Prototype Regional Forecast Hub

(U) B. Accomplishments/Planned Program

Prototype Regional Forecast Hub	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.190		
RDT&E Articles Quantity			

FY03 - Developed, integrated and demonstrated prototype PRF Hub.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			
RDT&E Articles Quantity			

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			
RDT&E Articles Quantity			

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	9168 Prototype Regional Forecast Hub

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
FY04 President's Budget	1.223	0.000	0.000
FY05 President's Budget	1.190	0.000	0.000
Total Adjustments	(0.033)	0.000	0.000
Summary of Adjustments			
Business Process Reform (SEC.8100)	(0.005)	0.000	0.000
Economic Assumptions (SEC.8135)	(0.007)	0.000	0.000
IT Cost Growth (SEC.8109)	(0.002)	0.000	0.000
Prototype Regional Forecast Hub	0.027	0.000	0.000
Inflation Savings	(0.013)	0.000	0.000
FY03_SBIR_5-May-03	(0.033)	0.000	0.000
Subtotal	(0.033)	0.000	0.000

(U) Schedule:

Not applicable.

(U) Technical:

Not applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	9168 Prototype Regional Forecast Hub

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name

Not applicable.

(U) E. ACQUISITION STRATEGY:

Acquisition, management and contracting strategies are to support the Prototype Regional Forecast Hub. The PRF Hub will integrate and demonstrate new technologies and techniques to allow the Navy to establish more efficient forecasting hubs to respond to geographically distributed operational needs of the Department of the Navy including air and water born contaminants.

(U) F. MAJOR PERFORMERS:

N/A

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications				PROJECT NUMBER AND NAME 9168 Prototype Regional Forecast Hub						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software Development	WX	NAVOCEANO	0.000	1.190	N/A	0.000	N/A	0.000	N/A	0.000	1.223	
	N/A	MISC	0.000	0.000	N/A	0.000	N/A	0.000	N/A		0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Software Development			0.000	1.190		0.000		0.000		0.000	1.190	
Remarks:												
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		CONT	CONT	
Remarks:												

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 9168 Prototype Regional Forecast Hub						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			0.000	1.190		0.000		0.000		CONT	CONT	
Remarks:												

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																												DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**					PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications												PROJECT NUMBER AND NAME 9168 Prototype Regional Forecast Hub												
Fiscal Year	2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Prototype Regional Forecast Hub	**DEMVAL**																											

R-1 SHOPPING LIST - Item No. 30

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 9168 Prototype Regional Forecast Hub			
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Prototype Regional Forecast Hub	4Q						

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**					R-1 ITEM NOMENCLATURE 0603216N Aviation Survivability			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost		**20.359**	**21.628**	**10.820**	**5.878**	**6.315**	**6.440**	**6.567**
W0584 Aircrew Protective Clothing and Devices		**2.758**	**3.827**	**2.441**	**2.457**	**2.482**	**2.530**	**2.580**
W0591 Aircraft Survivability, Vulnerabilty and Safety		**1.873**	**7.408**	**6.543**	**1.558**	**1.582**	**1.616**	**1.646**
W0592 A/C & Ordnance Safety		**1.966**	**1.346**	**1.248**	**1.266**	**1.517**	**1.546**	**1.577**
W1819 Carrier Vehicle Aircraft Fire Suppression		**0.921**	**0.740**	**0.588**	**0.597**	**0.734**	**0.748**	**0.764**
W9034 Modular Helmet and Display Development		**1.443**						
W9169 Aviation Integrated Life Support System		**5.062**						
W9170 Modular Advanced Vision System		**1.724**	**2.374**					
W9171 Naval Aviation Network Centric		**1.730**						
W9172 Advanced Aircraft/Explosion Protection		**0.964**						
W9173 Rotorcraft External Airbag		**1.918**	**3.461**					
W9346 Equipment Life Extension Program			**2.472**					

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Aviation Survivability addresses the issues of aircrew and platform survivability, focusing on enhancing overall opportunity for aircrew and platform protection and enhanced performance. The capabilities addressed under this program element counter emerging threats of next generation operational weapons systems and enhance combat effectiveness in future operational mission scenarios.

(U) Aircrew Protective Clothing and Devices develops, demonstrates, and validates technology options that enhance aircrew capability to perform assigned missions. In addition, this project ensures aircrew protection against natural and induced environmental or physiological hazards encountered during routine, combat and emergency flight operations as well as during escape, and survival and rescue, following loss of aircraft.

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**	R-1 ITEM NOMENCLATURE 0603216N Aviation Survivability

(U) Projects W0591, W0592, and W1819 focus on platform survivability, addressing the reductions in aircraft susceptibility to enemy and non-combat threats, as well as aircraft vulnerabilities to conventional, nuclear, chemical, biological, radiological and directed energy weapons. The Aircraft Survivability, Vulnerability and Safety project expands the survivability technology base and develops prototype hardware which is required to improve the survivability of Naval aircraft. Aircraft and Ordnance Safety transitions generic insensitive munitions technology to Navy and Marine Corps air weapons, ensuring that they are insensitive to fast cook-off, slow cook-off, and fragment impact and sympathetic detonation. Carrier Aircraft Fire Suppression Systems develops improved fire fighting systems and fire protective measures for aircraft carriers. Project W9034 reflects a Congressional Add that will complete development of the low resolution Crusader modular helmet, and begin development of an enhanced Advanced Helmet Vision System. Project W9169 reflects a Congressional Add that will be used to develop an approach to pass SAILSS (Smart AILSS) sensor cables through the Joint Service Air Mask (JSAM) and Joint Protective Aircrew Ensemble (JPACE) without compromising CB protection. The project will also determine the impact of added head mass on head/neck moments of inertia. Testing and development of system level devices will be conducted in dynamic, flight simulators, in order to develop realistic design goals. Project W9170 reflects a Congressional Add that will support the shift from traditional cathode ray tube (CRT) based helmet mounted displays to a computer driven array using laser projection. This fundamental change in approach will significantly increase display resolution and brightness while reducing weight and center of gravity problems. As part of the design goals, the ability to add fixed line laser eye protection to the visor assembly will be explored. Project W9171 reflects a Congressional Add that will provide support to the principles of network centric warfare (NCW) which will be applied to leverage the power of shared information and knowledge to deliver end-to-end combat capabilities spanning from Space-to-Seabed and Sea-to-Land. Project W9172 reflects a Congressional Add that will be used to develop a stand-alone modeling, simulation, test and evaluation capability to assess aircraft fire/protection and extinguishing systems. This capability does not exist in any other DoD or University laboratory. Project W9173 reflects a Congressional Add that will address the level of protection afforded and feasibility of an external airbag. Rotorcraft application will require larger airbags integrated into the aircraft and development of “predictive” crash sensors. Initial impact studies (water and ground) have already been conducted. Joint efforts with the Army for aircrew systems are already underway. Project W9346 reflects a Congressional Add that will fund an equipment life extension laboratory for definition of systems no longer procurable but critical to functionality of weapons systems.

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability				PROJECT NUMBER AND NAME W0584 Aircrew Protective Clothing and Devices			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**2.758**	**3.827**	**2.441**	**2.457**	**2.482**	**2.530**	**2.580**
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Project W0584 develops, demonstrates, and validates technology options for integrated aircrew emergency and life support systems designed to enhance mission effectiveness, in-flight protection and survivability. The project covers fixed and rotary wing life support equipment, advanced helmet vision systems, escape systems technology, crew centered cockpit design, and cockpit integration programs. It responds to a number of operational requirements documents, including OR# 210-05-88 for Chemical and Biological (CB) Protection, OR#099-05-087 for Laser Eye Protection, and the joint Air Force/Navy (CAF 208-93) for an Aerospace Control Helmet Mounted Cueing System. In 1996, the various sub-projects were restructured into a combined Advanced Technology Crew Station (ATCS) and Advanced Integrated Life Support System (AILSS) program. This project is validated by two Non-Acquisition Development Documents (NAPDDS)-- one for an ATCS, and the other for AILSS.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216N Avation Survivability	W0584 Aircrew Protective Clothing and Devices

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	1.268	1.760	1.123	
RDT&E Articles Quantity				

Advanced Integrated Life Support System (AILSS) program. Exercise option to begin the development of frequency Agile flight worthy unity magnification goggles (laser eye protection). Laboratory and field testing of Agile flight worthy goggles prototypes. Focus on alternative materials and optical design to maximize performance. Finalize unity magnification frequency Agile flight worthy goggles and ready for EMD transition. Integrate Smart Advanced Integrated Life Support System (SAILSS) with on-board oxygen and personal air conditioning systems. Integration of SAILSS with focus on imbedded microsensors and personal air conditioning system. Tactical variant of AILSS (TAILSS), move SAILSS into final phases of laboratory testing. Crewstation technology laboratory demonstration of Active Network Guidance Emergency Logic (ANGEL). System integration laboratory demonstration of ANGEL. Combine flight testing of on board/off board data correlation and ANGEL.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	1.490	2.067	1.318	
RDT&E Articles Quantity				

Advanced Technology Crew Station (ATCS) program. System integration and flight testing of Advanced Helmet Vision System enhanced resolution Crusader. I2/Thermal mode control studies. Pilot Vehicle Interface (PVI) on-board/off board data correlation on test aircraft and began flight testing. Advanced Technology Escape System (ATES) ejection seat trajectory and crashworthy seat stroke models with biodynamic models exploring various integrated aircrew head/neck protection configurations for ejection safe helmet mounted systems. Incorporate computational fluid dynamics and parachute models. Preliminary ergonomic seating design, validated BioRID performance and mature final version. Incorporate models of helmet mounted displays into the PVI to support testing and validation of on board/off board data correlation. Horizontal accelerator/vibrating platform assessment of ergonomics, posture, and crashworthiness. Development of Charge Coupled Device (CCD) based, high resolution Advanced Helmet Vision System (follow on to the low resolution Crusader HMD). Integrate results of injury prevention research into protective equipment to include helmet mounted devices and into ejection seat design for improved seal performance, retention, and safety. Development and testing of side facing seat and improved restraint system. Focus on shock and vibration work.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216N Aviation Survivability	W0584 Aircrew Protective Clothing and Devices

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:	2.831	2.870	2.444
Current BES/President's Budget	2.758	3.827	2.441
Total Adjustments	-0.073	0.957	-0.003
Summary of Adjustments			
Congressional program reductions			
Congressional undistributed reductions		-0.043	
Congressional rescissions			
SBIR/STTR Transfer	-0.008		
Economic Assumptions			-0.003
Other Navy/OSD Adjustments			
Reprogrammings	-0.065		
Congressional increases		1.000	
Subtotal	-0.073	0.957	-0.003

Schedule:

Not Applicable

Technical:

INot Applicable.

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216N Aviation Survivability	W0584 Aircrew Protective Clothing and Devices

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost

(U) PE 0602201F (Aerospace Flight Dynamics)
(U) PE 0602233N (Mission Support Equipment)
(U) PE 0604264N (Aircrew Systems Development)
(U) PE 0604706F (Life Support Systems)
(U) PE 06023231F (Crew Systems and Personal Protection Technology)

E. ACQUISITION STRATEGY:

Not Applicable

F. MAJOR PERFORMERS:

Not Applicable

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603216N Aviation Survivability				PROJECT NUMBER AND NAME W0584 Aircrew Protective Clothing and Devices						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	WX	NAWCAD PAX	19.342	1.064	Various	1.711	Various	1.101	Various	Continuing	Continuing	
Systems Engineering	Various	Various	10.765	0.150							10.915	
Systems Engineering	C/CPFF	McDonnell Douglas, St Louis	1.325								1.325	1.325
Systems Engineering	C/CPFF	Boeing Seattle, Wa	1.660								1.660	1.660
Subtotal Product Development			33.092	1.214		1.711		1.101		Continuing	Continuing	
Remarks:												
Development Support												
Software Development												
Integrated Logistics Support												
Configuration Management	Various	Various	1.986	0.519	Various	0.727	Various	0.448	Various	Continuing	Continuing	
Technical Data												
Studies & Analyses												
GFE												
Award Fees												
Subtotal Support			1.986	0.519		0.727		0.448		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603216N Aviation Survivability			PROJECT NUMBER AND NAME W0584 Aircrew Protective Clothing and Devices						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various	Various	15.856	1.015	Various	1.369	Various	0.882	Various	Continuing	Continuing	
Operational Test & Evaluation												
Live Fire Test & Evaluation												
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			15.856	1.015		1.369		0.882		Continuing	Continuing	
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Travel	WX	NAWCAD Patuxent River	0.105	0.010	10/02	0.020	10/03	0.010	10/04	Continuing	Continuing	
Transportation												
SBIR Assessment												
Subtotal Management			0.105	0.010		0.020		0.010		Continuing	Continuing	
Remarks:												
Total Cost			51.039	2.758		3.827		2.441		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

EXHIBIT R4, Schedule Profile | DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N /** **BA-4**

PROGRAM ELEMENT NUMBER AND NAME: 0603216N Aviation Survivability

PROJECT NUMBER AND NAME: W0584 Aircrew Protective Clothing and Devices

Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Program Milestones																																
Agile Laser Eye Protection																																
Unity Magnification Goggle																																
Intensified Unity Mag Goggle																																
Advance Helmet Vision System (AHVS)																																
Crusader																																
Visually Coupled Display (high resolution)																																
Adanced Integrated Life Support System (AILSS)																																
Tactical AILSS (TAILSS)																																
Smart AILSS (SAILSS)																																
4th Generation Escape																																
Crashworthiness & Improved Restraint System																																
Injury Prevention																																
Pilot Vehicle Interface (PVI)																																
On Board - Off Board Data Correlation																																
T&E Milestones																																
Crusader laboratory testing																																
ANGEL																																
Advanced Technology Crew Station (ATCS)																																

R-1 SHOPPING LIST - Item No. 31

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&BA-4**	PROGRAM ELEMENT 0603216N				PROJECT NUMBER AND NAME W0584 Aircrew Protective Clothing and Devices			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Advanced Technology Crew Station (ATCS)	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Agile Laser Eye Protection								
Unity Magnification Goggle	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q				
Intensified Unity Mag Goggle				3Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	
Advanced Helmet Vision System (AHVS)								
Crusader	1Q-4Q	1Q-4Q	1Q-4Q					
Visually Coupled Display (high resolution)		1Q-4Q	1Q-4Q	1Q				
Advanced Integrated Life Support System (AILSS)	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Tactical AILSS (TAILSS	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q				
Smart AILSS (SAILSS)	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q		
4th Generation Escape	1Q-4Q							
Crashworthiness & Improved Restraint System	1Q-4Q	1Q-4Q						
Injury Prevention		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q		
Pilot Vehicle Interface (PVI)								
On Board - Off Board Data Correlation	1Q-4Q	1Q-4Q						
Crusader laboratory testing	3Q-4Q	1Q-4Q						
ANGEL	3Q-4Q	1Q-4Q	1Q-4Q	1Q				

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability				PROJECT NUMBER AND NAME W0591 Aircraft Survivability, Vulnerability and Safety			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**1.873**	**7.408**	**6.543**	**1.558**	**1.582**	**1.616**	**1.646**
RDT&E Articles Qty			**2**	**23**				

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Aircraft Survivability, Vulnerability and Safety. This project develops prototype hardware to improve the survivability of Navy and Marine Corps aircraft. This project addresses the likelihood of an aircraft being hit (susceptibility) and the probability of a kill if the aircraft is hit (vulnerability). Types of programs funded under this project include signature reduction efforts, subsystem and component hardening and development of fire and explosion suppression techniques for fuel systems and the Military Flight Operations Quality Assurance (MFOQA).

RDT& E,N test articles include Military Flight Operations Quality Assurance (MFOQA) units.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216N Aviation Survivability	W0591 Aircraft Survivability, Vulnerability and Safety

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		1.417	0.100	0.000
RDT&E Articles Quantity				

Unmanned Aerial Vehicles (UAV) Survivability Enhancement Program (SEP):
This program will develop and test survivability enhancements for UAV platforms. Included are Advanced Insulated Exhaust Systems, Situational Awareness Systems, Self-sealing polymers, and acoustic signature reduction.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.154	1.308	0.963
RDT&E Articles Quantity				

Transport/Reconnaissance Survivability Enhancement Program (TR/SEP):
This program will develop and test survivability enhancements (i.e., Infrared (IR) engine suppression, new ballistic armor and fire protection) for transport and reconnaissance aircraft to include KC-130J, P-3/MMA, E-6B and others. FY 02/03 work determined system requirements and technology suitable for demonstration. Fabrication, integration and test will occur in FY 04/05.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.250	0.000	0.000
RDT&E Articles Quantity				

Advanced Fire Protection:
This program leverages from the Next Generation Propellant Program by demonstrating that previously developed fire suppression chemicals can be slightly modified and loaded into existing F/A-18 fire suppression canisters to provide ballistic fire protection. The final product will be a fire protection canister that will be tested in the V-22 and F/A-18 to demonstrate commonality and survivability.

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216N Aviation Survivability	W0591 Aircraft Survivability, Vulnerability and Safety

B. Accomplishments/Planned Program (Cont.)

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.027	0.200	0.150
RDT&E Articles Quantity				

Advanced Threats:
This program will assess the vulnerability of USN/USMC aircraft materials and sensors to low-level laser, high level laser and high power microwave threats (FY 02-FY-04). In FY 04, the advanced 35mm threat will be assessed.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.025	0.000	0.030
RDT&E Articles Quantity				

Biannual Update of R&D Master Plan:
Supports outyear aircraft survivability R&D requirements.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	0.100	0.150
RDT&E Articles Quantity				

Rotorcraft Survivability Enhancement Program:
This program will develop and test survivability enhancements (i.e., Infrared (IR) engine suppression, new ballistic armor and fire protection) for rotorcraft to include H-1 variants, H-53, H-60 and V-22. FY 04/05 work will determine system requirements and technology suitable for demonstration.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216N Aviation Survivability	W0591 Aircraft Survivability, Vulnerability and Safety

B. Accomplishments/Planned Program (Cont.)

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	0.100	0.050
RDT&E Articles Quantity				

Survivability Analysis Methodology Update:
This program will update USN/USMC Vulveratility models (Computation of Vulnerable Area and Repair Time (COVART)), Advanced Joint Effectiveness Model (AJEM) to ensure the most up to date analysis tools. This will include updating component probability of kill (PK) data as necessary and will assess conversion methodologies such as Pro/engineer (PRO/E) Computer Aided Design (CAD) model conversion to Facet Generator (FASTGEN) used to show ballistic shot lines.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	5.600	5.200
RDT&E Articles Quantity			2	23

MFOQA
Conduct an MFOQA flight demonstration on multiple fleet platforms (F/A-18, H-60, H-53, T-45, V-22, C-40) that includes: Develop requirements for MFOQA parameter selection and standardization. Develop and refine a concept of operations (CONOPS) for MFOQA in the DON. Develop an implementation plan/acquisition strategy for future fleet-wide introduction of MFOQA. RDT&E articles in FY04 are required for data recorders for T-45. New Start effort for FY04.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	0.000	0.000
RDT&E Articles Quantity				

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216N Aviation Survivability	W0591 Aircraft Survivability, Vulnerability and Safety

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
FY2004 President's Budget	1.817	1.829	1.553
FY2005 President's Budget	1.873	7.408	6.543
Total Adjustments	0.056	5.579	4.990
Summary of Adjustments			
Congressional program reductions			
NMCI			
Congressional rescissions			
SBIR/STTR Transfer	-0.012		
Economic Assumptions			
Reprogrammings	0.068	5.600	5.200
Misc. Adjustments		-0.021	-0.210
Subtotal	0.056	5.579	4.990

Schedule:

The MFOQA program schedule has been added in accordance with funding received in a Congressional Add for FY04.

Technical:

Not applicable

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216N Aviation Survivability	W0591 Aircraft Survivability , Vulnerability and Safety

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost

PE 0605132D (Joint Technical Coordinating Group on Aircraft Survivability)
PE 0603384D (Chemical/Biological Defense (Advanced Development))

E. ACQUISITION STRATEGY:

Military Flight Operations Quality Assurance (MFOQA) utilizes existing aircraft hardware, and a combination of existing Commericial Off The Shelf (COTS) and Government Off The Shelf (GOTS) ground analysis tools. A competitive contract will be awarded to meet the increased aircraft recorder requirements for the demonstration platforms. The program will integrate with existing aircraft systems that are currently post-MS III, utilizing existing contract vehicles to add MFOQA capabilities to demonstration platform systems.

F. MAJOR PERFORMERS:

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603216N Aviation Survivability				PROJECT NUMBER AND NAME W0591 Aircraft Survivability, Vulnerability and Safety						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	SS/CPFF	Sikorsky, Connecticut	3.113								3.113	3.113
Primary Hardware Development	SS/CPFF	BAE (UAV)	0.885	0.290	10/02						1.175	1.175
Primary Hardware Development	WX	Various Govt Activities	0.050	0.150	10/02	0.473	10/03				0.673	
Systems Engineering	WX	Various	7.103	0.413	10/02	0.250	10/03	0.422	10/04	Continuing	Continuing	
Primary Hardware Development	SS/CPFF	Bell Helicopter	1.307								1.307	1.307
Primary Hardware Development	SS/CPFF	INS/Litton	0.000	0.074	07/03	0.775	12/03	0.199	11/04		1.048	1.048
Primary Hardware Development	SS/CPFF	MR&D/COI	0.140	0.302	07/03						0.442	0.442
Primary Hardware Development, M	**TBD**	**Boeing, St. Louis, MO**				**0.725**	**03/04**	**0.665**	**11/04**		**1.390**	**1.390**
Primary Hardware Development, M	**TBD**	**TBD**				**0.322**	**03/04**	**0.188**	**11/04**		**0.510**	**0.510**
Subtotal Product Development			12.598	1.229		2.545		1.474		Continuing	Continuing	
Remarks:												
Development Support												
Software Development												
Integrated Logistics Support												
Configuration Management												
Technical Data	WX	Various	0.254	0.025	11/02						0.279	
Studies & Analyses	CPFF	TBD				0.150	11/03	0.075	11/04		0.225	0.225
GFE												
Award Fees												
Development Support, MFOQA	**WX**	**NAWCs**				**2.928**	**12/03**	**2.756**	**12/04**	**Continuing**	**Continuing**	
Software Development, MFOQA	**TBD**	**Boeing, St. Louis, MO**				**1.012**	**03/04**	**0.978**	**11/04**	**Continuing**	**Continuing**	
Subtotal Support			0.254	0.025		4.090		3.809			8.178	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603216N Aviation Survivability			PROJECT NUMBER AND NAME W0591 Aircraft Survivability, Vulnerability and Safety							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	Various	1.598	0.324	10/02			0.587	10/04	Continuing	Continuing	
Operational Test & Evaluation												
Live Fire Test & Evaluation	WX	NAWCWD		0.250	10/03	0.100	11/03					
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			1.598	0.574		0.100		0.587		Continuing	Continuing	
Remarks:												
Contractor Engineering Support MFOQA	WX	NAWCs				0.613	02/04	0.613	02/05	Continuing	Continuing	
Government Engineering Support	WX	Various										
Program Management Support	WX	Various	0.035	0.035	10/02	0.050	10/03	0.050	10/04	Continuing	Continuing	
Travel	WX	Various	0.205	0.010	10/02	0.010	10/03	0.010	10/04	Continuing	Continuing	
Transportation												
SBIR Assessment												
Subtotal Management			0.240	0.045		0.673		0.673		Continuing	Continuing	
Remarks:												
Total Cost			14.690	1.873		7.408		6.543		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 31

EXHIBIT R4, Schedule Profile | DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4**

PROGRAM ELEMENT NUMBER AND NAME: 0603216N Aviation Survivability

PROJECT NUMBER AND NAME: W0591 Aircraft Survivability, Vulnerability and Safety

Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Program Milestones																																
Advanced Fire Protection																																
System Design Review					—																											
Ballistic Tests							—	—	—	—																						
Test Report										—																						
UAV/SEP																																
Test Plan Review	—																															
Ground/Flight Tests					—	—	—	—	—	—																						
Integration Report										—																						
TR/SEP																																
Tech Demo Downselect		—							—																							
System Design Review											—																					
Test Plan Review													—																			
Ground/Flight Tests																—																
Integration Report																																
Advanced Threats																																
Low Level Laser/RF Weapons Report								—			—																					
High Power Laser Report																—																
35mm Component Test Report																																
Survivability Master Plan Update Reports								—								—								—							—
Methodology Assessment																																
Platform Vulnerability Report												—																				
Component Probability of Kill (PK) Report																—																
Rotocraft SEP																																
Tech Demo Downselect									—																							
System Design Review																	—															
Test Plan Review																			—													
Ground/Flight Tests																					—											
Integration Report																								—								
Fixed Wing/Attack SEP																																
Tech Demo Downselect																	—															
System Design Review																									—							
Test Plan Review																											—					
Ground/Flight Tests																													—			
Unmanned Combat Aerial Vehicl SEP Tech Demo Downselect																									—							

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603216N Aviation Survivability				PROJECT NUMBER AND NAME W0591 Aircraft Survivability, Vulnerability and Safety			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Advanced Fire Protection System Design Review		1Q						
Advanced Fire Protection Ballistic Tests		3Q-4Q	1Q-2Q					
Advanced Fire Protection Test Report			2Q					
UAV/SEP Test Plan Review	1Q							
UAV/SEP Ground/Flight Tests		3Q-4Q	1Q-2Q					
UAV/SEP Integration Report		1Q-4Q	1Q-2Q					
TR/SEP Tech Demo Downselect	2Q							
TR/SEP System Design Review			1Q					
TR/SEP Test Plan Review			3Q					
TR/SEP Ground/Flight Tests				1Q				
TR/SEP Integration Report				4Q				
Advanced Threats Low Level Laser/RF Weapons Report		4Q						
Advanced Threats High Power Laser Report			3Q					
Advanced Threats 35mm Component Test Report				4Q				
Survivability Master Plan Update Reports		4Q		4Q		4Q		4Q
Methodology Assessment-Platform Vulnerability Report			4Q					
Methodology Assessment-Component Probability of Kill (PK) Report				4Q				
Rotorcraft SEP Tech Demo Downselect			1Q					
Rotorcraft SEP System Design Review					1Q			
Rotorcraft SEP Test Plan Review					3Q			
Rotorcraft SEP Ground/Flight Tests						1Q		
Rotorcraft SEP Integration Report						4Q		
Fixed Wing/Attack SEP Tech Demo Downselect					1Q			
Fixed Wing/Attack SEP System Design Review							1Q	
Fixed Wing/Attack SEP Test Plan Review							3Q	
Fixed Wing/Attack SEP Ground/Flight Tests								1Q
Unmanned Combat Aerial Vehicle SEP Tech Demo Downselect							1Q	

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

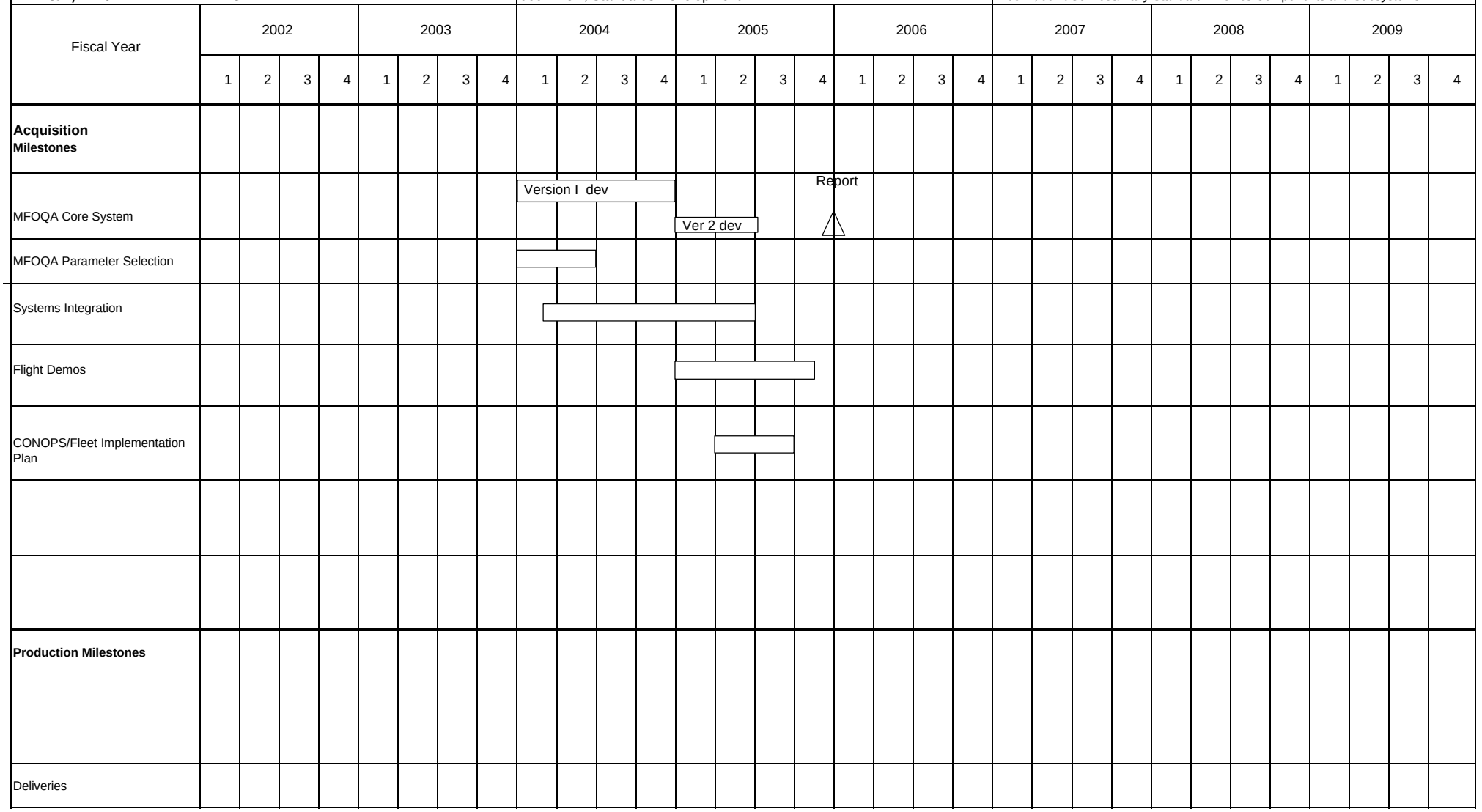
Exhibit R-4a, Schedule Detail **MFOQA**						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**	PROGRAM ELEMENT 0604215N, Standards Development				PROJECT NUMBER AND NAME W0572, Joint Services/Navy Standard Avionics Components			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
MFOQA Parameter Selection			1Q-2Q					
MFOQA Version 1 Release			4Q					
MFOQA Version 2 Release				2Q				
Report				4Q				
Systems Integration			1Q-4Q	1Q-2Q				
Flight Demos				1Q-4Q				
CONOPS/Fleet Implementation Plan				2Q-3Q				

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

EXHIBIT R4, Schedule Profile — **MFOQA** — DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-5	0604215N, Standards Development	W0572, Joint Services/Navy Standard Avionics Components and Subsystems



CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603216N, Aviation Survivability				PROJECT NUMBER AND NAME W0592, Aircrfat & Ordnance Safety			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**1.966**	**1.346**	**1.248**	**1.266**	**1.517**	**1.546**	**1.577**
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Aircraft and Ordnance Safety Program transitions transformational munitions technology to Navy and Marine Corps air weapons, to comply with the Chief of Naval Operations direction that all munitions carried aboard Navy ships be insensitive to unplanned stimuli (thermal, impact, and shock events). The Aircraft and Ordnance Safety Program also ensures the safety and protection of personnel, aircraft, ships, and operational facilities, through improved precision targeting, fail-safe ordnance, selective effects munitions and shock/blast force protection technologies.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216N, Aviation Survivability	W0592, Aircraft & Ordnance Safety

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.386	0.000	0.000
RDT&E Articles Quantity				

REACTIVE MATERIALS:
Continue evaluating reactive material warheads for Insensitive Munitions (IM) compliance.

Output: IM characterization of warheads with reactive material components.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.421	0.248	0.000
RDT&E Articles Quantity				

SYMPATHETIC DETONATION PROTECTION:
Demonstrate pumice as a sympathetic detonation (SD) barrier for weapon shipping containers. Refine pumice design capability for SD mitigation.

Output: New modeling capabilities and demonstrated technology to reduce the threat of SD in Joint Stand-Off Weapon (JSOW) and General Purpose (GP) bomb Munitions.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.246	0.000	0.000
RDT&E Articles Quantity				

SIDEWINDER COMPOSITE ROCKET MOTOR DEMO:
Conduct ground and flight testing Sidewinder composite rocket motor. Conduct air to air missile IM warhead testing.

Output: IM warhead for air to air missile & Flight demo of composite case weapon airframe.

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216N, Aviation Survivability	W0592, Aircraft & Ordnance Safety

B. Accomplishments/Planned Program (Cont.)

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.646	0.379	0.000
RDT&E Articles Quantity				

COMPOSITE CASE IM DEMONSTRATION:
Conduct composite case Insensitive Munitions (IM) testing demonstration. Begin long range air to surface composite case IM demonstration.

Output: Flight demo of composite case weapon airframe for air to air/ground missile.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.267	0.277	0.515
RDT&E Articles Quantity				

AIR TO AIR MISSILE PROPULSION SYSTEM DEMO/TESTING:
Conduct improved air to air missile demonstration and testing.

Output: baseline IM performance of air breathing systems.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	0.265	0.362
RDT&E Articles Quantity				

SHOCK/BLAST BARRIER PROTECTION DEMO/TESTING:
Conduct shock/blast protection demonstration and testing.

Output: Design and demonstration of shock absorbent materials for the protection of weapons and weapon platforms.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216N, Aviation Survivability	W0592, Aircraft & Ordnance Safety

B. Accomplishments/Planned Program (Cont.)

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	0.177	0.371
RDT&E Articles Quantity				

IMPROVED AIR LAUNCHED WEAPONS:
Demonstrate improved air launched munitions for force protection and homeland defense.

Output: Demonstrate/determine the IM and safety characteristics of improved air launched munitions.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216N, Aviation Survivability	W0592, Aircraft & Ordnance Safety

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
FY 2004 President's Budget	1.733	1.362	1.247
FY 2005 President's Budget	1.966	1.346	1.248
Total Adjustments	0.233	-0.016	0.001
Summary of Adjustments			
NMCI			
Congressional undistributed reductions			
Congressional rescissions			
SBIR/STTR Transfer			
Economic Assumptions			0.001
Reprogrammings	0.233		
Other Navy/OSD Adjustments			
Congressional Undistributed Reductions		-0.016	
Subtotal	0.233	-0.016	0.001

Schedule: Not Applicable

Technical: Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603216N, Aviation Survivability	PROJECT NUMBER AND NAME W0592, Aircraft & Ordnance Safety

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost

0604802A, Department of Army
0603609N, Conventional Munitions

E. ACQUISITION STRATEGY:

The Aircraft and Ordnance Safety Project acquisition strategy consists of actions (technology transition) which are intended to assist the improvement of NAVAIR-cognizant munitions. Specific task planning involves close coordination with the PMAs, field activities, and the IM and IMAD offices. Primary considerations in planning address windows of opportunity within the overall system procurement/life cycle, including milestone II (E&MD), P3I, and PIP events. Munition system design elements involving IM response risk (existing or anticipated) are analyzed in relation to proven and available IM technologies applicable to improvements in those design elements. When it is established that a system can probably be improved by implementing new technology and a window of opportunity for transition is available, the greatest overall improvement in fleet safety regarding IM response risk is the final deciding factor used to prioritize task selection for funding from limited resources.

F. MAJOR PERFORMERS:

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603216N, Aviation Survivability			PROJECT NUMBER AND NAME W0592, Aircrfat & Ordnance Safety						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development												
Ancillary Hardware Development												
Aircraft Integration												
Ship Integration												
Ship Suitability												
Systems Engineering	WX	NAWCWD China Lake	15.944	1.936	10/02	1.316	10/03	1.216	10/04	Continuing	Continuing	
Training Development												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			15.944	1.936		1.316		1.216		Continuing	Continuing	
Remarks:												
Development Support												
Software Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
Studies & Analyses												
GFE												
Award Fees												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603216N, Aviation Survivability			PROJECT NUMBER AND NAME W0592, Aircrfat & Ordnance Safety						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation			0.052								0.052	
Operational Test & Evaluation												
Live Fire Test & Evaluation												
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			0.052	0.000		0.000		0.000		0.000	0.052	
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Travel	WX	NAWCWD China Lake, CA	0.120	0.030	10/02	0.030	10/03	0.032	10/04	Continuing	Continuing	
Transportation												
SBIR Assessment												
Subtotal Management			0.120	0.030		0.030		0.032		Continuing	Continuing	
Remarks:												
Total Cost			16.116	1.966		1.346		1.248		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 31

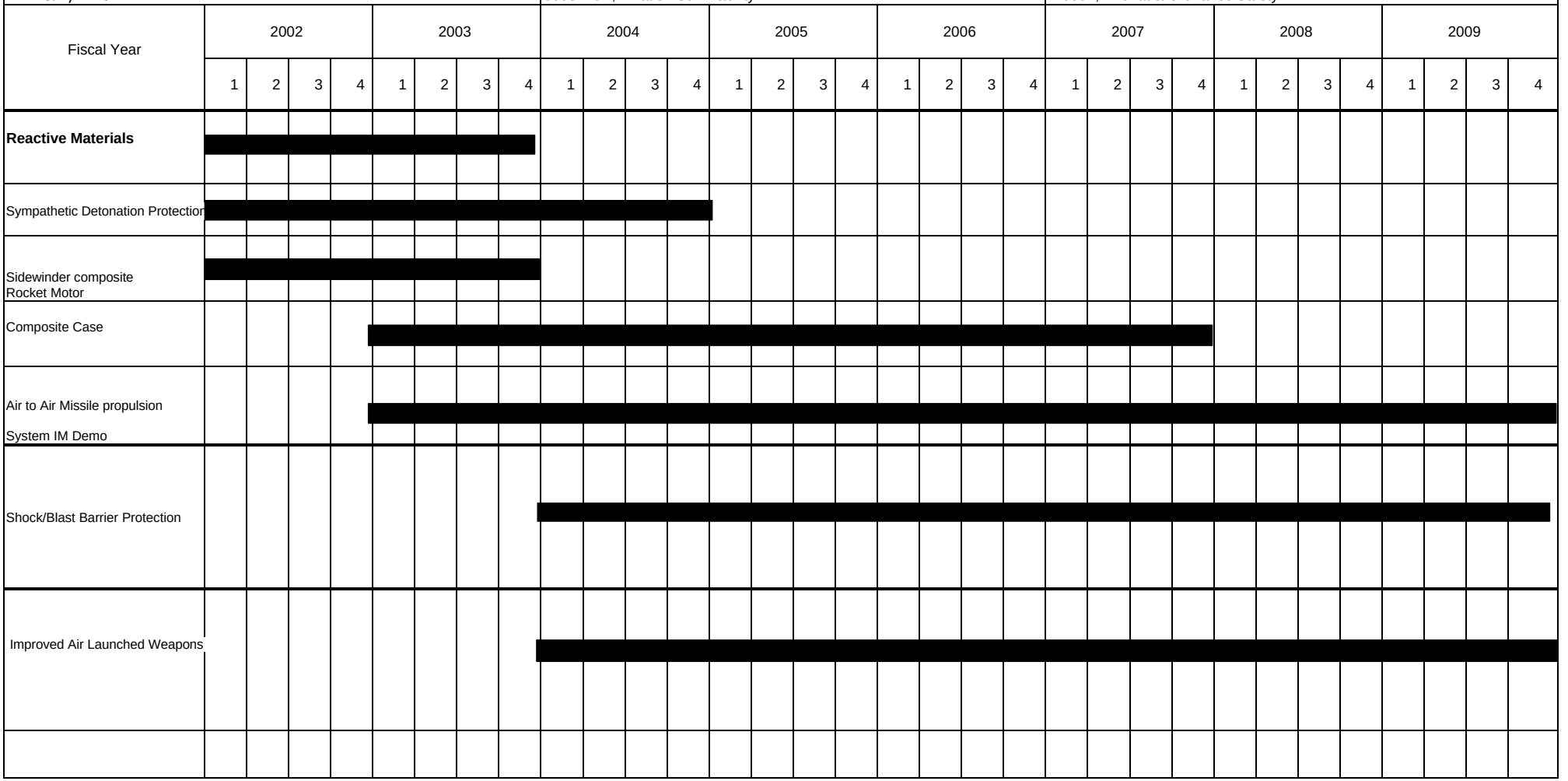
CLASSIFICATION:

EXHIBIT R4, Schedule Profile — DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4**

PROGRAM ELEMENT NUMBER AND NAME: 0603216N, Aviation Survivability

PROJECT NUMBER AND NAME: W0592, Aircrfat & Ordnance Safety



R-1 SHOPPING LIST - Item No. 31

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&BA-4**	PROGRAM ELEMENT 0603216N				PROJECT NUMBER AND NAME W0592, Aircrfat & Ordnance Safety			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Reactive Materials	1Q-4Q	1Q-4Q						
Sympathetic Detonation Protection	1Q-4Q	1Q-4Q	1Q-4Q					
Sidewinder composite Rocket Motor	1Q-4Q	1Q-4Q						
Composite Case		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q		
Air to Air Missile Propulsion System Demo		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Shock/Blast Barrier Protection			1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Improved Air Launched Weapons			1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **FEBRUARY 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability				PROJECT NUMBER AND NAME W1819 Carrier Vehicle Aircraft Fire Suppression System			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**0.921**	**0.740**	**0.588**	**0.597**	**0.734**	**0.748**	**0.764**
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project develops improved fire fighting systems and fire protective measures for aircraft related fires on aircraft carriers, including assessment of fire properties, definition of fire threats, improvements to fire fighting agents and delivery systems, fire detection and suppression system performance evaluations, and fire fighter training improvements.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216N Aviation Survivability	W1819 Carrier Vehicle Fire Suppression System

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.186	0.339	0.247
RDT&E Articles Quantity				

Fire Fighting Agents: Evaluate new or modified agents which adequately address changing agent restrictions or technical needs. Objective is to ensure that periodic, but unpredictable, restrictions on agent production or use, primarily driven by the environmental and toxicological fields, do not negatively impact fleet safety.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.481	0.180	0.240
RDT&E Articles Quantity				

Fire Fighting Systems: Evaluate system automation features and demonstrate enhancements to personnel protection equipment. Objective is to evaluate system hardware for effectiveness against updated fire threats.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.254	0.221	0.101
RDT&E Articles Quantity				

Fire Fighting Tactics: Evaluate reduced manning impact and resultant modifications to tactics. Provide opportunities for training during agent/system testing. Objective is to maintain emergency capabilities as reductions in manpower draw from available response crews.

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216N Aviation Survivability	W1819 Carrier Vehicle Aircraft Fire Suppression System

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
Not applicable									

E. ACQUISITION STRATEGY:

Not applicable

F. MAJOR PERFORMERS:

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216N Aviation Survivability	W1819 Carrier Vehicle Aircraft Fire Suppression System

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:	0.941	0.748	0.677
Current BES/President's Budget	0.921	0.740	0.588
Total Adjustments	-0.020	-0.008	-0.089
Summary of Adjustments			
Congressional program reductions			
Congressional undistributed reductions		-0.008	
Congressional rescissions			
SBIR/STTR Transfer	-0.006		
Economic Assumptions			
Misc. Adjustments	-0.014		-0.089
Subtotal	-0.020	-0.008	-0.089

Schedule:

Not applicable

Technical:

Not applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability				PROJECT NUMBER AND NAME W9170 Modular Advanced Vision System			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**1.724**	**2.374**					
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The funding will support the shift from traditional CRT based helmet mounted displays to a computer driven array using laser projection. This fundamental change in approach will significantly increase display resolution and brightness while reducing weight and center of gravity problems. The AHVS is comprised of two modules. The outer module is a binocular, multi-spectral (day, night, NVG, FLIR) visor upon which flight information and weapons symbology is projected. Communications equipment and oxygen mask are mounted to the inner module, which is custom fitted to each aircrew. The inner module (helmet) provides a stable platform upon which mission specific outer modules are attached. This concept reduces future development costs – designers would begin work from a stable, defined inner helmet platform with common attachment points. Separate helmet development would not be required for any future designs

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216N Aviation Survivability	W9170 Modular Advanced Vision System

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.724	2.374	
RDT&E Articles Quantity			

Modular Advanced Vision System

The initial design of the laser projected reflective LCD has been completed. This fundamental change in approach will significantly increase display resolution and brightness while reducing weight and center of gravity problems. Currently the laser source and associated relay optics are being fine tuned to improve manufacturability.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			
RDT&E Articles Quantity			

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			
RDT&E Articles Quantity			

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216N Aviation Survivability	W9170 Modular Advanced Vision System

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:	1.761		
Current BES/President's Budget	1.724	2.374	
Total Adjustments	-0.037	2.374	0.000
Summary of Adjustments			
Congressional program reductions			
Congressional undistributed reductions		-0.026	
Congressional rescissions			
SBIR/STTR Transfer	-0.037		
Congressional increases		2.400	
Subtotal	-0.037	2.374	0.000

Schedule:

Not Applicable

Technical:

Not Applicable.

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216N Aviation Survivability	W9170 Modular Advanced Vision System

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost

PE 0602201F (Aerospace Flight Dynamics)
PE 0602233N (Mission Support Equipment)
PE 0604264N (Aircrew Systems Development)
PE 0604706F (Life Support Systems)
PE 06023231F (Crew Systems and Personal Protection Technology)

E. ACQUISITION STRATEGY:

Not Applicable

F. MAJOR PERFORMERS:

Not Applicable

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603216N Aviation Survivability				PROJECT NUMBER AND NAME W9170 Modular Advanced Vision System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	Various	Various		1.333	Various	2.374	TBD				3.707	
Ancillary Hardware Development												
Aircraft Integration												
Ship Integration												
Ship Suitability												
Systems Engineering	WX	NAWCAD, Pax		0.261	Various						0.261	
Training Development												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			0.000	1.594		2.374		0.000		0.000	3.968	
Remarks:												
Development Support												
Software Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
Studies & Analyses												
GFE												
Award Fees												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603216N Aviation Survivability			PROJECT NUMBER AND NAME W9170 Modular Advanced Vision System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NAWCAD, Patuxent River		0.130	Various						0.130	
Operational Test & Evaluation												
Live Fire Test & Evaluation												
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			0.000	0.130		0.000		0.000		0.000	0.130	
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Travel												
Transportation												
SBIR Assessment												
Subtotal Management			0.000	0.000		0.000		0.000			0.000	
Remarks:												
Total Cost			0.000	1.724		2.374		0.000			4.098	
Remarks:												

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability				PROJECT NUMBER AND NAME W9173 Rotorcraft External Airbag			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**1.918**	**3.461**					
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This effort will address the level of protection afforded and feasibility of an external airbag, and then to bring the capability to a production ready, aircraft fieldable status. While automotive airbag technology is relatively mature, this unique application will require much larger airbags, an aircraft structural integration approach for mounting the airbags in a maintainable manner, and the development of a "predictive" crash sensor. Initial impact studies (water and ground) have already been conducted. Joint efforts with the Army for aircrew systems are already underway.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216N Aviation Survivability	W9173 Rotorcraft External Airbag

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.918	3.461	
RDT&E Articles Quantity			

Rotorcraft External Airbag

Contract has been awarded and inital modeling complete. Rotorcraft application will require larger airbags integrated into the aircraft and development of a "predictive" crash sensors. Initial impact studies (water and ground) have already been conducted.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			
RDT&E Articles Quantity			

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			
RDT&E Articles Quantity			

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216N Aviation Survivability	W9173 Rotorcraft External Airbag

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:	1.956		
Current BES/President's Budget	1.918	3.461	
Total Adjustments	-0.038	3.461	0.000
Summary of Adjustments			
Congressional program reductions			
Congressional undistributed reductions		-0.039	
Congressional rescissions			
SBIR/STTR Transfer	-0.038		
Congressional increases		3.500	
Subtotal	-0.038	3.461	0.000

Schedule:

Not Applicable

Technical:

Not Applicable.

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216N Aviation Survivability	W9173 Rotorcraft External Airbag

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost

PE 0602201F (Aerospace Flight Dynamics)
PE 0602233N (Mission Support Equipment)
PE 0604264N (Aircrew Systems Development)
PE 0604706F (Life Support Systems)
PE 06023231F (Crew Systems and Personal Protection Technology)

E. ACQUISITION STRATEGY:

Not Applicable

F. MAJOR PERFORMERS:

Not Applicable

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603216N Aviation Survivability			PROJECT NUMBER AND NAME W9173 Rotorcraft External Airbag							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	Various	Various		1.000	Various	3.461	TBD				4.461	
Ancillary Hardware Development												
Aircraft Integration												
Ship Integration												
Ship Suitability												
Systems Engineering	WX	NAWCAD, Pax		0.914	Various						0.914	
Training Development												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			0.000	1.914		3.461		0.000		0.000	5.375	
Remarks:												
Development Support												
Software Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
Studies & Analyses												
GFE												
Award Fees												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603216N Aviation Survivability			PROJECT NUMBER AND NAME W9173 Rotorcraft External Airbag						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation												
Operational Test & Evaluation												
Live Fire Test & Evaluation												
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Travel	WX	NAWCAD Patuxent River		0.004	Various						0.004	
Transportation												
SBIR Assessment												
Subtotal Management			0.000	0.004		0.000		0.000			0.004	
Remarks:												
Total Cost			0.000	1.918		3.461		0.000			5.379	
Remarks:												

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability				PROJECT NUMBER AND NAME W9346 Equipment Life Extension Program			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost			**2.472**					
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This effort will fund an equipment life extension laboratory for definition of systems no longer procurable that are critical to functionality of weapon systems. By equipping currently existing in house laboratories to maintain, modify, and update existing, non supported systems a significant cost reduction will be realized. The alternative of modifying and updating aircraft and weapons systems to accept new technologies is cost prohibitive.

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216N Aviation Survivability	W9346 Equipment Life Extension Program

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		2.472	
RDT&E Articles Quantity			

Equipment Life Extension Program
This effort will fund an equipment life extension laboratory for definition of systems no longer procurable that are critical to functionality of weapon systems. By equipping currently existing in house laboratories to maintain, modify, and update existing, non supported systems a significant cost reduction will be realized.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			
RDT&E Articles Quantity			

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			
RDT&E Articles Quantity			

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216N Aviation Survivability	W9346 Equipment Life Extension Program

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:			
Current BES/President's Budget		2.472	
Total Adjustments		2.472	0.000
Summary of Adjustments			
Congressional program reductions			
Congressional undistributed reductions		-0.028	
Congressional increases		2.500	
Subtotal	0.000	2.472	0.000

Schedule:

Not Applicable

Technical:

Not Applicable.

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216N Aviation Survivability	W9346 Equipment Life Extension Program

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost

PE 0602201F (Aerospace Flight Dynamics)
PE 0602233N (Mission Support Equipment)
PE 0604264N (Aircrew Systems Development)
PE 0604706F (Life Support Systems)
PE 06023231F (Crew Systems and Personal Protection Technology)

E. ACQUISITION STRATEGY:

Not Applicable

F. MAJOR PERFORMERS:

Not Applicable

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603216N Aviation Survivability			PROJECT NUMBER AND NAME W9346 Equipment Life Extension Program							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development												
Aircraft Integration												
Ship Integration												
Ship Suitability												
Systems Engineering	TBD	TBD				2.472	TBD				2.472	
Training Development												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			0.000	0.000		2.472		0.000		0.000	2.472	
Remarks:												
Development Support												
Software Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
Studies & Analyses												
GFE												
Award Fees												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603216N Aviation Survivability			PROJECT NUMBER AND NAME W9346 Equipment Life Extension Program						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation												
Operational Test & Evaluation												
Live Fire Test & Evaluation												
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Travel											0.000	
Transportation												
SBIR Assessment												
Subtotal Management			0.000	0.000		0.000		0.000			0.000	
Remarks:												
Total Cost			0.000	0.000		2.472		0.000			2.472	
Remarks:												

R-1 SHOPPING LIST - Item No. 31

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA4**						R-1 ITEM NOMENCLATURE 0603237N Deployable Joint Command & Control (DJC2)					
COST ($ in Millions)	Prior Years Cost	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Total PE Cost	**0.000**	**0.000**	**31.527**	**63.541**	**42.394**	**42.068**	**7.938**	**7.971**	**8.089**	**Continuing**	**Continuing**
3050 Deployable Joint Command & Control	**0.000**	**0.000**	**31.527**	**63.541**	**42.394**	**42.068**	**7.938**	**7.971**	**8.089**	**Continuing**	**Continuing**
											0.000
											0.000
											0.000
											0.000
											0.000
Quantity of RDT&E Articles											**0**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Deployable Joint Command and Control (DJC2) is a SecDef and CJCS priority DoD transformation initiative that provides a deployable, scalable and tailorable headquarters command and control (C2) capability for each Regional Combatant Commander (RCC), and one maritime variant. It is the materiel solution to Standing Joint Force Headquarters (SJFHQ), a new capability to be implemented at each RCC starting in FY05. DJC2 will ensure that Joint Force Commanders (JFC) are equipped, as well as trained and organized, to carry out their C2 responsibilities. SecDef direction for the DJC2 program is contained in Defense Planning Guidance (DPG 03-07 and updated in DPG 04-09). The DJC2 program addresses both the Quadrennial Defense Review (QDR) finding that a joint command and control architecture needs to be developed for standing JTFs at each of the RCCs and the need for a deployable Joint Command and Control System described in the Transformation Study Report presented to the Secretary of Defense in April 2001. It integrates lessons learned from U.S. Central Command's deployable headquarters funded from the FY 2001 Emergency Supplemental Act for Recovery from and Response to Terrorist Attacks on the United States. DJC2 is supported by SECDEF and CJCS. The JCS/Joint Requirement Oversight Council (JROC) has approved the DJC2 Mission Needs Statement (MNS) and Operational Requirements Document (ORD).

DJC2 seeks to provide standing, and standardized, joint C2 systems that can be deployed by RCCs or JTFs, remedying the current unproductive practice of relying on ad hoc, unresourced, and stove-piped capabilities cobbled together at the last minute during a crisis. It will support the new SJFHQ concept and doctrine being developed by Joint Forces Command in coordination with other RCCs and the Joint Staff, as tasked by DPG. RCC and JTF commanders will use a deployable joint command and control capability for day-to-day operations (including peacetime), as well as when deployed for training or contingency operations. The capability is intended for all levels of conflict and will be reconfigurable to meet specific RCC and JTF mission requirements. This capability must be interoperable with higher and adjacent echelons of command (to include coalition allies) as well as with supporting elements to include joint forces.

Note that DJC2 is not a follow-on or replacement system for either the joint Global Command and Control System (GCCS) or GCCS-Maritime; rather, DJC2 will utilize GCCS in its core suite of applications, ensuring interoperability with the worldwide-installed base of GCCS-J/GCCS-M.

R-1 SHOPPING LIST - Item No. 32

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA4**	R-1 ITEM NOMENCLATURE 0603237N Deployable Joint Command & Control (DJC2)

The RDT&E line supports an evolutionary acquisition strategy. The intent of this strategy is to develop a system based upon a current understanding of joint requirements, rapidly field systems based upon those requirements, analyze operational utilization of the systems, and roll the results of the analysis into periodic upgrades of the systems to maintain currency and maximize operational effectiveness. Maximum use will be made of commercial technologies; anticipate technology insertion of each DJC2 suite will be made approximately every three years. The baseline Increment I configuration will be based upon existing S&T initiatives, Advanced Concepts Technology Demonstration (ACTD) Programs, programs of record, and fielded capabilities of the services and defense agencies, scaled to the RCC level. The Increment II and subsequent deliveries will include newly developed capabilities based on emergent, joint requirements and operational feedback from utilization of earlier delivered systems, as well as incorporation of new commercial technologies.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES because it develops and integrates hardware and software for experimental tests related to specific applications.

R-1 SHOPPING LIST - Item No. 32

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2004			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA 4**	PROGRAM ELEMENT NUMBER AND NAME 0603237N Deployable Joint Command & Control					PROJECT NUMBER AND NAME 3050 DJC2					
COST ($ in Millions)	Prior Years Cost	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost	**0.000**	**0.000**	**31.527**	**63.541**	**42.394**	**42.068**	**7.938**	**7.971**	**8.089**	**Continuing**	**Continuing**
RDT&E Articles Qty											**0**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Deployable Joint Command and Control (DJC2) is a SecDef and CJCS priority DoD transformation initiative that provides a deployable, scalable and tailorable headquarters command and control (C2) capability for each Regional Combatant Commander (RCC), and one maritime variant. It is the materiel solution to Standing Joint Force Headquarters (SJFHQs), a new capability to be implemented at each RCC starting in FY05. DJC2 will ensure that Joint Force Commanders (JFC) are equipped, as well as trained and organized, to carry out their C2 responsibilities. SecDef direction for the DJC2 program is contained in Defense Planning Guidance (DPG 03-07 and updated in DPG 04-09). The DJC2 program addresses both the Quadrennial Defense Review (QDR) finding that a joint command and control architecture needs to be developed for standing JTFs at each of the RCCs and the need for a deployable Joint Command and Control System described in the Transformation Study Report presented to the Secretary of Defense in April 2001. It integrates the lessons learned from U.S. Central Command's deployable headquarters funded from the FY 2001 Emergency Supplemental Act for Recovery from and Response to Terrorist Attacks on the United States. DJC2 is supported by SECDEF and CJCS. The JCS/Joint Requirement Oversight Council (JROC) has approved the DJC2 Mission Needs Statement (MNS) and Operational Requirements Document (ORD).

DJC2 seeks to provide standing, and standardized, joint C2 systems that can be deployed by RCCs or JTFs, remedying the current unproductive practice of relying on ad hoc, unresourced, and stove-piped capabilities cobbled together at the last minute during a crisis. It will support the new SJFHQ concept and doctrine being developed by Joint Forces Command in coordination with other RCCs and the Joint Staff, as tasked by DPG. RCC and JTF commanders will use a deployable joint command and control capability for day-to-day operations (including peacetime), as well as when deployed for training or contingency operations. The capability is intended for all levels of conflict and will be reconfigurable to meet specific RCC and JTF mission requirements. This capability must be interoperable with higher and adjacent echelons of command (to include coalition allies) as well as with supporting elements to include joint forces.

Note that DJC2 is not a follow-on or replacement system for either the joint Global Command and Control System (GCCS) or GCCS-Maritime; rather, DJC2 will utilize GCCS in its core suite of applications, ensuring interoperability with the worldwide-installed base of GCCS-J/GCCS-M.

R-1 SHOPPING LIST - Item No. 32

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA 4	0603237N Deployable Joint Command & Control	X3050 DJC2

(U) B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	8.224	19.675	18.192	
RDT&E Articles Quantity				

FY03 - Analyzed collection of Service and Joint RCC/JTF deployable C2 requirements and candidate programs, both fielded and under development, to satisfy requirements. These included S&T initiatives, ACTDs, programs of record, and fielded capabilities. DA, DAF, and DON compiled and prioritized Service-specific C2 applications to create alternatives for the DJC2 baseline, and will assist in FY04 in integration of selected systems into the baseline. USJFCOM compiled and prioritized each RCC's C2 applications. GCCS-J is the primary C2 application set around which DJC2 is being built. Adding the Service and RCC applications identified through the process mentioned allows DJC2 by definition to begin with de facto interoperability and a de facto common architecture. Performed systems engineering analysis and integration (SE&I) activities to select the core set applications for the DJC2 baseline Increment I configuration. Conducted engineering and design analysis necessary to adequately evaluate alternative concepts, and analysis of alternatives to establish realistic cost, schedule, and performance goals for material options.

FY04 - Continue to perform SE&I activities associated with DJC2 deliveries to JFCOM and the four RCCs. Conduct engineering and design tradeoffs to validate the concept of operations and ensure ORD compliance. Conduct requirements traceability analysis to ensure operational requirements identified in the MNS and ORD are adequately captured in specifications. Begin integrating legacy systems (information technology and infrastructure) for DJC2 deliveries, including the core software applications, deployabliity systems, and transportability and mobility components. Develop evaluation and test plans, and perform initial testing for the JFCOM delivery. Refine configuration management baselines and the Technology Development Plan. Utilize analysis, architectural design and design review processes to perform detailed design implementation. Utilize results of capability improvement process to determine which applications will be transitioned to DJC2, and integrate them into the baseline.

FY05 - Continue to perform SE&I activities associated with the follow-on increment requirements update and design process. Refine configuration management baselines and Technology Development Plan. Utilize analysis, architectural design, and design review processes conducted during FY04 to perform detailed design for follow-on increment and implement that design into the engineering test bed, as well as the JFCOM, PACOM, and CENTCOM systems.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	6.500	10.000	8.000	
RDT&E Articles Quantity				

FY03 - Develop Navy-managed engineering, integration, test, and analysis R&D test bed facility utilizing legacy C4I systems, applications, and concepts provided by the Services and RCCs in baselin development process, and from lessons learned from Standing Joint Forces Headquarters (SJFHQ) experimentation (including EXERCISE MILLENIUM CHALLENGE '02) and C4I ACTDs and S&T initiatives.

FY04-05 - Utilize the initial test facility to support extended development of commercial technologies to develop deployable C2 centers for each of the four RCCs and one maritime platform. Utilize this initial test facility to further refine the requirements for the DJC2 materiel solution based upon experimentation and ACTD results. Develop and implement changes in the DJC2 RDT&E test bed based on lessons learned in ACTDs and operations/exercises. Utilize the test bed in realistic military demonstrations, and on that basis, make assessments of the military utility.

R-1 SHOPPING LIST - Item No. 32

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA 4	0603237N Deployable Joint Command & Control	X3050 DJC2

(U) B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	9.803	2.986	3.483	
RDT&E Articles Quantity				

FY03 - Stood up and staffed joint program office (JPO) and conducted acquisition planning activities. Navy serves as Executive Agent (EA) for DJC2. Performed initial requirements analysis. Completed the Analysis of Alternatives (AOA) and Operational Requirements Document (ORD). Developed and completed initial acquisition, budget, and Clinger-Cohen documentation including, but not limited to, acquisition strategy, Acquisition Program Baseline, and program planning and schedule. Established documentation requirements and began related cost, schedule and performance activities.

FY04-05 - Utilize initial systems engineering analysis to establish systems concepts and compliance with MAIS and Clinger-Cohen Act requirements. Oversee development of the test bed facility and SE&I work to develop the initial core applications for the DJC2 baseline. Analyze, prepare, and perform Milestone B, In-Process Review (IPR), and Milestone C activities.

NOTE: FY03 DERF funding of $7.42 M is included in this item.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	7.000	14.000	12.719	
RDT&E Articles Quantity				

FY03 - Expanded the Millennium Challenge '02 (MC02) experimentation capability to aid in developing the SJFHQ construct.

FY04-05 - Evaluate validated technical concepts and technologies to be prototyped in advanced technology transitions (including ACTDs) to address deployable C2 requirements, and select technologies for integration into DJC2 increments. Evaluation/selection emphasizes technology assessment and integration/incorporation of existing commerical technologies to provide a prototype capability to the warfighter and to support capability evaluations. Conduct technology market surveys of selected components to support overall product selection.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	0.000	16.880	0.000	
RDT&E Articles Quantity		1		

FY04 - Design, develop, integrate, test, and implement DJC2 CONOPS experimentation system at JFCOM. The CONOPS experimentation system will consist of the baseline configuration and prototype systems and capabilities developed for the follow-on SJFHQ concept demonstrations, and will be used in the refinement of operational requirements and processes.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA 4	0603237N Deployable Joint Command & Control	3050 DJC2

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
President's Budget:	39.772	79.449	43.181
Current BES/PB Budget	31.527	63.541	42.394
Total Adjustments	-8.245	-15.908	-0.787

Summary of Adjustments

Sec. 8100 Business Process Reform	-0.130		
Sec. 8135 Economic Assumptions	-0.182		
Sec. 8109 IT Cost Growth	-0.060		
Sec 8029, P.L. 107-248 FY03 FFRDC reduction	-0.023		
DJC2 - Production Reduction	-14.772		
FY03 DERF Congressional add	7.500		
Miscellaneous Department Adjustments	-0.344	-0.011	-0.006
FY03 SBIR Reduction	-0.234		
Sec. 8094 Savings / Limit Growth		-0.170	
Sec. 8029 FFRDC Reduction		-0.061	
Sec. 80126 Revised Economic Assumptions		-0.546	
FY04 Congressional Reduction: JFCOM Trainer		-9.600	
FY04 Congressional Transfer to OPN		-5.520	
NWCF Rates			-0.645
PBD 604 Inflation			-0.136
Subtotal	-8.245	-15.908	-0.787

(U) Schedule:

Not Applicable

(U) Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA 4	0603237N Deployable Joint Command & Control	3050 DJC2

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
OPN BLI 2804	0	0	51,685	32,469	27,938	0	58,845	0	Cont.	Cont.

(U) E. ACQUISITION STRATEGY:

This RDT&E line supports an evolutionary acquisition strategy. The intent of this strategy is to: develop a system based upon a current understanding of joint requirements,:rapidly field systems based upon those requirements; analyze operational utilization of the systems; and roll the results of the analysis into periodic upgrades of the systems to maintain currency and maximize operational effectiveness. The Increment I configuration will be based upon existing, Service-specific C4I systems, scaled to the Combatant Command level. The follow-on configurations will include newly developed capabilities based on emergent, joint requirements and operational feedback based upon utilization of earlier delivered systems.

R-1 SHOPPING LIST - Item No. 32

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA 4**		PROGRAM ELEMENT 0603237N Deployable Joint Command & Control				PROJECT NUMBER AND NAME 3050 DJC2						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Hardware Development	VAR	NSWC, Crane, USA, & VAR		3.500	VAR	6.400	VAR	3.000	VAR	Continuing	Continuing	
Ancillary Hardware Development											0.000	
Aircraft Integration											0.000	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering	VAR	VAR		6.463	VAR	12.712	VAR	6.461	VAR	Continuing	Continuing	
Training Development											0.000	
Engineering Facility Development	WX	NSWC, CSS		3.000	VAR	10.000	VAR	4.000	VAR	Continuing	Continuing	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			0.000	12.963		29.112		13.461		Continuing	Continuing	
Remarks:												
Development Support											0.000	
Software Integration	VAR	NSWC, CSS & VAR		1.700	VAR	15.980	VAR	9.469	VAR	Continuing	Continuing	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Investigations	VAR	NTA & VAR		3.309	VAR	3.000	VAR	3.000	VAR	Continuing	Continuing	
Trade-off Studies & Analyses	VAR	NTA & VAR		3.000	VAR	2.000	VAR	2.000	VAR	Continuing	Continuing	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	8.009		20.980		14.469		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA 4**		PROGRAM ELEMENT 0603237N Deployable Joint Command & Control			PROJECT NUMBER AND NAME 3050 DJC2							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	MPR	46th Test Wing & VAR			VAR	3.000	VAR	4.000	VAR	Continuing	Continuing	
Operational Test & Evaluation	VAR	OPTEVFOR & VAR			VAR	3.500	VAR	4.000	VAR	Continuing	Continuing	
Live Fire Test & Evaluation											0.000	
Test Assets	MPR	Eglin, AFB & VAR			VAR	1.000	VAR	1.000	VAR	Continuing	Continuing	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.000	0.000		7.500		9.000		Continuing	Continuing	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support	VAR	NSWC, CSS & VAR		10.555	VAR	5.949	VAR	5.464	VAR	Continuing	Continuing	
Travel											0.000	
Transportation											0.000	
Subtotal Management			0.000	10.555		5.949		5.464		Continuing	Continuing	
Remarks:												
Total Cost			0.000	31.527		63.541		42.394		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 32

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																															DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA 4**									PROGRAM ELEMENT NUMBER AND NAME 0603237N Deployable Joint Command & Control														PROJECT NUMBER AND NAME 3050 DJC2											
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																																
MILESTONE A			▲																													
MILESTONE B									▲ Increment 1																							
MILESTONE C												▲ Increment 1																				
Test & Evaluation Milestones																																
Development Test												▲ DT / OA																				
Operational Test															▲ OT																	
Production Milestones																																
Deliveries																																

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA 4**	PROGRAM ELEMENT 0603237N Deployable Joint Command & Control				PROJECT NUMBER AND NAME 3050 DJC2			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
MILESTONE A	Q3							
MILESTONE B								
INCREMENT 1			Q1					
MILESTONE C								
INCREMENT 1			Q4					
TEST AND EVALUATION MILESTONES			Q4					
DEVELOPMENTAL TEST								
OPERATIONAL TEST				Q3				

R-1 SHOPPING LIST - Item No. 32

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**					R-1 ITEM NOMENCLATURE 0603261N Tactical Airborne Reconnaissance			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost		**1.877**	**2.029**	**6.448**	**3.906**	**3.903**	**11.488**	**11.717**
A2467 UAV CONOPS		**1.877**	**2.029**	**6.448**	**3.906**	**3.903**	**11.488**	**11.717**

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Department of the Navy leadership is committed to Naval Unmanned Aerial Vehicles (UAVs) and to procuring an operational UAV capability as soon as possible. The Naval UAV Strategy employs a family of UAVs to perform tactical, persistent and penetrating ISR in support of Naval and Joint missions from forward bases and naval ships.

In support of the Navy's overall UAV strategy, this program develops Concept of Operations (CONOPS) that integrate UAVs into CNO/Navy Vision of Sea Power 21 (Sea Shield, Sea Strike, Sea Basing, and FORCEnet). By providing fleet input based on current operations with UAVs in a simulated combat environment, this CONOPS development investment is the foundation of how the Carrier Strike Group will operate a combined Manned and Unmanned Naval Air Force. Specifically:

- Demonstrates and assesses utility of a ship-based tactical UAV.
- Leverages and assesses joint utility of Global Hawk Maritime Demonstration System and Predator integration into Expeditionary and Carrier Strike Group operations.
- Demonstrates UAV integration into USN battlespace dominance operations and network centric warfare.
- Demonstrates UAV integration into USN sensor-to-shooter and Sea Strike.
- Supports development of Joint UAV CONOPS through ISR Time Sensitive Operations Joint Test and Evaluation (JTE).
- Develops Intelligence, Surveillance, and Reconnaissance CONOPS in support of strike, Military Operations Other Than War (MOOTW), Anti-Air Warfare (AAW), Combat Search and Rescue (CSAR).
- Demonstrates UAV cross cueing capability with theater and strategic intelligence sources.

R-1 SHOPPING LIST - Item No. 34

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603261N Tactical Airborne Reconnaissance				PROJECT NUMBER AND NAME A2467 UAV CONOPS Research			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
A2467 UAV CONOPS Research		**1.877**	**2.029**	**6.448**	**3.906**	**3.903**	**11.488**	**11.717**
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Department of the Navy leadership is committed to Naval Unmanned Aerial Vehicles (UAVs) and to procuring an operational UAV capability as soon as possible. The Naval UAV Strategy employs a family of UAVs to perform tactical, persistent and penetrating Intelligence Surveillance Reconnaissance (ISR) in support of Naval and Joint missions from forward bases and naval ships.

In support of the Navy's overall UAV strategy, this program develops Concept of Operations (CONOPS) that integrate UAVs into the Navy's Vision of Sea Power 21 (Sea Shield, Sea Strike, Sea Basing, and FORCEnet). By providing fleet input based on current operations with UAVs in a simulated combat environment, this CONOPS development investment is the foundation of how the Carrier Strike Group will operate a combined Manned and Unmanned Naval Air Force. Specifically:

- Demonstrates and assesses utility of a ship-based tactical UAV.
- Leverages and assesses joint utility of Global Hawk Maritime Demonstration System and Predator integration into Expeditionary and Carrier Strike Group operations.
- Demonstrates UAV integration into USN battle space dominance operations and network centric warfare.
- Demonstrates UAV integration into USN sensor-to-shooter and Sea Strike.
- Supports development of Joint UAV CONOPS through ISR Time Sensitive Operations Joint Test and Evaluation (JTE).
- Develops Intelligence, Surveillance, and Reconnaissance CONOPS in support of strike, Military Operations Other Than War (MOOTW), Anti-Air Warfare (AAW), Combat Search and Rescue (CSAR).
- Demonstrates UAV cross cueing capability with theater and strategic intelligence sources.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603261N Tactical Airborne Reconnaissance	A2467 UAV CONOPS Research

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		1.277	1.529	1.600
RDT&E Articles Quantity				

Conduct studies and demonstrations for CONOPs development in support of Naval Strike Warfare.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.600	0.500	0.300
RDT&E Articles Quantity				

Conduct DoD UAV Joint Test & Evaluation program.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost				4.548
RDT&E Articles Quantity				

FY05 initiates the evaluation of Standard Agreement (STANAG) 4586 compliant Ground Control Station (GCS) and UAVs into the Carrier Strike Group and Expeditionary Strike Group.

R-1 SHOPPING LIST - Item No. 34

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603261N Tactical Airborne Reconnaissance	A2467 UAV CONOPS Research

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:	1.877	7.051	6.461
Current BES/President's Budget	1.877	2.029	6.448
Total Adjustments	0.000	-5.022	-0.013
Summary of Adjustments			
Economic Assumptions			-0.013
Reprioritization	0.000	-5.000	
Congressional Undistributed Reductions		-0.022	
Subtotal	0.000	-5.022	-0.013

Schedule:

Not applicable

Technical:

Not applicable

D. OTHER PROGRAM FUNDING SUMMARY: Not applicable

E. ACQUISITION STRATEGY: Not applicable

R-1 SHOPPING LIST - Item No.34

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603261N Tactical Airborne Reconnaissance			PROJECT NUMBER AND NAME A2467 UAV CONOPS Research						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Aircraft Integration											0.000	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering											0.000	
Training Development											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Development Support											0.000	
Software Development	TBD	Various						2.950	12/04		2.950	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
Studies & Analyses	TBD	Various						1.198	12/04		1.198	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		4.148		0.000	4.148	
Remarks:												

R-1 SHOPPING LIST - Item No.34

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603261N Tactical Airborne Reconnaissance			PROJECT NUMBER AND NAME A2467 UAV CONOPS Research						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	JUAV,Vicksburg, MS		0.600	01/03	0.500	12/03	0.300	12/04	Continuing	Continuing	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.000	0.600		0.500		0.300		Continuing	Continuing	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support	WX	NSAWC, Fallon, Neveda	5.827	1.277	12/02	1.529	12/03	1.600	12/04	Continuing	Continuing	
Program Management Support	WX	NAWCAD Pax River						0.350	10/04	Continuing	Continuing	
Travel	WX	NAWCAD Pax River						0.050	10/04	Continuing	Continuing	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			5.827	1.277		1.529		2.000		Continuing	Continuing	
Remarks:												
Total Cost			5.827	1.877		2.029		6.448		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 34

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																																DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**									PROGRAM ELEMENT NUMBER AND NAME 0603261N Tactical Airborne Reconnaissance														PROJECT NUMBER AND NAME A2467 UAV CONOPS Research												
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																																
Test & Evaluation Milestones Operational Test (Planning Schedule)					CVW-9 CVW-8 CVW- CVW-1		CVW-20 Desert Rescue	CVW-7 LGB TAC D&E		CVW- CVW-	CVW-3		Desert Rescue CVW-XX	CVW-XX CVW-XX	CVW-XX CVW-XX	Desert Rescue CVW-XX STANAG 4586 Eval																
Production Milestones																																
Deliveries																																

R-1 SHOPPING LIST - Item No. 34

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT 0603261N Tactical Airborne Reconnaissance				PROJECT NUMBER AND NAME A2467 UAV CONOPS Research			
Planning Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Carrier Air Wing Test & Evaluation								
CVW-9		1Q						
CVW-8		1Q						
CVW-11		1Q						
CVW-1		2Q						
CVWR-20		3Q						
CVW-7		4Q						
CVW-14			2Q					
CVW-17			3Q					
CVW-3			3Q					
CVW-XX (TBD)			4Q					
CVW-XX (TBD)				1Q				
CVW-XX (TBD)				2Q				
CVW-XX (TBD)				3Q				
CVW-XX (TBD)				4Q				
Desert Rescue (Joint Search & Rescue):								
Desert Rescue X		4Q						
Desert Rescue XI			4Q					
Desert Rescue XII				4Q				
Tactics Development & Evaluation:								
LGB Through-the-Weather			1Q					

R-1 SHOPPING LIST - Item No. 34

` **CLASSIFICATION:**

EXHIBIT R-2, RDT&E Budget Item Justification					DATE: February 2004		
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATI BA-4**				R-1 ITEM NOMENCLATURE PE 0603382N Advanced Combat System Technology/9348 Improved Combat Information Center			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost	**3.214**	**5.730**	**67.605**	**61.367**	**31.168**	**31.716**	**32.429**
0324/Advanced Combat System Technology	**3.214**	**3.394**	**67.605**	**61.367**	**31.168**	**31.716**	**32.429**
9348/Improved Combat Information Center (CIC)		**2.336**					
RDT&e Articles Qty							

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Advanced Combat System Technology line (PU 0324) funds engineering studies, real time instrumentation and risk reduction experiments that are conducted in distributed computer architecture, radar technology, and Tactical Informational Management (TIM) Concepts in the Computing Testbed to mature them as transition candidates for introduction into programs of record. This program takes a disciplined systems engineering approach to find how these advances can be integrated into these IWS systems and subsequent combat systems, and to plan both system and combat system upgrade schedules. The Open Architecture Computing Initiative is the first advanced development effort which leverages the lessons learned from the FY91 01 joint AEGIS/Defense Advanced Research Projects Agency (DARPA) High Performance Distributive Computing (Hiper-D), Embedded Computing and Quorum Initiative technology efforts. It implements the results of system engineering experiments with currently emerging Commercial-off-the-Shelf (COTS) computer technologies and distributed processing advances to replace the current computing architectures of various IWS programs with an open, distributed architecture. A priority will be the design of the flow and display of tactical information through the "detect-control-engage" process to provide decision quality information. These advanced Human Systems Interface (HSI) technologies are system attributes required in combat systems designed to function in a system of systems net centric view.

Commencing in FY05 funding is included to move all Naval systems to open systems architectures and highly integrated systems of systems that will function in FORCEnet. The Navy will migrate all Navy combat systems to a common OA approach. This development effort is being undertaken in three parallel phases: a. An Open Architecture Computing Environment (OACE) that provides a common computing architecture as a foundation. The OACE will be based on mainstream commercial-off-the-shelf (COTS) components and widely adopted open commercial standards. b. A single Navy-wide system architecture that is extensible and scaleable in function, capacity, and workload to meet Joint warfighting requirements. This also includes the identification and development of common software components and functions and a reuse methodology. c. A series of Engineering Development Models (EDM) that implements the OACE and the system architecture in iterative phases. In summary, this increase in funding supports system of systems engineering required across all Naval systems as they are migrated to function in a joint net centric warfare environment.

PU 9438 is an FY04 Congressional Add for Improved Shipboard Combat Information Center.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603382N Advanced Combat System Technology	0324 Advanced Combat System Technology/9348 Improved Combat Information Center

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.200		
RDT&E Articles Quantity			

Continued development and integration of Distributed Tactical Computing Environment (DTCE) capability based on Commercial Off-The-Shelf (COTS) and Defense Advanced Research Project Agency) DARPA technologies. Continued development and integration of DTCE capability based on advanced hardware and software technologies emerging from computing industry providers.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		2.336	
RDT&E Articles Quantity			

Apply Human Systems Integration principles toward concept development and evaluation of specific concepts for an advanced CIC focused on CGX, but also providing specific recommendations for DDG Modernization. Specifically identify and design GUIs that can be used across programs/systems to provide improved performance, decreased workload and commonality in the interest of decreasing training time and overall system development and maintenance costs. Identify specific recommendations for manning reduction. Prototypes will be usability and performance tested with Sailors specifically qualified to perform the CIC functions being tested. Products will be implemented using Open Architecture standards. Initial demonstration scheduled June 04, with subsequent demonstrations scheduled Sep 04, and Sep 05. Tools to speed up the development and/or analysis may be created / modified as part of this effort with the overall goal of improving efficiency in the development of CIC applications.

R-1 SHOPPING LIST - Item No. 35

CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603382N Advanced Combat System Technology	0324 Advanced Combat System Technology/9348 Improved Combat Information Center

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.300	
RDT&E Articles Quantity			

Continue to conduct experiments focused on assessing advanced technologies for applicability to the AWS. Technologies to be assessed include emerging software technologies (including developmental tools, environments and design patterns), distributed data communications technologies, QoS middleware and architectures, operating system technologies and networking technologies. These experiments will be focused on support for Aegis Baseline 7 Phase II in order to provide guidance and implement lessons learned from the advanced computing testbed.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.664	1.988	
RDT&E Articles Quantity			

Continue development of the Dynamic Resource Management (DRM) technology in preparation for transitioning DRM to a production status. DRM provides vital capabilities for managing a system-wide configuration of computers and sustaining real-time performance objectives despite damage and mission priority changes. DRM can divert resources initially devoted to lower priority tasks so that the resources can be used for urgent warfighting tasks and missions or to replace damaged components. In addition, since DRM treats all computer resources as a pool of computers, any one of which may be used for important functions, DRM can also serve as a manning reduction enabler. Using this approach, the shipboard computing pool can be fully configured with a given level of sparing at the beginning of a deployment. Any equipment that breaks or is damaged during the deployment can then be "configured out" of the system by DRM until the ship returns from the deployment. At that point, repairs and replacement can be effected by land based personnel rather than repaired by maintenance technicians at sea. Tasks remaining to be performed prior to productization of DRM include: making DRM itself fault tolerant and scalable, adding a network Quality-of-Service (QoS) control mechanism and integrating it into DRM, integrating system failure management policies across DRM, communication middleware and network services, integrating instrumentation data correlation services with resource allocation processing, and providing amplified operator explanatory services. Continue to demonstrate and validate advanced technologies for applicability to the AWS. Technologies to be assessed include emerging software technologies (including developmental tools, environments and design patterns), distributed data communications technologies, QoS middleware and architectures, operating system technologies and networking technologies. These experiments will be focused on support for AEGIS Baseline 7 Phase II in order to provide guidance and implement lessons learned from the advanced computing testbed.

R-1 SHOPPING LIST - Item No. 35

CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603382N Advanced Combat System Technology	0324 Advanced Combat System Technology/9348 Improved Combat Information Center

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.300		
RDT&E Articles Quantity			

Address the information security needs for the AWS. Based on the rapidly evolving COTS components, define and validate architectural approaches to providing information security. Identify candidate technologies and make assessments of maturity for adopting or adapting these into the AWS in future upgrades.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.950	1.000	
RDT&E Articles Quantity			

Explore techniques to enable enhanced weapons employment (in contrast to merely weapons coordination efforts at the command level) based on sensor netting of SPY-1 with other remote sensors. Explore techniques to enable C&D and Weapons Control Systems (WCS) to perform distributed weapons employment using external links to support the information exchange between AWS's on other platforms and other weapon systems as well.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.100	0.106	
RDT&E Articles Quantity			

Work with Science & Technology (S&T) communities (e.g. DARPA and Office of Naval Research (ONR)) to provide domain specific (real time weapons control) problems on which to focus S&T investment and validation of candidate technologies against these challenge domain specific performance requirements. Provide engineering quality lessons learned and benchmarking information back to S&T sponsors and technology developers for enhancements.

R-1 SHOPPING LIST - Item No. 35

CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603382N Advanced Combat System Technology	0324 Adv Combat SysTech/9348 Impr Combat Info Center

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			0.211
RDT&E Articles Quantity			

Information transfer investigations will include the following areas: a) participation in IETF and IEEE standards forums, b) validation of common time services such as NTPv4, c) IPv6 technology evolution, d) QoS architecture features and assessment of emerging facilities in these areas, e) network managment mechanisms, fault tolerance and survivability mechanisms.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			66.916
RDT&E Articles Quantity			

The PEO IWS OA program is being undertaken in three parallel phases: a. An Open Architecture Computing Environment (OACE) that provides a common computing architecture as a foundation. The OACE will be based on mainstream commercial-off-the-shelf (COTS) components and widely adopted open commercial standards. b. A single Navy-wide system architecture that is extensible and scaleable in function, capacity, and workload to meet Joint warfighting requirements. This also includes the identification and development of common software components and functions and a reuse methodology. c. A series of Engineering Development Models (EDM) that implements the OACE and the system architecture in iterative phases. Support for these will be included in this line of funding commencing in FY05.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			0.478
RDT&E Articles Quantity			

Program Management Support to Open Architecture.

R-1 SHOPPING LIST - Item No. 35

CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603382N Advanced Combat System Technology	PROJECT NUMBER AND NAME 0324 Adv Combat Sys Tech/9348 Impr Combat Info Center

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04-05 Pres Controls)	3.276	3.394	3.346
Current BES: (FY05 OSD)	3.214	3.394	67.605
Total Adjustments	-0.062	0.000	64.259
Summary of Adjustments			
Rate Adjustments			-0.536
Economic Adjustments			-0.105
Reprogramming	-0.062		
Programmatic Adjustments			64.900
Reprogramming			
Subtotal	-0.062	0.000	64.259

Schedule:

N/A

Technical:

N/A

R-1 SHOPPING LIST - Item No. 35

CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / 1319 BA-4	0603382N Advanced Combat System Technology	0324 Adv Combat Sys Tech/9348 Impr Combat Info Center

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
PE 0604307N/1447 Aegis Combat System Engin	331.213	213.47	146.463	178.365	206.955	250.170	256.759		

E. ACQUISITION STRATEGY: *

Risk reduction efforts are lead by NSWC/Dahlgren, the OA Technical Authority for PEO IWS 1.0. Technical Guidance documentation is produced and disseminated to the various programs of record for their use in becoming OA compliant. Additionally, an OA Test Facility is provided at NSWCDD for hosting early validation efforts by various programs of record in evaluating their progress toward OA compliance.

F. MAJOR PERFORMERS: **

NSWC/ Dahlgren - Dahlgren, Virginia - Technical Authority for OA Program for PEO IWS

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1) — DATE: February 2004

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603382N Advanced Combat System Technology	0324 Adv Combat Sys Tech/9348 Impr Combat Info Center

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development												
Ancillary Hardware Development												
Component Development												
Systems Engineering	SS/CPFF	APL / Baltimore, MD	10.155	0.697	11/02	0.816	11/03	0.000		0.000	11.668	
Systems Engineering	WR	NSWC / Dahlgren, VA	16.646	2.167	12/02	4.560	12/03	67.056	12/03	Continuing	Continuing	
Systems Engineering	WR	NAWCAD / St. Inigoes, MD	2.000							0.000	2.000	
Training Development												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			28.801	2.864		5.376		67.056		Continuing	Continuing	

Remarks:

Development Support	WR	Miscellaneous	0.501	0.072	11/02	0.071	11/03	0.071	12/03	Continuing	Continuing	
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
GFE												
Award Fees												
Subtotal Support			0.501	0.072		0.071		0.071		Continuing	Continuing	

Remarks:

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2004		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603382N Advanced Combat System Technology				PROJECT NUMBER AND NAME 0324 Adv Combat Sys Tech/9348 Impr Combat Info Center						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	Miscellaneous	0.371							0.000	0.371	
Operational Test & Evaluation												
Live Fire Test & Evaluation												
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			0.371	0.000		0.000		0.000		0.000	0.371	
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support	WR	Miscellaneous	0.943	0.278	11/02	0.283	11/03	0.478	12/03	Continuing	Continuing	
Travel												
Labor (Research Personnel)												
SBIR Assessment												
Subtotal Management			0.943	0.278		0.283		0.478		Continuing	Continuing	
Remarks:												
Total Cost			30.616	3.214		5.730		67.605		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 35

CLASSIFICATION:

EXHIBIT R4, Schedule Profile			DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603382N Advanced Combat System Technology	PROJECT NUMBER AND NAME 0324/Advanced Combat System Technology 9438/Improved Combat Information Center	

Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																																
OA Technical Stds & Design Guidance Design Reviews																9/1 Design Review				9/30 Design Review				9/30 Design Review				9/30 Design Review				9/30 Design Review
OA Functional Architecture Design Reviews																9/1 Design Review				9/30 Design Review				9/30 Design Review				9/30 Design Review				9/30 Design Review
Test & Evaluation Milestones																																
DDX Rel OA Validation Tests																7/15 REL 3 Validation Test				7/15 REL 4 Validation Test				7/15 REL 5 Validation Test				7/15 REL 6 Validation Test				7/15 REL 7 Validation Test
CG/DDG OA Validation Tests of Spirals															4/15 Spiral 1 Validation Tes				4/15 Spiral 2 Validation Test								4/15 Spiral 3 Validation Tes				4/15 Spiral 4 Validation Test
LCS OA Validation Tests																								9/30 Rel 1 Val Test				4/15 Rel 2 Val Test				9/30 Rel 3 Val Test
CVN/L-CLASS EDM																							4/15 EDM Complete										
Production Milestones																																
Deliveries																															Lot 24 (36)	

R-1 SHOPPING LIST - Item No. 35

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: February 2004			
APPROPRIATION/BUDGET ACTIVITY **RDT&BA-4**	PROGRAM ELEMENT 0603382N Advanced Combat System Technology				PROJECT NUMBER AND NAME 0324 Advanced Combat System Technology 9438 Improved Combat Information Center			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
OA Technical Stds & Design Guidance Design Reviews				4Q	4Q	4Q	4Q	4Q
OA Functional Architecture Design Reviews				4Q	4Q	4Q	4Q	4Q
DDX Rel OA Validation Tests								
REL 3				4Q				
REL 4					4Q			
REL 5						4Q		
REL 6							4Q	
REL 7								4Q
CG/DDG OA Validation Tests of Spirals								
SPIRAL 1				3Q				
SPIRAL 2					3Q			
SPIRAL 3							3Q	
SPIRAL 4								3Q
LCS OA Validation Tests								
REL 1						4Q		
REL 2							3Q	
REL 3								4Q
CVN/L-CLASS EDM						3Q		

R-1 SHOPPING LIST - Item No. 35

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**						R-1 ITEM NOMENCLATURE 0603502N/Surface and Shallow Water Mine Countermeasure					
COST ($ in Millions)	Prior Years Cost		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Total PE Cost	**625.375**		**140.512**	**145.678**	**103.308**	**100.114**	**89.286**	**80.617**	**90.396**	**Continuing**	**Continuing**
Remote Minehunting System/0260/2387	**211.854**		**58.433**	**58.458**	**14.424**	**0.010**	**0.000**	**0.000**	**0.000**	**0.000**	**343.179**
Integrated Combat Weapons System/1233/2388	**61.558**		**8.314**	**3.716**	**3.850**	**3.822**	**4.033**	**3.934**	**3.882**	**Continuing**	**Continuing**
Unmanned Underwater Vehicle/2094/2852	**168.982**		**69.185**	**80.537**	**65.580**	**55.566**	**47.654**	**47.870**	**57.673**	**Continuing**	**Continuing**
Assault Breaching Systems /2131	**182.981**		**4.580**	**2.967**	**17.277**	**29.273**	**37.599**	**28.813**	**28.841**	**Continuing**	**Continuing**
Expendable Mine Neutralization System/4025	**0.000**		**0.000**	**0.000**	**2.177**	**11.443**	**0.000**	**0.000**	**0.000**	**0.000**	**13.620**
											0.000
Quantity of RDT&E Articles											**0.000**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The program provides for developments to combat the threat of known and projected foreign mines against U.S. Naval and merchant shipping in harbors, channels, choke points, sea lines of communications and amphibious and other fleet operating areas. It develops: (1) organic remote minehunting capability for surface platforms; (2) the integration and improvement of systems and support for systems which will detect, localize and classify moored, bottom, and close-tethered mines for use in Mine Countermeasure (MCM) MCM-1 Class, Mine Hunter Coastal (MHC) MHC-51 Class, and other surface ships; (3) systems for neutralizing mines and light obstacles from shallow water, very shallow water, surf zones, and beach landing craft zones in support of amphibious operations; (4) Unmanned Undersea Vehicle (UUV) systems for clandestine mine reconnaissance.

(U) B. JUSTIFICATION FOR BUDGET ACTIVITY:

This program is funded under DEMONSTRATION AND VALIDATION because it develops and integrates hardware for experimental test related to specific ship or aircraft applications.

Congressional adds received in FY 2004 for the venom penetrator and risk reduction for RMS associated with LCS mission modules for Mine Warfare.

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM					PROJECT NUMBER AND NAME 0260/2387, Remote Minehunting Systems					
COST ($ in Millions)	Prior Years Cost		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost	**211.854**		**58.433**	**58.458**	**14.424**	**0.010**	**0.000**	**0.000**	**0.000**	**0.000**	**343.179**
RDT&E Articles Qty	**2**		**1**	**1**	**0**	**0**					**4**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Remote Minehunting System (RMS), AN/WLD-1(V)1, program develops a new remotely operated minehunting system for surface ships. This effort includes development and integration of a remote minehunting vehicle, minehunting sensors, mission command and control, and installation into the DDG-51 Class Flight IIA Baseline 7 and AN/SQQ-89(V)15 Undersea Warfare Combat System.

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603502N, Surface and Shallow Water MCM	0260/2387, Remote Minehunting Systems

(U) B. Accomplishments/Planned Program

Product Development		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		37.955	44.717	8.281
RDT&E Articles Quantity		1	1	

Continue engineering and fabrication of Engineering Development Models (EDMs) for the RMS. Conduct Functional/Physical Configuration Audit of Data Link Subsystem and Launch and Recovery Subsystem. Continue with the fabrication of Engineering Development Models (EDMs) for the RMS and begin Pilot Line Proofing of system hardware. Complete fabrication of Engineering Development Models (EDMs) for the RMS including Physical Configuration Audit (PCA) and continue Pilot Line Proofing of system hardware. Completion of the Engineering Manufacturing and Development Phase, of pilot line proofing, and Engineering Change Proposals (ECPs) resulting from OPEVAL.

Support		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		10.645	5.476	3.619
RDT&E Articles Quantity		1	1	

Continue software Design/Code/Test for the RMS. Continue Integrated Logistics Support (ILS) Planning and Integrated Electronic Technical Manual (IETM) Development for RMS. Continue Integration Support for the RMS .

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603502N, Surface and Shallow Water MCM	0260/2387, Remote Minehunting Systems

(U) B. Accomplishments/Planned Program

T&E		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		8.606	7.032	2.009
RDT&E Articles Quantity		1	1	

Conducted DT Assist of the Datalink Subsystem for the RMS Shipboard Equipment. Begin test preparation for TECHEVAL Phase I on ship of opportunity. Complete test preparation and conduct TECHEVAL Phase I and II for the RMS. Conduct and complete OPEVAL.

Management		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		1.227	1.233	0.515
RDT&E Articles Quantity		1	1	

Funds provided for Program Management Support and Travel.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603502N, Surface and Shallow Water MCM	0260/2387, Remote Minehunting Systems

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
FY04 President's Controls:	60.792	55.516	14.677
FY05 President's Controls:	58.433	58.458	14.424
Total Adjustments	-2.359	2.942	-0.253
Summary of Adjustments			
Economic Assumptions	-0.345		
FY03 SBIR	-1.497		
Congressional Plus-Up		3.600	
Misc Adjustments	-0.517	-0.658	-0.253
Subtotal	-2.359	2.942	-0.253

(U) Schedule:

Plan is to procure four production systems in FY05 and FY06 and deliver in FY06 and FY07.

(U) Technical:

Not Applicable

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603502N, Surface and Shallow Water MCM	0260/2387, Remote Minehunting Systems

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
Line 262200, OPN									
RMS	0	0	46.708	50.840	0	0	0		
Support	0	0	1.854	4.267	0	0	0		
Total	0	0	48.562	55.107	0.000	0.000	0.000		
(U) RDT&E, Line 0604373, 0529	16.508	18.461	4.798	0	0	0	0		

(U) E. ACQUISITION STRATEGY:

The government issued a series of contract modifications to Lockheed Martin to complete efforts through the System Design Review. Based upon the approved Milestone II decision the program office issued the contract modification to complete the Critical Design Review (CDR); upon completion of CDR a CPIF sole source contract was awarded to Lockheed Martin to complete the development, fabrication, and testing of the engineering development models, initial pilot line/tooling, and timed phased procurement of initial systems to meet ship delivery schedules. The government has worked with the contractor in an IPT environment to refine the specification and Statement of Work for the overall development effort. The IPT pricing process was used to generate the cost estimates against Navy requirements. The government will pursue commonality between the AN/AQS-20A airborne minehunting system and the AN/WLD-1(V)1. The AN/WLD-1(V)1 contract plan is for the development of EDMs, system interactive electronic technical manual (IETM), provisioning data, technical drawings and data, and engineering services. The AN/WLD-1(V)1 program plans to update the acquisition strategy in accordance with the new POM 04 guidance, that includes integration of the AN/WLD-1(V)1 on DDG-51 Class Flight IIA ships beginning with DDG 91. The 4 EDM remote minehunting vehicles are required to meet ship schedules for DDG ship deliveries prior to receiving follow-on production units and to support the stand-up of the maintenance and training facilities.

(U) F. MAJOR PERFORMERS:

- Lockheed Martin, Syracuse, NY: Primary hardware development and integration, system engineering, software development, ship integration, and integrated logistic support.

- NSWC, CSS, Panama City, FLA: Hardware development and integration, system engineering, software development, integrated logistic support, and ship integration.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603502N, Surface and Shallow Water MCM			PROJECT NUMBER AND NAME 0260/2387, Remote Minehunting Systems							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Hardware Development & Integration	CPIF	Lockheed Martin	97.283								97.283	
Hardware Development & Integration	CPIF	Lockheed Martin	9.041	33.404	11/02	40.545	11/03	6.342	11/04		89.332	
Hardware Development & Integration	WR	NWSC, CSS	2.594	1.781	10/02	1.935	10/03	0.969	10/04		7.279	
Systems Engineering	CPIF	Lockheed Martin	5.465								5.465	
Systems Engineering	CPIF	Lockheed Martin	1.775	2.473	11/02	1.753	11/03	0.485	11/04		6.486	
Systems Engineering	WR	NWSC, CSS	0.649	0.297	10/02	0.484	10/03	0.485	10/04		1.915	
Award Fees			5.485								5.485	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			122.292	37.955		44.717		8.281			213.245	

Remarks:
GFE - AN/AQS-20 systems provided to RMS program were funded under PE 0604373/Q0529
Lockheed Martin, Syracuse, NY, contracts: (1) N00024-96-C-6322 was competitive CPAF/CPIF and (2) N00024-02-C-6309 was sole source CPIF.

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603502N, Surface and Shallow Water MCM			PROJECT NUMBER AND NAME 0260/2387, Remote Minehunting Systems						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software Development	CPIF	Lockheed Martin	7.092								7.092	
Software Development	CPIF	Lockheed Martin	2.400	3.759	11/02	0.414	11/03	0.388	11/04		6.961	
Software Development	WR	NSWC, CSS	1.363	0.198	10/02	0.290	10/03	0.291	10/04		2.142	
ILS	CPIF	Lockheed Martin	5.682								5.682	
ILS	CPIF	Lockheed Martin	2.296	3.636	11/02	3.009	11/03	1.163	11/04		10.104	
ILS	WR	NSWC, CSS	1.394	0.099	10/02	0.290	10/03	0.291	10/04		2.074	
Ship Integration	CPIF	Lockheed Martin	1.258								1.258	
Ship Integration	CPIF	Lockheed Martin	0.428	1.385	11/02	0.677	11/03	0.388	11/04		2.878	
Ship Integration**	Various	Various	9.989	1.568	12/02	0.796	12/03	1.098	12/04		13.451	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			31.902	10.645		5.476		3.619			51.642	

Remarks:
Various in Ship Integration provides funding to support AN/SQQ-89(V)15 ECP effort for RMS and PMS400 RMS DDG ship class integration efforts.

CLASSIFICATION:

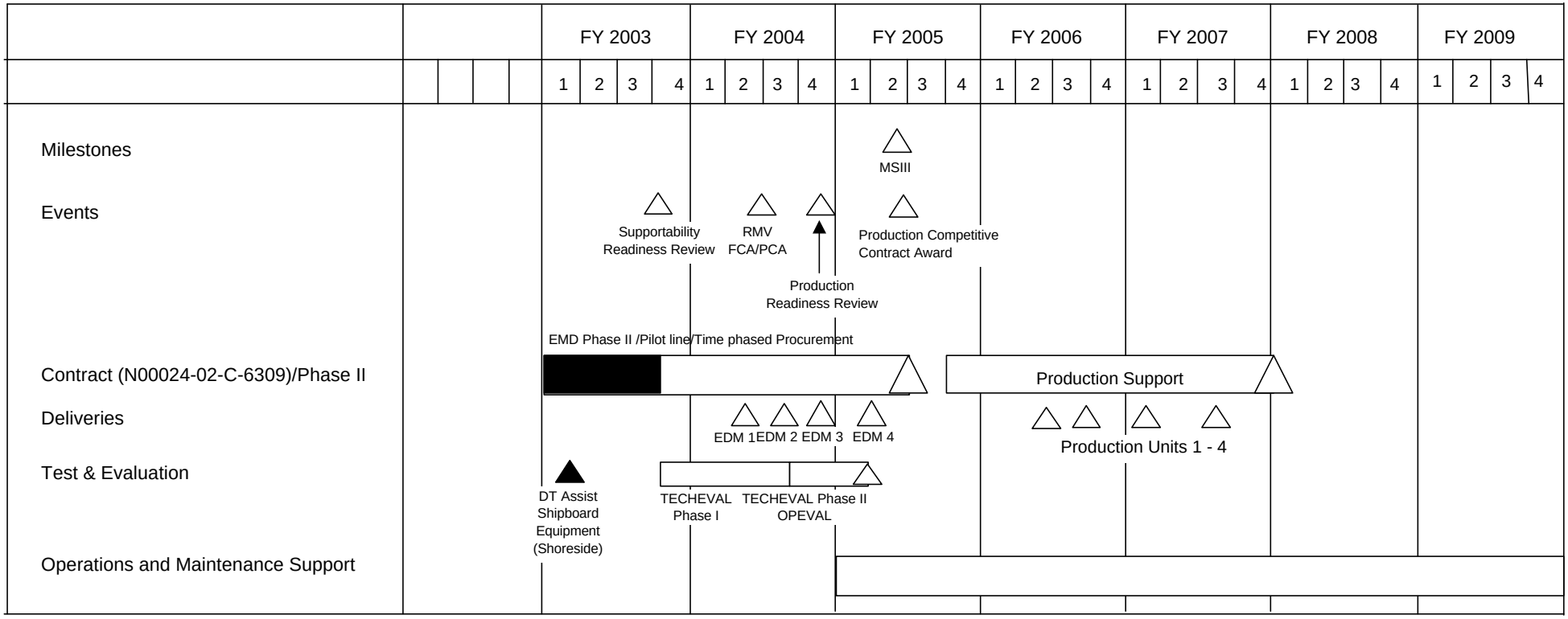
Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603502N, Surface and Shallow Water MCM			PROJECT NUMBER AND NAME 0260/2387, Remote Minehunting Systems						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	CPIF	Lockheed Martin	18.470								18.470	
Developmental Test & Evaluation	CPIF	Lockheed Martin	3.985	7.122	11/02	2.513	11/03	0.590	11/04		14.210	
Developmental Test & Evaluation	WR	NSWC, CSS	1.621	1.484	10/02	4.519	11/03	1.419	10/04		9.043	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			24.076	8.606		7.032		2.009			41.723	
Remarks:												
Contractor Engineering Support	CPIF	Lockheed Martin	2.919								2.919	
Government Engineering Support	WR	NSWC, CSS	22.393								22.393	
Program Management Support	CPFF	Vredenburg	1.736	1.138	11/02	1.146	11/03	0.428	11/04		4.448	
Travel	Various	NAVSEA	0.175	0.089	Various	0.087	Various	0.087	Various		0.438	
SBIR Assessment	Various	Various	6.361								6.361	
											0.000	
Subtotal Management			33.584	1.227		1.233		0.515			36.559	
Remarks: Award dates for management are various because multiple activities are receiving tasks at different times during the fiscal year.												
Total Cost			211.854	58.433		58.458		14.424			343.169	
Remarks:												

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

EXHIBIT R-4, Schedule Profile		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**	PROGRAM ELEMENT NAME AND NUMBER 0603502N, Surface & Shallow Water MCM	PROJECT NAME AND NUMBER 0260/2387, Remote Minehunting Systems

AN/WLD-1(V)1 PROGRAM SCHEDULE



R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E BA-4**	PROGRAM ELEMENT 0603502N, Surface & Shallow Water MCM				PROJECT NUMBER AND NAME 0260/2387, Remote Minehunting Systems			
Schedule Profile: AN/WLD-1 (V)1		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Milestone III (MSIII)				2Q				
Supportability Readiness Review		4Q						
Functional & Physical Configuration Audit (FCA)/(PCA)			2Q-3Q					
Production Readiness Review (PRR)			4Q					
Production Competitive Contract Award				2Q				
Engineering Manufacturing & Development(EMD) Phase II		1Q-4Q	1Q-4Q	1Q-2Q				
Production Start				3Q-4Q	1Q-4Q	1Q-4Q		
EDM 1 Delivery			2Q					
EDM 2 Delivery			3Q					
EDM 3 Delivery			4Q					
EDM 4 Delivery				1Q-2Q				
Production Unit 1-4 Delivery					2Q-3Q	1Q-3Q		
Developmental Testing (DT) Shipboard Equip (shoreside)		1Q						
Technical Evaluation (TECHEVAL), Phase I		4Q	1Q-3Q					
Technical Evaluation (TECHEVAL), Phase II			3Q-4Q	1Q				
Operational Evaluation (OPEVAL)			3Q-4Q	1Q				
Operations and Maintenance Support Start					1Q	1Q-4Q	1Q-4Q	1Q-4Q

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM					PROJECT NUMBER AND NAME 1233, Mine Counter Measures Mid-Life Upgrades*					
COST ($ in Millions)	Prior Years Cost		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost	**61.558**		**8.314**	**3.716**	**3.850**	**3.822**	**4.033**	**3.934**	**3.882**	**Continuing**	**Continuing**
RDT&E Articles Qty											**0**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(1) Integrated Combat Weapon System (ICWS) is an open architecture system which will demonstrate common control of multiple unmanned systems with optimal manning and provide a foundation for future improvement modernization of Combat Systems on MCM and MHC class ships and future mine warfare platforms. (2) Mine Warfare and Environmental Decision Aids Library (MEDAL) is a software segment on the Global Command and Control System – Maritime (GCCS-M). MEDAL provides mine and mine warfare planning and evaluation tools and databases to the MCM Commander. (3) MCM Command Control, Communication, Computers and Intelligence (C4I) connectivity to the rest of the fleet is provided through GCCS-M; design and implement Mine Warfare (MIW) C4I Surveillance and Reconnaissance (C4ISR) architecture fully integrates and optimizes organic and dedicated systems within the Navy's C4ISR architecture.

*former title was Integrated Combat Weapons System

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603502N, Surface and Shallow Water MCM	1233, Mine Counter Measures Mid-Life Upgrades

(U) B. Accomplishments/Planned Program

Product Development		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		2.220	0.360	0.600
RDT&E Articles Quantity				

Product Development:

ICWS

Continue / complete hardware design for ICWS.

MIW C4ISR

Continue MIW information system engineering effort; continue and complete C4ISR architecture Rev 1; continue MIW C4ISR assessment; continue MCM/MHC LAN integration; continue and complete MEDAL/TEDS integration. Continue MIW information system engineering effort; initiate and continue MIW C4ISR architecture Rev 2; continue and complete MIW C4ISR assessment; initiate MIW C4ISR dynamic assessment; initiate MUW Network Centric Warfare Info system network; continue and complete MCM/MHC LAN integration. Continue MIW information system engineering effort; continue and complete MIW C4ISR architecture Rev 2; initiate MIW C4ISR Rev 3; continue MIW C4ISR Dynamic Assessment; continue MUW Network Centric Warfare Info system network.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603502N, Surface and Shallow Water MCM	1233, Mine Counter Measures Mid-Life Upgrades

(U) B. Accomplishments/Planned Program

Support		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		3.931	2.595	2.656
RDT&E Articles Quantity				

Support:

ICWS

Complete software/hardware design/code/test for ICWS; begin and complete EDM 1 integration and testing in the laboratory; and begin install and testing on ship of opportunity. Continue and complete testing on ship of opportunity.

MEDAL

Continue and complete development and test of Build 9; initiate and complete integration and test of Build 9; initiate development and test of Build 10. Initiate and complete IOC Build 9; continue and complete development and test Build 10; initiate and continue integration and test Build 10; initiate and continue development and test Build 11. Continue and complete development and test Build 11; initiate and continue integration and test Build 11; initiate development and test Build 12.

MIW C4I

Continue and complete Network Centric Warfare database phase I. Initiate Network Centric Warfare database phase II. Continue and complete Network Centric Warfare database phase II; initiate and continue Network Centric Warfare Database maintenance/update/redesign.

Test and Evaluation		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	0.000	0.000
RDT&E Articles Quantity				

Test and Evaluation:

N/A

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603502N, Surface and Shallow Water MCM	1233, Mine Counter Measures Mid-Life Upgrades

(U) B. Accomplishments/Planned Program

Management		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		2.163	0.761	0.594
RDT&E Articles Quantity				

Management:
Provide program management support and travel for ICWS, MEDAL, and MIW C4ISR programs.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603502N, Surface and Shallow Water MCM	1233, Mine Counter Measures Mid-Life Upgrades

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
FY04 President's Controls:	12.477	3.758	2.823
FY05 President's Controls:	8.314	3.716	3.850
Total Adjustments	-4.163	-0.042	1.027
Summary of Adjustments			
FY03 SBIR	-0.101		
Misc Adjustments	-4.062	0.042	1.027
Subtotal	-4.163	0.042	1.027

(U) Schedule:

ICWS final at sea test has slipped two quarters due to ship availability.

(U) Technical:

MIW C4ISR program has been restructured to reflect recently revised MIW C4I master plan.

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603502N, Surface and Shallow Water MCM	1233, Mine Counter Measures Mid-Life Upgrades

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost

(U) E. ACQUISITION STRATEGY:

ICWS will demonstrate common control of multiple unmanned systems. The original equipment manufacturers under a sole source Firm Fixed Price (FFP) contract have teamed with the Navy to develop the changes. Contract was awarded in FY00. MEDAL is an evolutionary program with a development cycle of one year per software build to coincide with GCCS-M build schedule.

(U) F. MAJOR PERFORMERS:

- Lockheed Martin, Manassas, VA: Primary hardware contractor for ICWS.
- NSWC CSS, Panama City, FLA: System Engineering Support.
- SAIC, McLean, VA: Primary software developer for MEDAL.

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603502N, Surface and Shallow Water MCM			PROJECT NUMBER AND NAME 1233, Mine Counter Measures Mid-Life Upgrades							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	SS/CPIF	Raytheon, RI	2.960								2.960	
Primary Hardware Development	SS/FFP	Lockheed Martin	3.484								3.484	N/A
Primary Hardware Development	WR/RCP	NSWC, CSS/NAWC	2.705	0.701	11/02						3.406	N/A
Systems Engineering	Various	NSWC, CSS/NAVAIR	10.777	1.519	11/02	0.360	11/03	0.600	11/04	Continuing	Continuing	N/A
Award Fees	SS/CPIF	Raytheon, RI	0.439								0.439	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			20.365	2.220		0.360		0.600		0.000	23.545	

Remarks:
Due to a large projected cost overrun on ICWS, all work contracted to Raytheon on the CPIF contract was transferred to Lockheed Martin FP contract and NSWC, CSS Panama City, Florida.

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603502N, Surface and Shallow Water MCM			PROJECT NUMBER AND NAME 1233, Mine Counter Measures Mid-Life Upgrades							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software Development	WR	NSWC	12.296	1.890	11/02	0.511	11/03			Continuing	Continuing	N/A
Software Development	SS/FFP	Lockheed Martin	5.815								5.815	
Software Development	WR/PD	NSWC/CD, ARL/UT, ONR	14.817	2.041	11/02						16.858	N/A
Software Development	SS/FFP	SAIC	0.100			2.084	11/03	2.656	11/04	Continuing	Continuing	N/A
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			33.028	3.931		2.595		2.656		0.000	42.210	

Remarks:

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

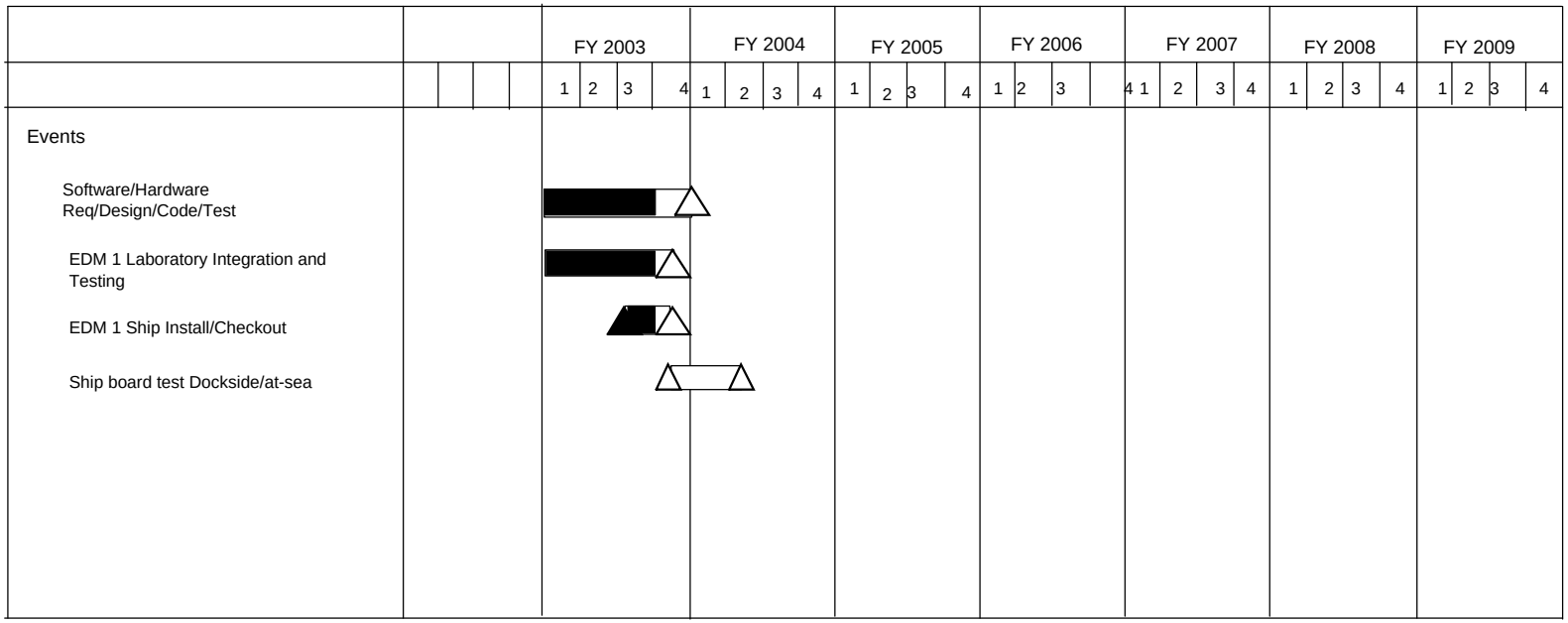
Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603502N, Surface and Shallow Water MCM			PROJECT NUMBER AND NAME 1233, Mine Counter Measures Mid-Life Upgrades							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	CPIF	Lockheed Martin	0.200								0.200	
Operational Test & Evaluation	CPIF	Lockheed Martin	1.592								1.592	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			1.792	0.000		0.000		0.000		0.000	1.792	
Remarks:												
Contractor Engineering Support			0.153								0.153	N/A
Government Engineering Support			0.500								0.500	N/A
Program Management Support	Various	NAVSEA	4.858	1.844	11/02	0.352	11/03	0.330	11/04	Continuing	Continuing	N/A
Program Management Support	CPFF	Vredenburg	0.506	0.254	11/02	0.306	11/03	0.164	11/04	Continuing	Continuing	N/A
Travel			0.160	0.065	11/02	0.103	11/03	0.100	11/04	Continuing	Continuing	N/A
SBIR Assessment			0.196								0.196	N/A
Subtotal Management			6.373	2.163		0.761		0.594		0.000	9.891	
Remarks:												
Total Cost			61.558	8.314		3.716		3.850		0.000	77.438	
Remarks:												

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

EXHIBIT R-4, Schedule Profile		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E, N/BA-4	0603502N, Surface & Shallow Water MCM	1233, Mine Counter Measures Mid-Life Upgrades

ICWS PROGRAM SCHEDULE

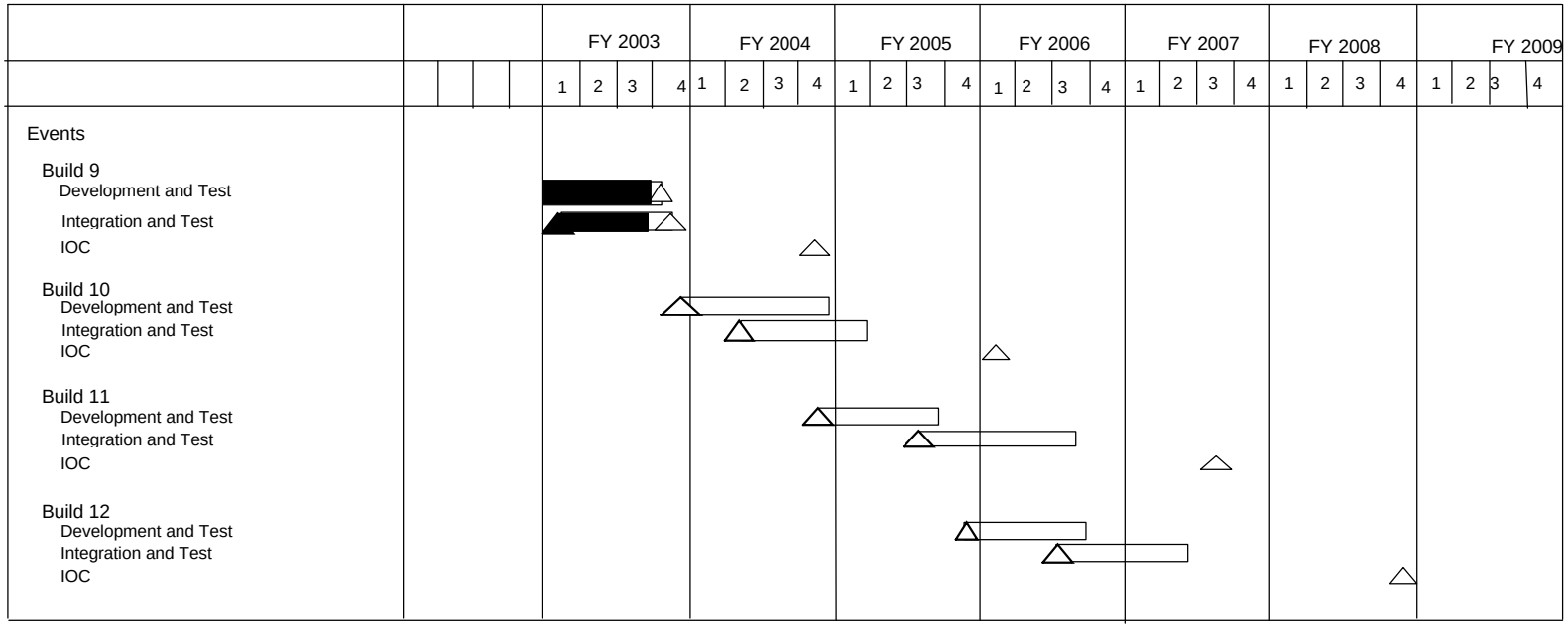


R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

EXHIBIT R-4, Schedule Profile		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E, N/BA-4	0603502N, Surface & Shallow Water MCM	1233, Mine Counter Measures Mid-Life Upgrades

MEDAL PROGRAM SCHEDULE

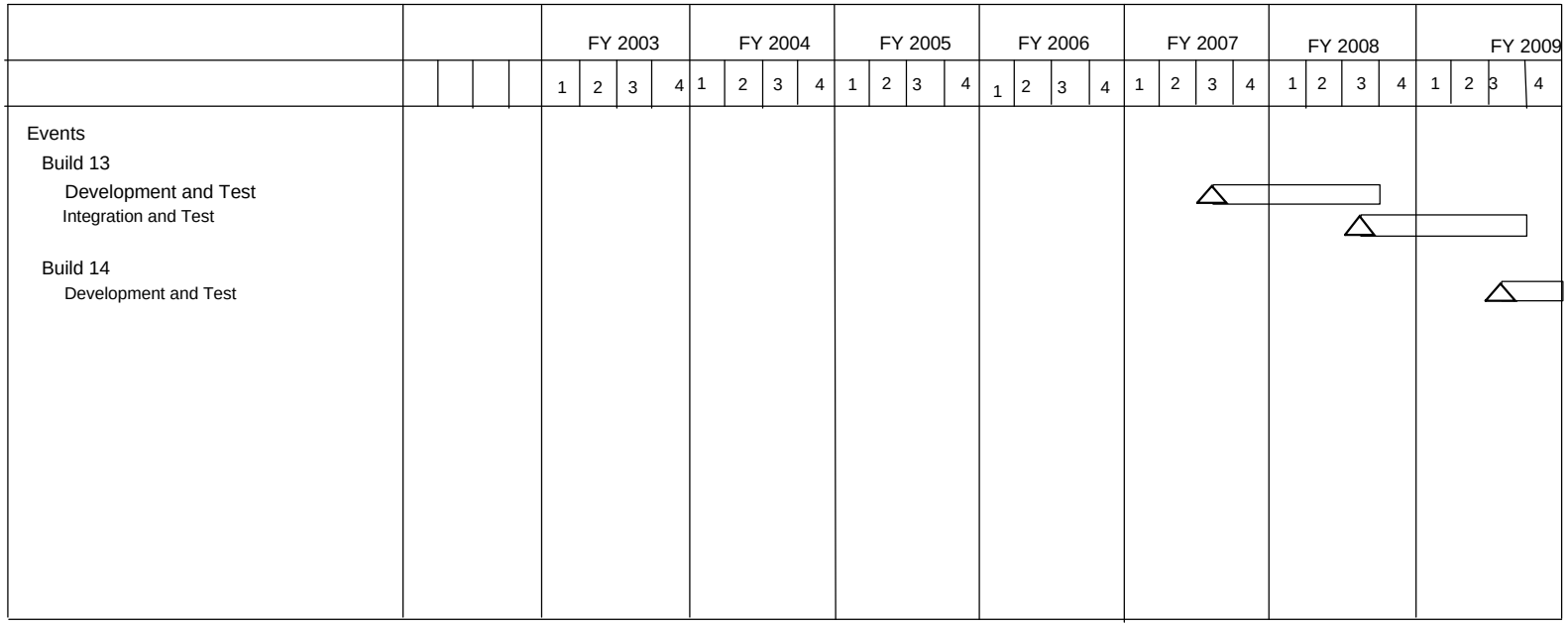


R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

EXHIBIT R-4, Schedule Profile		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E, N/BA-4	0603502N, Surface & Shallow Water MCM	1233, Mine Counter Measures Mid-Life Upgrades

MEDAL PROGRAM SCHEDULE CONT'D

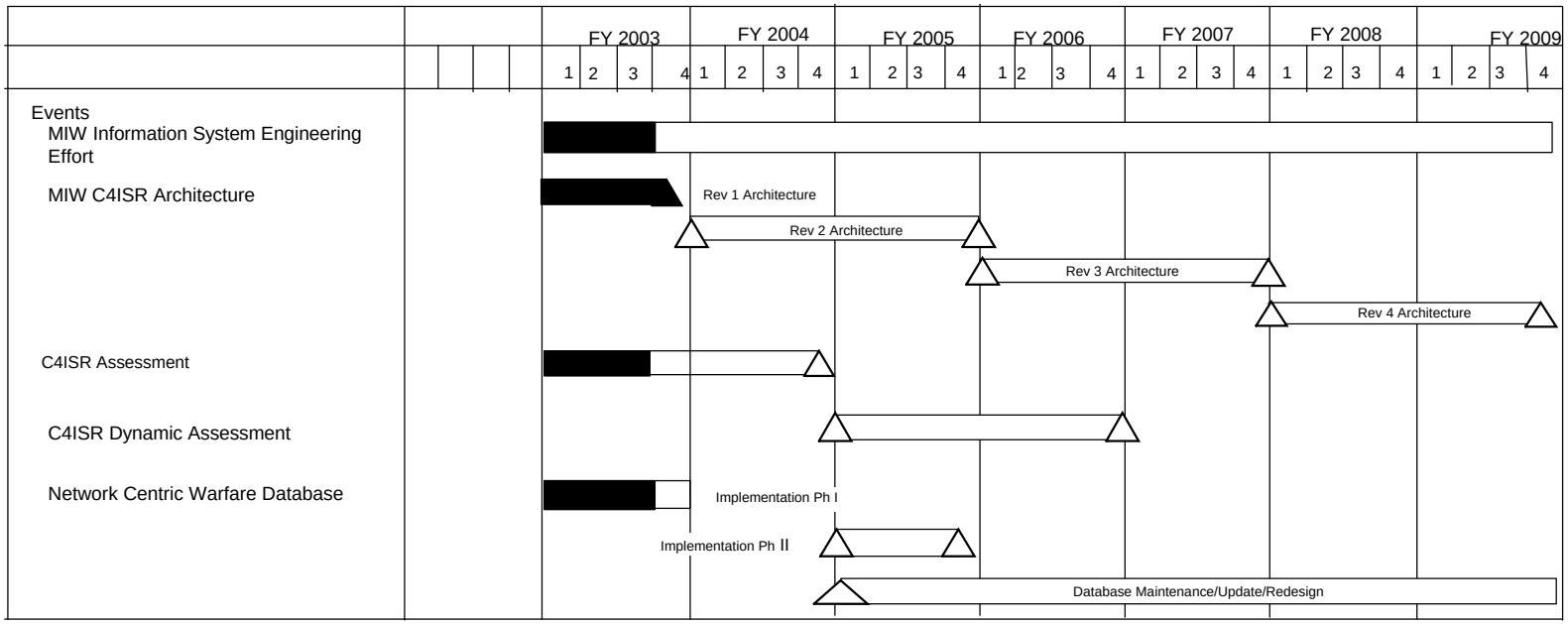


R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

EXHIBIT R-4, Schedule Profile		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E, N/BA-4	0603502N, Surface & Shallow Water MCM	1233, Mine Counter Measures Mid-Life Upgrades

MIW C4ISR PROGRAM SCHEDULE

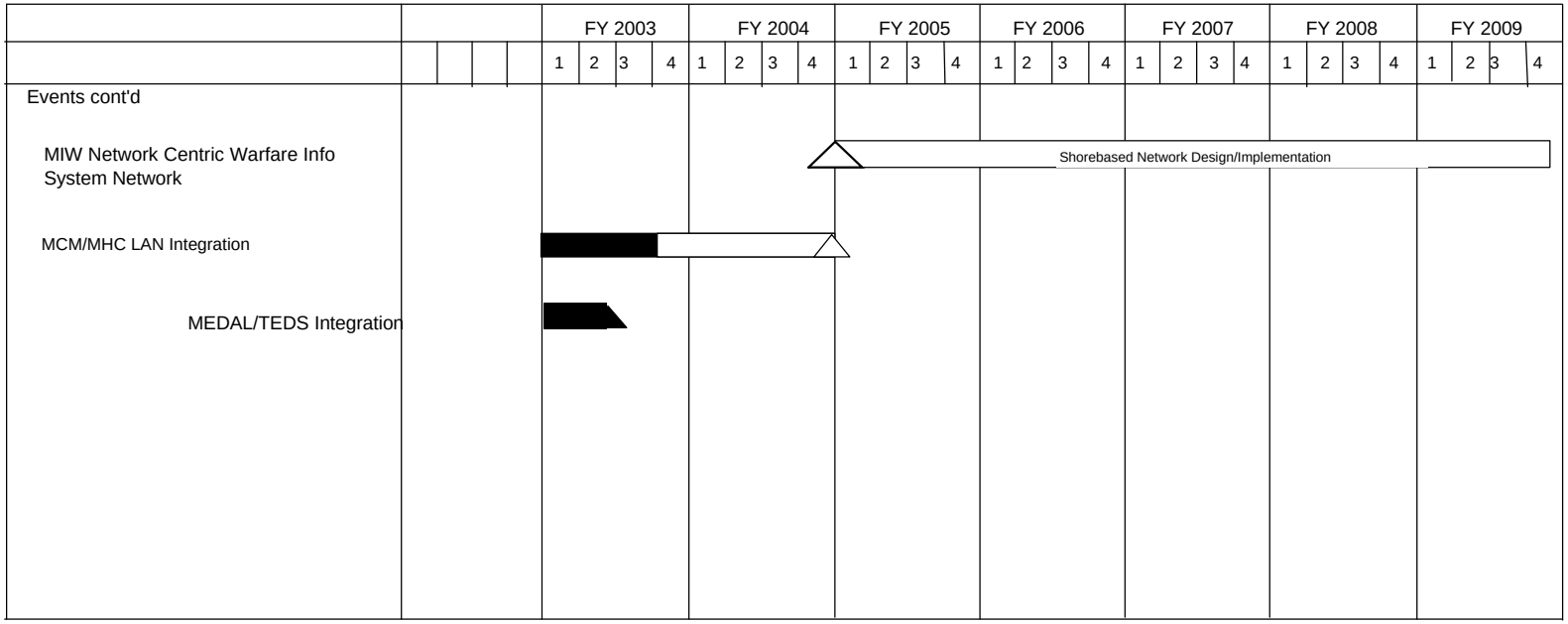


R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

EXHIBIT R-4, Schedule Profile		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E, N/BA-4	0603502N, Surface & Shallow Water MCM	1233, Mine Counter Measures Mid-Life Upgrades

MIW C4ISR PROGRAM SCHEDULE CONT'D



R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&BA-4**	PROGRAM ELEMENT 0603502N, Surface & Shallow Water MCM				PROJECT NUMBER AND NAME 1233, Mine Counter Measures Mid-Life Upgrades			
Schedule Profile: ICWS		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Software/Hardware Req/Design/Code/Test		1Q-4Q						
EDM 1 Laboratory Integration and Testing		1Q-4Q						
EDM 1 Ship Install/Checkout		3Q-4Q						
Shipboard Test Dockside/At-Sea		4Q	1Q-2Q					

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&BA-4**	PROGRAM ELEMENT 0603502N, Surface & Shallow Water MCM				PROJECT NUMBER AND NAME 1233, Mine Counter Measures Mid-Life Upgrades			
Schedule Profile: MEDAL		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Build 9 Development and Test		1Q-4Q						
Build 9 Integration and Test		1Q-4Q						
Build 9 IOC			4Q					
Build 10 Development and Test		4Q	1Q-4Q					
Build 10 Integration and Tests			2Q-4Q	1Q				
Build 10 IOC					1Q			
Build 11 Development and Test			4Q	1Q-3Q				
Build 11 Integration and Tests				3Q-4Q	1Q-3Q			
Build 11 IOC						3Q		
Build 12 Development and Test				4Q	1Q-3Q			
Build 12 Integration and Tests					3Q-4Q	1Q-2Q		
Build 12 IOC							4Q	
Build 13 Development and Test						3Q-4Q	1Q-3Q	
Build 13 Integration and Test							3Q-4Q	1Q-3Q
Build 14 Development and Test								3Q-4Q

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&BA-4**	PROGRAM ELEMENT 0603502N, Surface & Shallow Water MCM				PROJECT NUMBER AND NAME 1233, Mine Counter Measures Mid-Life Upgrades			
Schedule Profile: MUW C4ISR		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
MUW Information System Engineering Effort		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
MUW C4ISR Architecture:								
Rev 1 Architecture		1Q-4Q						
Rev 2 Architecture			1Q-4Q	1Q-4Q				
Rev 3 Architecture					1Q-4Q	1Q-4Q		
Rev 4 Architecture							1Q-4Q	1Q-4Q
MUW C4ISR Assessment		1Q-4Q	1Q-4Q					
MUW C4ISR Dynamic Assessment				1Q-4Q	1Q-4Q			
MUW Network Centric Warfare Database:								
Implementation Ph I		1Q-4Q						
Implementation Ph II				1Q-4Q				
Database Maintenance/Update/Redesign				1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
MUW Network Centric Warfare Info System Network				1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
MCM/MHC LAN Integration		1Q-4Q	1Q-4Q					
MEDAL/TEDS Integration		1Q-2Q						

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM					PROJECT NUMBER AND NAME 2131, Assault Breaching Systems					
COST ($ in Millions)	Prior Years Cost		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost	**182.981**		**4.580**	**2.967**	**17.277**	**29.273**	**37.599**	**28.813**	**28.841**	**Continuing**	**Continuing**
RDT&E Articles Qty											**0**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This program provides for a combination of joint US Marine Corps and US Navy projects planned to counter the threat to amphibious landing forces from known and projected foreign land/sea mines and obstacles in the beach zone and surf zone approaches to amphibious assault areas. It develops a system of systems (Countermine/Counter Obstacle, Intelligence/Surveillance/Reconnaissance/Targeting (ISR/T), Navigation/Virtual Marking/Integration, C4I/Data Fusion) to provide a full assault breaching capability . Funding in Fiscal Year 2004 is a Congressional Plus-Up for Venom Penetrator.

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603502N, Surface and Shallow Water MCM	2131, Assault Breaching Systems

(U) B. Accomplishments/Planned Program

Product Development		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.550	0.651	10.521
RDT&E Articles Quantity				

Product Development:

Primary Hardware Development $11.722: ISR/Targeting Development ($5.500 FY05). Government Furnished Equipment (GFE): Mine Threat Procurement for Development ($0.550 FY03, $ 1.000 FY05), Nav System/marking development ($2.500 FY05). Far term technology maturity ($1.521 FY05); Venom Penetrator ($0.651 FY04).

* FY04 funding in 0603782N.

Support		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.992	1.595	2.075
RDT&E Articles Quantity				

Support:

Development Support Equipment $0.825: Tactical Decision Aid Development ($0.825 FY05)

Studies and Analysis $3.837: ABS Mission Area Analysis (MAA) ($0.375 FY03). Modeling and Simulation in support of Far-Term Development ($0.387 FY03, $0.250 FY05). Mine Migration Studies in support of requirements development ($0.230 FY03, $0.200 FY05). Mine Vulnerability Studies ($0.200 FY05). C4I/Data Fusion ($0.200 FY05), ABS Scalability study ($0.400 FY05); Venon Penetrator ($1.595 FY04).

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603502N, Surface and Shallow Water MCM	2131, Assault Breaching Systems

(U) B. Accomplishments/Planned Program

Test and Evaluation		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		1.370	0.159	0.010
RDT&E Articles Quantity				

Test and Evaluation:

Developmental Test and Evaluation, $1.539: Tests/studies in support of requirements development include: lane width study, mine burial/migration, mine burial effects, mine vulnerability ($0.736 FY03). Navigation Operational Test Support ($0.010 FY05). Lethality test matrix ($0.634 FY03); Venom Penetrator ($0.159 FY04).

Management		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		1.668	0.562	4.671
RDT&E Articles Quantity				

Management:

Program Management Support, $2.640: ($0.085 FY03, $0.211 FY04, $2.344 FY05)

Contractor Engineering Support, $.932: In-house contractor support (Vredenberg and Northrop Grumman) ($0.410 FY03, $0.522 FY05)

Government Engineering Support, $3.329: Technical Direction Agent/Design Agent (TDA/DA) Engineering Support of Mission Area Analysis, Analysis of Alternatives, Milestone B preparation, contract and acquisition documentation, Requirements Generation - Initial Capabilities Document (ICD), Capability Development Documents (CDO), Capability Production Documents (CPD), Analysis of Material approvals and Functional needs analysis/functional solutions analysis, Mine magazine inventory management and shipping, contract management and tests/studies. ($1.173 FY03, $1.805 FY05); Venom Penetrator ($0.351 FY04)
.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603502N, Surface and Shallow Water MCM	2131, Assault Breaching Systems

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
FY04 President's Budget:	0.662	0.000	17.620
FY05 President's Budget:	4.580	2.967	17.277
Total Adjustments	3.918	2.967	-0.343
Summary of Adjustments			
FY03 SBIR	-0.110		
Congressional Plus-Up Venon Penetrator		3.000	
Misc Adjustments	4.028	-0.033	-0.343
Subtotal	3.918	2.967	-0.343

(U) Schedule:

Not Applicable

(U) Technical:

Not Applicable

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603502N, Surface and Shallow Water MCM	2131, Assault Breaching Systems

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
BLI 2624000 Shallow Water MCM			0	2.294	2.255				
0603782N Shallow Water MCM Demos		12.0*							

*$12M is ABS specific. Funding exists across the FYDP in this PE for other mine warfare efforts.

(U) E. ACQUISITION STRATEGY:

The FY03, FY04 and FY05 ICD and CDD tasks specifically complete the requirements generation process for the overarching mission area of Amphibious Operations in a Mined Environment leading to a MS B decision during FY06. The MAA will provide the foundation for the "system of systems ICD/CDD required for Amphibious Operations in a Mined Environment. The FY03, FY04 and FY05 tasks will also allow the Navy to demonstrate the viability of concepts for Far Term System of Systems capabilities and justify the need for future funding. The FY03 and FY04 funding is crucial to maintaining a pool of experienced ABS team members at the government labs and industry and for the program to maintain its inventory of threat mines that will be required for future mine lethality and vulnerability tests. The FY03, FY04 and FY05 tasks will develop ISR/Targeting systems and Navigation systems to support the Assault Breaching Mission.

(U) F. MAJOR PERFORMERS:

- NSWC, IH: Provide system engineering and test and evaluation support.
- NSWC, CSS: Provide Technical Direction Agent , systems engineering and test and evaluation support.
- TBD: Far Term ABS System contractor

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603502N, Surface and Shallow Water MCM			PROJECT NUMBER AND NAME 2131, Assault Breaching Systems						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	IH, CSS, TBD	54.554			0.651	11/03	9.521	11/04	Continuing	Continuing	N/A
Ancillary Hardware Development	WR	IH, CSS, TBD	8.100							Continuing	Continuing	N/A
Aircraft Integration											0.000	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering	WR	IH, CSS	16.233							Continuing	Continuing	N/A
Training Development	WR	IH, CSS	2.000								2.000	N/A
Licenses	WR	N/A	0.800								0.800	N/A
Tooling	WR	IH, CSS, TBD	0.860								0.860	N/A
GFE	WR	IH, CSS	3.650	0.550	06/03			1.000	11/04	Continuing	Continuing	N/A
Award Fees	N/A	N/A	0.500								0.500	N/A
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			86.697	0.550		0.651		10.521		0.000	98.419	

Remarks:

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-??**		PROGRAM ELEMENT 0603502N, Surface and Shallow Water MCM			PROJECT NUMBER AND NAME 2131, Assault Breaching Systems							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equipment	WR	IH, CSS, TBD	11.721					0.825	11/04	Continuing	Continuing	N/A
Software Development	WR	CSS	8.037								8.037	N/A
Integrated Logistics Support	WR	IH, CSS	2.712								2.712	N/A
Configuration Management	WR	IH, CSS	3.744								3.744	N/A
Technical Data	WR	IH, CSS	2.588								2.588	N/A
Studies & Analysis	WR	IH,CSS		0.992	01/03	1.595	11/03	1.250	11/04	Continuing	Continuing	
GFE	WR	IH, CSS	0.400								0.400	N/A
Award Fees											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			29.202	0.992		1.595		2.075		0.000	33.864	

Remarks:

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

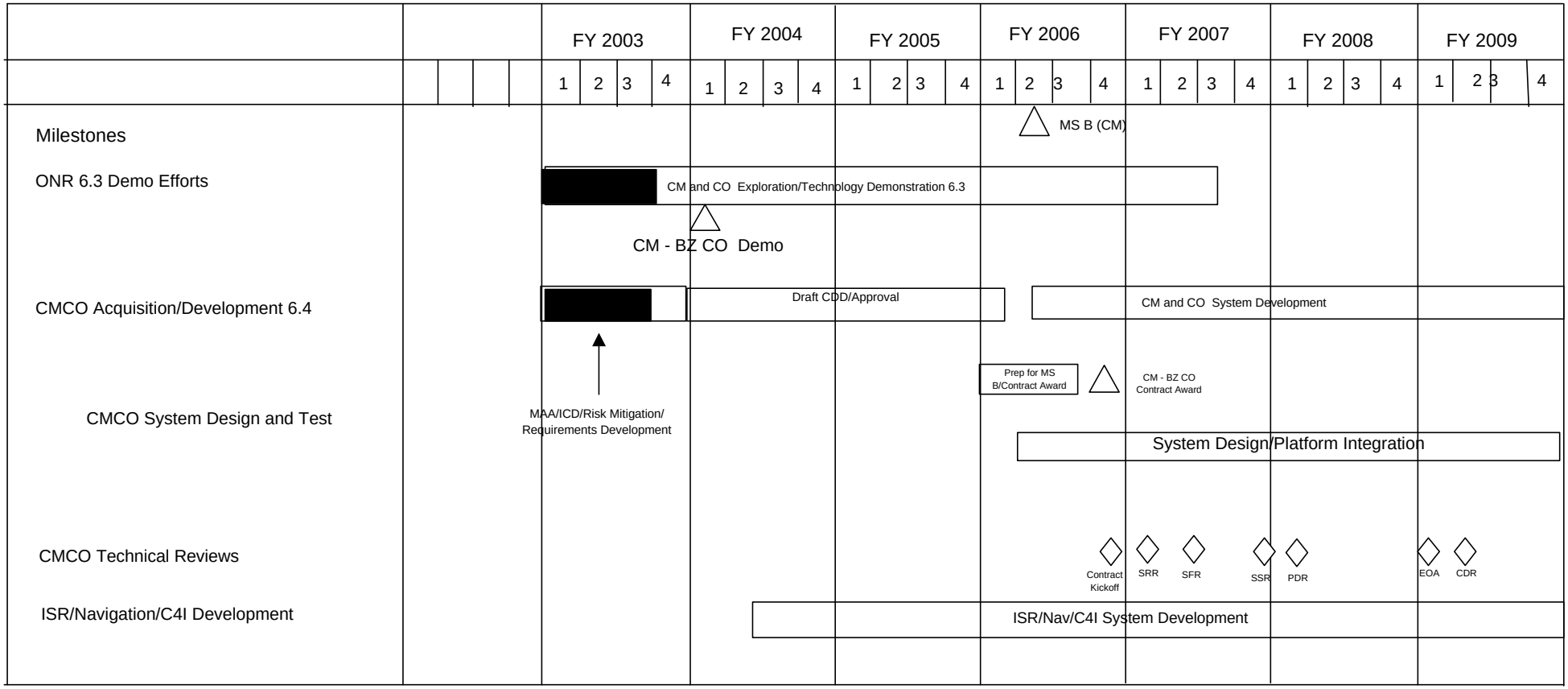
Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603502N, Surface and Shallow Water MCM			PROJECT NUMBER AND NAME 2131, Assault Breaching Systems						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR, PD	IH, CSS, ONR, TBD	24.893	1.370	01/03	0.159	11/03	0.010	11/04	Continuing	Continuing	N/A
Operational Test & Evaluation	WR	IH, CSS, TBD	8.655								8.655	N/A
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling	WR	IH, CSS, TBD	0.700								0.700	N/A
GFE	WR	IH, CSS, TBD	0.400								0.400	N/A
Award Fees											0.000	
Subtotal T&E			34.648	1.370		0.159		0.010			36.187	
Remarks:												
Contractor Engineering Support	CPFF	Vredenburg, Northrup Grumn	2.679	0.410	1/03			0.522	11/04	Continuing	Continuing	N/A
Government Engineering Support	WR	IH, CSS	17.564	1.173	11/02	0.351	11/03	1.805	11/04	Continuing	Continuing	N/A
Program Management Support	WR	IH, CSS, NAVSEA	11.281	0.045		0.211	11/03	2.269	11/04	Continuing	Continuing	N/A
Travel	PD	NAVSEA	0.837	0.040	11/02			0.075	11/04	Continuing	Continuing	N/A
Transportation											0.000	
SBIR Assessment	Various	Various	0.073								0.073	N/A
Subtotal Management			32.434	1.668		0.562		4.671			39.335	
Remarks:												
Total Cost			182.981	4.580		2.967		17.277		0.000	207.805	
Remarks:												

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

EXHIBIT R-4, Schedule Profile		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**	PROGRAM ELEMENT NAME AND NUMBER 0603502N, Surface & Shallow Water MCM	PROJECT NAME AND NUMBER 2131, Assault Breaching Systems

ABS PROGRAM SCHEDULE



R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&BA-4**	PROGRAM ELEMENT Program Element (PE) No. and Name				PROJECT NUMBER AND NAME 2131, Assault Breaching Systems			
Schedule Profile: ABS		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
CM and CO Exploration/Technology Demonstration 6.3(ONR)		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-3Q		
CM-BZ CO Demo			1Q					
MAA/MNS/Risk Mitigation/Requirements Devel.		1Q-4Q						
Draft CDD/Approval			1Q-4Q	1Q-4Q	1Q			
MS B (CM-BZ CO)					2Q			
Prep for MS B/Contract Award					1Q-3Q			
CM and CO System Development					2Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
CM- BZ CO Contract Award					4Q			
System Design/Platform integration					2Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Technical Reviews:								
Contract Kickoff					4Q			
SRR - System requirements Review						1Q		
SFR- System Functional Review						3Q		
SSR - System Software Review						4Q		
PDR - Preliminary Design Review							1Q	
EOA - Early Operational Assessment								1Q
CDR- Critical Design Review								2Q
ISR/NAV/C4I Development			2Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME Surface & Shallow Water MCM, 0603502N					PROJECT NUMBER AND NAME Unmanned Undersea Vehicle Q2094/Q2852					
COST ($ in Millions)	Prior Years Cost	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009		Cost to Complete	Total Program
Project Cost	**168.982**	**69.185**	**80.537**	**65.580**	**55.566**	**47.654**	**47.870**	**57.673**		**Continuing**	**Continuing**
RDT&E Articles Qty				**1**							**1**

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project was completely restructured in FY 1994 in response to Congressional direction provided in the FY 1994 DOD Appropriations Act. Specifically, the office of the Secretary of Defense and the Navy were directed to (1) establish priorities among various proposed UUV programs, (2) focus on near-term mine countermeasures issues, and (3) establish affordable, cost-effective programs. The Navy developed an overall UUV Program Plan, which was approved by ASN(RD&A) June 1994, endorsed by USD(A&T) and forwarded to Congress to support FY 1995 budget deliberations. The UUV Program Plan has been ratified in succeeding revisions, the most recent being April 2000.

The UUV Program Plan establishes a clandestine, mine reconnaissance capability as the Navy's top UUV priority; the conduct of surveillance, intelligence and tactical oceanography missions as priority two; and exploring advanced UUV designs for the future as priority three.

The UUV project funds development of the UUV Program Plan. The AN/BLQ-11 Long-Term Mine Reconnaissance System (LMRS) is being developed to provide a robust, long-term Fleet capability to conduct clandestine minefield reconnaissance. A quantity of 10 LMRSs will be procured in the FYDP begining in FY05. The LMRS Inventory Objective is 12. The Navy's second priority is the conduct of surveillance, intelligence and tactical oceanography. To meet this requirement the Navy will develop a Mission Reconfigurable UUV (MRUUV) system that is capable of performing different missions. It is envisioned that this system will adapt elements of the LMRS design to develop a more modular UUV capable of accomodating multiple payload sensors appropriate to meet various mission requirements. ONR will develop technologies for payload sensors and increased autonomy under the Autonomous Operations Future Naval Capability (FNC) programs to support risk mitigation for the MRUUV program. Technologies from these systems will transition to MRUUV during the FNC demonstration year. Technology Transition agreements between the Program office and ONR have been signed. An AOA for the Large Displacement (LD) MRUUV commenced in FY03 and will complete in second quarter FY04.

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	**Surface & Shallow Water MCM, 0603502N**	**Unmanned Undersea Vehicle Q2094/Q2852**

(U) B. Accomplishments/Planned Program

LMRS	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	32.100	30.139	11.467	
RDT&E Articles Quantity	0	0	1	

Continued development phase and fabrication of prototype LMRS system, prototype testing and conduct TECHEVAL/OPEVAL.

MRUUV	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	15.135	25.400	43.413	
RDT&E Articles Quantity	0	0	0	

Awarded contract, to Lockheed Martin Perry LABs, and initiated development of an Advanced Development Unmanned Undersea Vehicle (ADUUV). The ADUUV contract has a priced option for 21" MRUUV development which will be exercised during FY2004.

LMRS P3I	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	21.950	24.998	10.700	
RDT&E Articles Quantity	0	0	0	

UUV P3I Engineering Studies, technology integration, and transition of improved capability into UUV design.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	**Surface & Shallow Water MCM, 060325N**	**Unmanned Undersea Vehicle Q2094/ Q2852**

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
FY04 President's Controls:	74.425	81.457	65.956
FY05 President's Controls:	69.185	80.537	65.580
Total Adjustments	-5.240	-0.920	-0.376
Summary of Adjustments			
FY03 SBIR	-1.450		
MISC Adjustments	-0.190	-0.920	-0.376
Sponsor Reprogram	-3.600		
Subtotal	-5.240	-0.920	-0.376

(U) Schedule:
Not Applicable

(U) Technical:
Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	**Surface & Shallow Water MCM, 0603502N**	Unmanned Undersea Vehicle Q2094/Q2852

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
OPN PE 020481N; Line Item 217100	0.000	0.000	61.253	49.006	63.280	63.531	64.369	Continuing	Continuing

(U) E. ACQUISITION STRATEGY: *

The LMRS acquisition strategy is structured to maximize competition during system development. In FY97 three one year contracts were awarded for development of preliminary design. In early FY98, two of the preliminary design contrctors were selected to continue development through a critical design review. Selection of these two contractors was based primarily on the contractor's performance during the preliminary design contract. In early FY00, Boeing was selected to complete the LMRS design, fabricate a prototype system and support in-water testing. Procurement of the LMRS will be sole source to Boeing. A competitive procurement is not cost effective due to the limited number of systems planned for procurement. PBD 130C added $40M to FY03 to accelerate the development of more advanced UUVs. Funding was used to accelerate the development of Synthetic Aperture Sonar (SAS), LMRS Precision Underwater Mapping (L-PUMA), and Mission Reconfigurable UUV (MRUUV) to address multiple missions. The MRUUV project completed a requirements analysis, acquisition planning and specification development in FY03. A contract was awarded to Lockheed Martin in May 2003 to develop an Advanced Development Unmanned Undersea Vehicle (ADUUV) to reduce technical risk for the MRUUV. The ADUUV contract includes a priced option for the development of the 21" MRUUV which will be exercised following Milestone B, which is expected early 2004.

(U) F. MAJOR PERFORMERS: **

Boeing - Anaheim, CA - Design and fabrication of prototype LMRS.
Lockheed Martin - West Palm Beach, FL - Design and fabrication of prototype MRUUV.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT Surface & Shallow Water MCM, 0603502N			PROJECT NUMBER AND NAME Unmanned Undersea Vehicle Q2094/Q2852							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
LMRS	CPAF/IF	Boeing	73.679	13.170	N/A	8.129	N/A	0.842	N/A	Continuing	Continuing	95.820
Fees			5.939	3.614	N/A	2.210	N/A	0.000	N/A	Continuing	Continuing	
LMRS	Various	Various	40.611	4.922	N/A	10.970	N/A	6.225	N/A	Continuing	Continuing	
MRUUV	CPIF	Lockheed Martin	0.000	6.750	05/03	16.226	N/A	29.322	N/A	Continuing	Continuing	
MRUUV	Various	Various	2.100	8.385	N/A	9.174	N/A	14.091	N/A	Continuing	Continuing	
UUV P31	Various	Various	9.153	21.950	N/A	24.998	N/A	10.700	N/A	Continuing	Continuing	
UUV Test center	Various	Various	7.502	0.000	N/A	0.000	N/A	0.000	N/A	N/A	Continuing	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			138.984	58.791		71.707		61.180		0.000	330.662	
Remarks:												
Development Support											0.000	
Software Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
Studies & Analyses											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT Surface & Shallow Water MCM, 0603502N			PROJECT NUMBER AND NAME Unmanned Undersea Vehicle Q2094/Q2852						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various	Various	0.340	2.391	N/A	1.592	N/A	0.000	N/A	0.000	4.323	N/A
Operational Test & Evaluation	WR	Various	0.000	0.000	N/A	1.120	N/A	0.000	N/A	0.000	1.120	N/A
GFE/GFI	Various	Various	0.644	0.000	N/A	0.000	N/A	0.000	N/A	Continuing	Continuing	N/A
TTLRF	WR	Various	4.476	1.806	N/A	0.799	N/A	0.000	N/A	Continuing	Continuing	N/A
											0.000	
											0.000	
Award Fees											0.000	
Subtotal T&E			5.460	4.197		3.511		0.000		0.000	13.168	
Remarks:												
Contractor Engineering Support			4.204	0.820	N/A	1.000	N/A	1.000	N/A	Continuing	Continuing	
Government Engineering Support			16.030	4.477	N/A	3.419	N/A	2.620	N/A	Continuing	Continuing	
Program Management Support			4.304	0.900	N/A	0.900	N/A	0.780	N/A	Continuing	Continuing	
											0.000	
											0.000	
Subtotal Management			24.538	6.197		5.319		4.400		Continuing	Continuing	
Remarks:												
Total Cost			168.982	69.185		80.537		65.580		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 36

VIRGINIA CLASS FOT&E

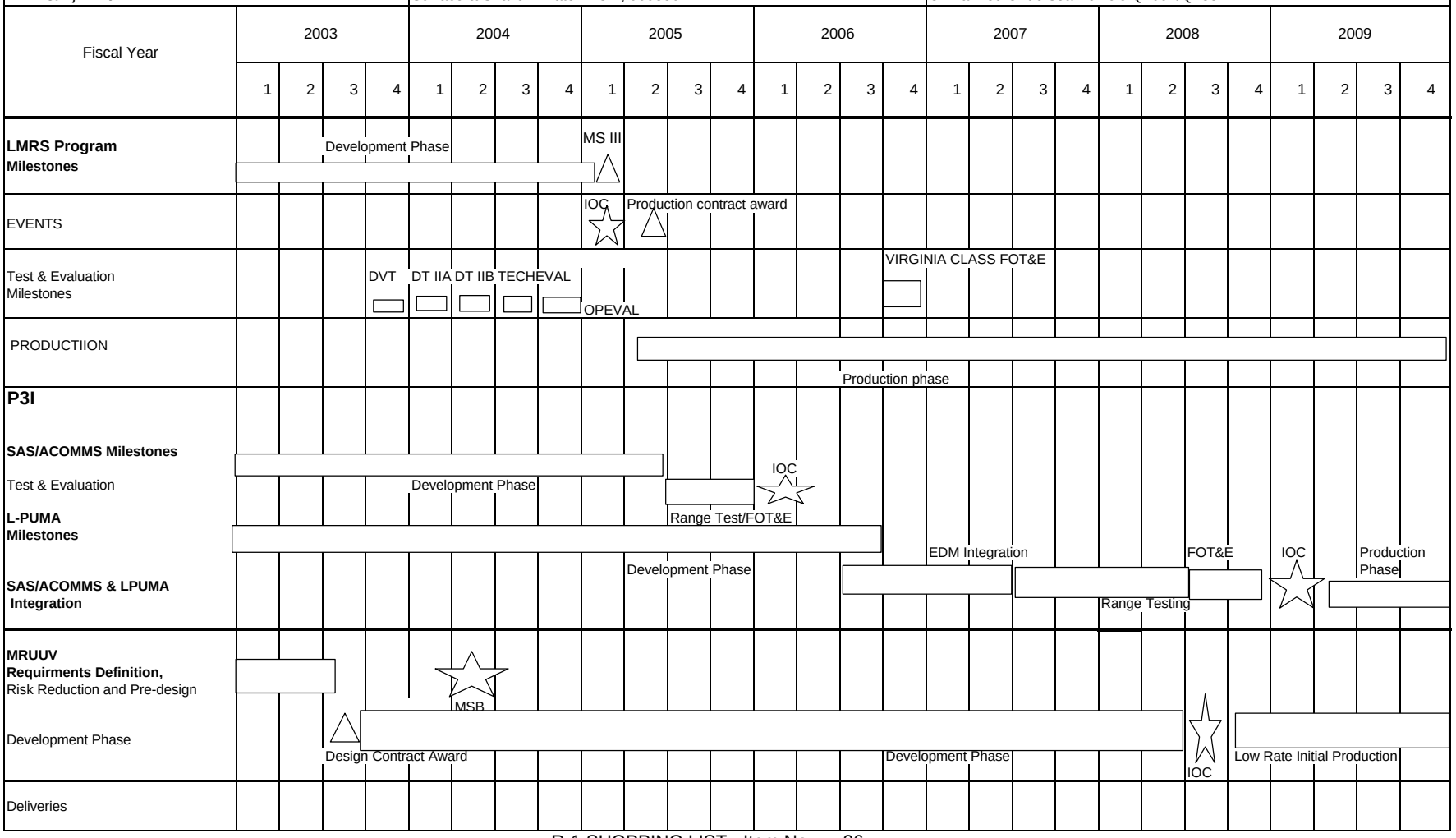
CLASSIFICATION:

EXHIBIT R4, Schedule Profile — DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N /**

PROGRAM ELEMENT NUMBER AND NAME: Surface & Shallow Water MCM, 0603502N

PROJECT NUMBER AND NAME: Unmanned Undersea Vehicle Q2094/Q2852



R-1 SHOPPING LIST - Item No. 36

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&BA-4**	PROGRAM ELEMENT Surface & Shallow Water MCM, 0603502N				PROJECT NUMBER AND NAME Unmanned Undersea Vehicle Q2094/Q2852			
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	
LMRS								
Milestone III			1Q					
IOC			1Q					
Production Contract			2Q					
DVT	4Q							
DT II A		1Q						
DTII B		2Q						
TECHEVAL		3Q						
OPEVAL		4Q						
LMRS P3I								
SAS|ACOMMS								
FOT&E			3Q-4Q					
IOC				1Q				
LPUMA								
FOT&E						3Q-4Q		
IOC							1Q	
MRUUV								
21" Design Contract Award	3Q							
21" MSB		2Q						
21"MRUUV IOC						2Q		
Low Rate Initial Production Contract						2Q		
Large Displacement (LD) MRUUV AOA		2Q						

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification									DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM					PROJECT NUMBER AND NAME 4025, Expendable Mine Neutralization System					
COST ($ in Millions)	Prior Years Cost		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost	**0.000**		**0.000**	**0.000**	**2.177**	**11.443**	**0.000**	**0.000**	**0.000**	**0.000**	**13.620**
RDT&E Articles Qty						**1**					**1**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Expendable Mine Neutralization System (EMNS) is a replacement to the existing AN/SLQ-48 Mine Neutralization System (MNS). The current program replaces the MNS with EMNS on the 14 MCM Avenger Class Ships. EMNS will leverage off of on-going efforts in the Aviation Mine Countermeasures Program (NAVSEA PEO LMW PMS210) to develop an Airborne Mine Neutralization System (AMNS).

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603502N, Surface and Shallow Water MCM	4025, Expendable Mine Neutralization System

(U) B. Accomplishments/Planned Program

Product Development		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	0.000	1.677
RDT&E Articles Quantity				

Product Development:
Award Development Contract for Expendable Mine Neutralization System (EMNS) developer. Initiate hardware/software design and development. Conduct preliminary design.

Support		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	0.000	0.300
RDT&E Articles Quantity				

Support:
Develop interactive electronic technical manual; Modify software for use on an MCM class ship.

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603502N, Surface and Shallow Water MCM	4025, Expendable Mine Neutralization System

(U) B. Accomplishments/Planned Program

Test and Evaluation		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	0.000	0.000
RDT&E Articles Quantity				

Test and Evaluation:
N/A

Management		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	0.000	0.200
RDT&E Articles Quantity				

Management:
Provide program management support and travel for EMNS.

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603502N, Surface and Shallow Water MCM	4025, Expendable Mine Neutralization System

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
FY04 President's Controls:	0.000	0.000	0.000
FY05 President's Controls:	0.000	0.000	2.177
Total Adjustments	0.000	0.000	2.177
Summary of Adjustments			
Initiation of EMNS			2.177
Subtotal	0.000	0.000	2.177

(U) Schedule:

Not Applicable

(U) Technical:

Not Applicable

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603502N, Surface and Shallow Water MCM	4025, Expendable Mine Neutralization System

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
Line 262200, OPN									
EMNS	0	0	0	0	13905	10603	10322	18977	53807
Total	0	0	0	0	13905	10603	10322	18977	53807

(U) E. ACQUISITION STRATEGY:

The Aviation Mine Countermeasures Program (NAVSEA PEO LMW PMS 210) is developing two Airborne Mine Neutralization variants for the H-53 heliocopters. Based on Surface Ship requirements one of these two variants will be selected for use on the MCM Avenger Class Ships. The acquisition strategy will be to either compete between the two alternatives, or select the one that best meets fleet needs.

(U) F. MAJOR PERFORMERS:

The Technical Design Agent will be NSWC, Costal Systems Station, Panama City.
The installation of the new system will be performed by Puget Sound.

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603502N, Surface and Shallow Water MCM				PROJECT NUMBER AND NAME 4025, Expendable Mine Neutralization System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Hardware Development & Integration	CPIF	TBD	0.000	0.000		0.000		0.500	11/04	Continuing	Continuing	N/A
Hardware Development & Integration	WR	NSWC, CSS	0.000	0.000		0.000		0.200	10/04	Continuing	Continuing	N/A
Systems Engineering	CPIF	TBD	0.000	0.000		0.000		0.250	11/04	Continuing	Continuing	N/A
Systems Engineering	WR	NSWC, CSS	0.000	0.000		0.000		0.727	10/04	Continuing	Continuing	N/A
											0.000	N/A
											0.000	N/A
											0.000	N/A
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			0.000	0.000		0.000		1.677		0.000	1.677	

Remarks:

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603502N, Surface and Shallow Water MCM			PROJECT NUMBER AND NAME 4025, Expendable Mine Neutralization System							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software Development	CPIF	TBD	0.000	0.000		0.000		0.250	11/04	Continuing	Continuing	N/A
Software Development	WR	NSWC, CSS	0.000	0.000		0.000		0.050	10/04	Continuing	Continuing	N/A
											0.000	N/A
											0.000	N/A
											0.000	N/A
											0.000	N/A
											0.000	N/A
											0.000	N/A
											0.000	N/A
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			0.000	0.000		0.000		0.300		0.000	0.300	

Remarks:

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

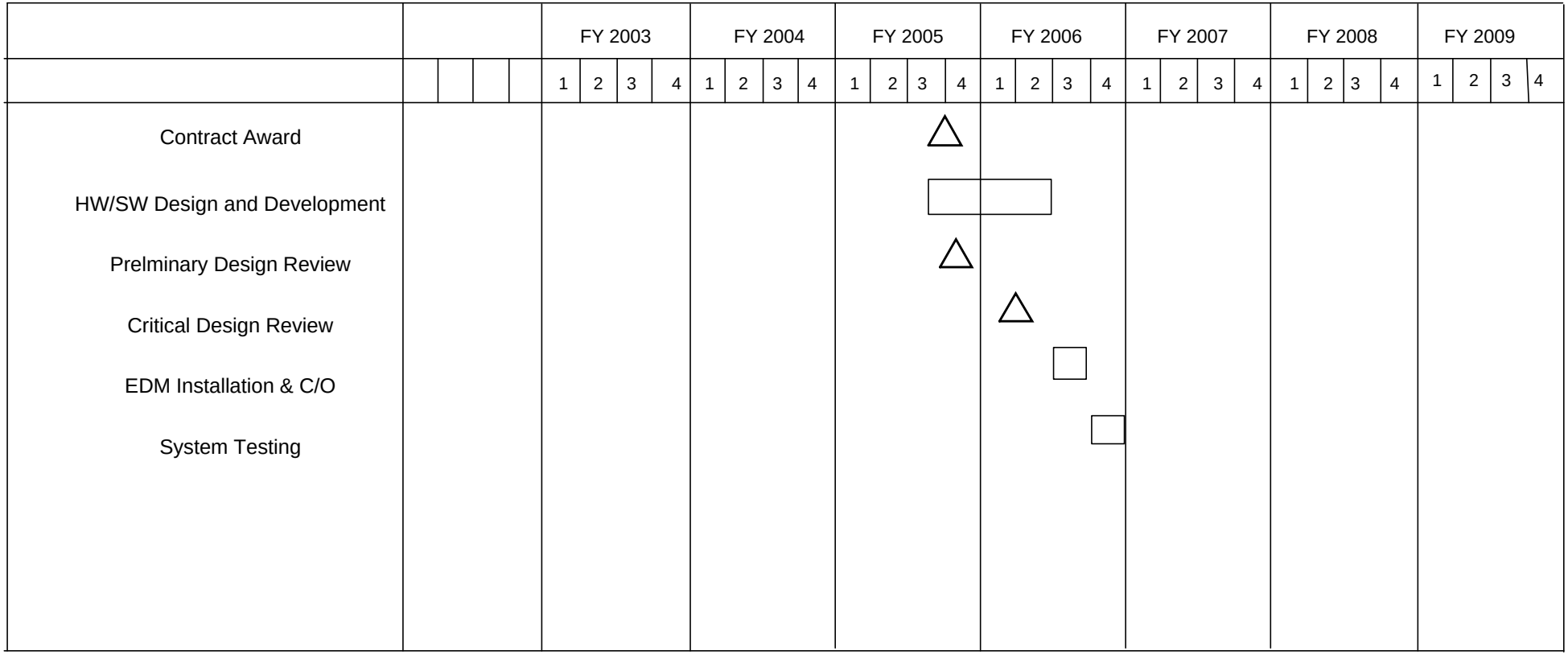
Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603502N, Surface and Shallow Water MCM			PROJECT NUMBER AND NAME 4025, Expendable Mine Neutralization System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
											0.000	N/A
											0.000	N/A
											0.000	N/A
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Program Mangement Support	CPFF	Vredenburg	0.000	0.000		0.000		0.150	10/04	Continuing	Continuing	N/A
Travel	Various	NAVSEA	0.000	0.000		0.000		0.050	10/04	Continuing	Continuing	N/A
											0.000	N/A
											0.000	N/A
											0.000	N/A
											0.000	
Subtotal Management			0.000	0.000		0.000		0.200		0.000	0.200	
Remarks:												
Total Cost			0.000	0.000		0.000		2.177		0.000	2.177	
Remarks:												

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

EXHIBIT R-4, Schedule Profile		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E, N/BA-4	0603502N, Surface & Shallow Water MCM	4025, Expendable Mine Neutralization System

EMNS PROGRAM SCHEDULE



R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT& BA-4**	PROGRAM ELEMENT 0603502N, Surface & Shallow Water MCM				PROJECT NUMBER AND NAME 4025, Expendable Mine Neutralization System			
Schedule Profile: EMNS		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Contract Aaward				3Q				
HW/SW Design & Development				3Q - 4Q	1Q - 2Q			
Preliminary Design Review				3Q				
Critical Design Review					1 Q			
EDM Installation & C/O					3Q			
System Testing					4 Q			

R-1 SHOPPING LIST - Item No. 36

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME **SURFACE SHIP TORPEDO DEFENSE / 0603506N**				PROJECT NUMBER AND NAME Surface Ship Torpedo Defense 0225/2854		
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost	**13.929**	**44.891**	**46.896**	**47.475**	**39.617**	**27.658**	**12.653**
Tripwire Torpedo Defense 2854	**9.710**	**2.521**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Surface Ship Torpedo Defense 0225	**4.219**	**42.370**	**46.896**	**47.475**	**39.617**	**27.658**	**12.653**

Defense Emergency Response Funds (DERF) Funds: Not Applicable

A. Mission Description and Budget Line Justification: Project 0225/2854 develops Tripwire AN/WSQ-11 Torpedo Defense System (TDS) which will provide the Tripwire towed sensors and processors to detect threat torpedo and provide launch orders for associated Anti-Torpedo Torpedo (ATT) All-Up-Round (AUR) countermeasure. The AN/WSQ-11 TDS will incorporate the functionality of the AN/SLQ-25A (NIXIE) Towed Torpedo Countermeasure. The AN/WSQ-11 is planned for installation on large deck ships, i.e. CVN, amphibious (LHA, LHD, LPD, LSD, AGF, LCC)/Combatant Logistic Forces (AOE), and selected DDG-51 Class ships without towed array. The AN/WSQ-11 is planned for fleet introduction in FY11 with a Block II (simple salvo) capability. A complex salvo Block III capability is planned for FY13 fleet introduction. The AN/WSQ-11 TDS is closely linked with the ONR FNC program (Platform Protection and Littoral ASW) which provides advance technology inserts at key transition points in the AN/WSQ-11 schedule

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	Surface Ship Torpedo Defense, 0603506N	Surface Ship Torpedo Defense 0225/2854

B. Accomplishments/Planned Program

	FY 03 (F0225)	FY 04 (F0225)	FY 05 (F0225)
Accomplishments/Effort/Subtotal Cost	4.219	42.370	46.896
RDT&E Articles Quantity			

AN/WSQ-11 SYSTEM
FY03 - Continue AN/WSQ-11 component Advanced Development, Simulation and Modeling, and prototype component in water trials.
FY04 - Award two Industry contracts for conduct of Tripwire DCL DEMO; Initiate ARL PSU development of ATT ADM
FY05 - Conduct DCL DEMO trials; Continue ATT ADM development and initial in water trials.
FY06 - Conduct final DCL DEMO and continue ATT ADM in-water trials; Award post MS B competitive contract for AN/WSQ-11 development.

ANTI-TORPEDO TORPEDO (ATT)
FY04 - Continue ATT Component Testing; Initiate fabrication of ATT ADM units.
FY05 - Continue fabrication of ADM ATT AURs; Conduct first In-water testing of ADM units. (CT-1)
FY06 - Continue in water testing (CT2 and CT3) ADM units and initiate post MS B EDM development.

TRIPWIRE
FY04 - Initiate build of DCL DEMO prototypes by selected industry companies.
FY05 - Conduct initial in water trials of competing DEMO developments (Trials 1 &2)
FY06 - Conduct competitive DEMO sea trial; Initiate post MS B EDM development.

	FY 03 (F2854)	FY 04 (F2854)	FY 05 (F2854)
Accomplishments/Effort/Subtotal Cost	9.710	2.521	0.000
RDT&E Articles Quantity			

FY03-Continue Development of ATT components. Continue development of AN/SLQ-25A enhanced EC16 and Littoral Cables for Surface Combatants .
FY04-Complete development of AN/SLQ-25A of enhanced EC16 and littoral cable.

R-1 SHOPPING LIST - Item No. 37

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	Surface Ship Torpedo Defense, 0603506N	Surface Ship Torpedo Defense 0225/2854

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
FY 2004 President's Budget:	14.321	48.347	53.730
Current BES/ President's Budget: (FY05 Pres Controls)	13.929	44.891	46.896
Total Adjustments	-0.392	-3.456	-6.834
Summary of Adjustments			
Miscellaneous Adjustments	-0.392	-3.456	-0.334
Programmatic Adjustment	0.000	0.000	-6.500
Subtotal	-0.392	-3.456	-13.334

Schedule:

See Milestone Chart

Technical:

Not Applicable

R-1 SHOPPING LIST - Item No. 37

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME Surface Ship Torpedo Defense, 0603506N	PROJECT NUMBER AND NAME Surface Ship Torpedo Defense 0225/2854

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
OPN BLI: 221300									
Surface Ship Torpedo Defense - SSTD	0.000	13.725	22.273	28.411	8.406	0.281	4.467	CONT.	CONT.
WPN BLI: 311300									
Surface Ship Torpedo Defense - SSTD	0.000	0.000	0.000	3.970	5.811	5.928	8.297	CONT.	CONT.

E. ACQUISITION STRATEGY:

The project develops Surface Ship Torpedo Defense (SSTD) capabilities using an evolutionary acquisition incremental development approach. The existing AN/SLQ-25A NIXIE is upgraded through ECP's performed by the Original Equipment Manufacture (OEM). ATT development will be executed by ARL/PSU for prelimary design and ADM development. AN/WSQ-11 System continued development and integration of the Tripwire and ATT subsystems will be competitively awarded to a single prime contractor in FY06 following Milestone B.

F. MAJOR PERFORMERS:

See attached R3

R-1 SHOPPING LIST - Item No. 37

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2004				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT Surface Ship Torpedo Defense, 0603506N				PROJECT NUMBER AND NAME Surface Ship Torpedo Defense 0225/2854								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Ancillary Hardware Development	CPFF	ST Productions, Farmingdale, NJ		2.610	01/03	1.300	02/04	0.000		0.000		CONT.	0.000	
Systems Engineering	WX	NUWC, Newport, RI		0.750	12/02	2.057	12/03	0.900	12/04	1.100	12/05	CONT.	0.000	
Systems Engineering	CPFF	PSU, State College, PA		7.819	12/02	19.271	02/04	19.646	12/04	6.410	12/05	CONT.	0.000	
Systems Engineering	CPFF	JHU, Baltimore , MD		0.081	12/02	0.440	12/03	0.200	12/04	0.300	12/05	CONT.	0.000	
Systems Engineering	WX	NSWC, Indian Head, MD		1.261	12/02	1.275	12/03	4.250	12/04	4.300	12/05	CONT.	0.000	
Systems Engineering	WX	NUWC/Keyport,WA		0.600	12/02	0.825	12/03	0.800	12/04	0.500	12/05	CONT.	0.000	
Systems Engineering	WX	FTSCLANT/Norfolk, VA		0.108	12/02	0.000	12/03	0.100	12/04	0.100	12/05	CONT.	0.000	
Systems Engineering DCL Demo	SBIR	AAC				7.500	02/04	9.900	12/04	2.600	12/05	0.000	20.000	40.000
Systems Engineering DCL Demo	BAA	Contractor TBD				7.500	04/04	9.900	12/04	2.600	12/05	0.000	20.000	
Systems Engineering WSQ-11	CPFF	Competitive Award Prime Contractor FY06		0.000		0.000		0.000		28.365	04/05	CONT.	0.000	
Subtotal Product Development			0.000	13.229		40.168		45.696		46.275		0.000	0.000	

Remarks:

R-1 SHOPPING LIST - Item No. 37

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT Surface Ship Torpedo Defense, 0603506N				PROJECT NUMBER AND NAME Surface Ship Torpedo Defense 0225/2854								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support													0.000	
Software Development													0.000	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
Technical Data													0.000	
Studies & Analyses													0.000	
Miscellaneous				0.000		3.973		0.400		0.400		CONT.	0.000	
Award Fees													0.000	
Subtotal Support			0.000	0.000		3.973		0.400		0.400		0.000	0.000	

R-1 SHOPPING LIST - Item No. 37

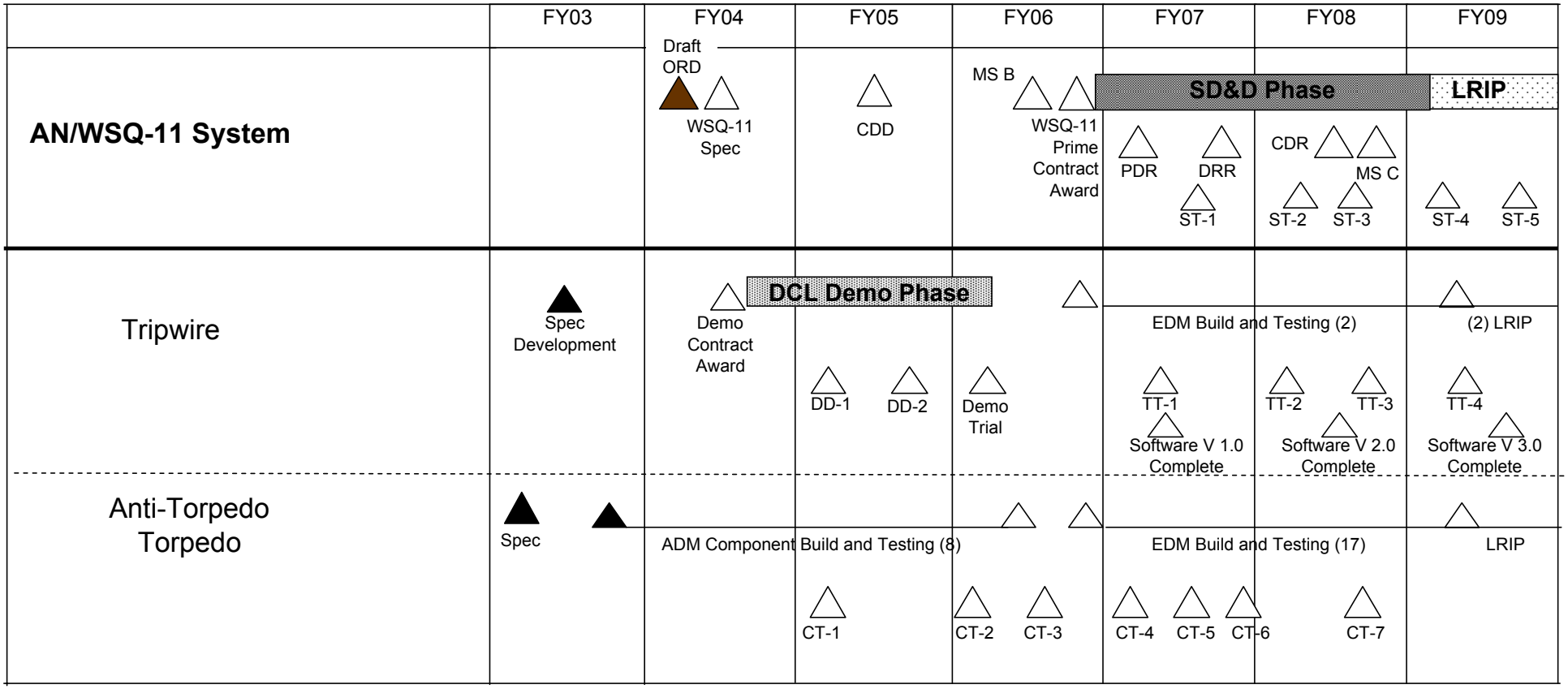
CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 3)								DATE: **February 2004**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT Surface Ship Torpedo Defense, 0603506N				PROJECT NUMBER AND NAME Surface Ship Torpedo Defense 0225/2854								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation													0.000	
Operational Test & Evaluation													0.000	
Live Fire Test & Evaluation													0.000	
Test Assets													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
Contractor Engineering Support													0.000	
Government Engineering Support													0.000	
Program Management Support	C/CPFF	EG&G Gaithersburg, Md		0.600	01/03	0.650	01/04	0.650	01/05	0.650	01/06	CONT.	0.000	
Travel		PMS 415		0.100	11/02	0.100	11/03	0.150	11/04	0.150	11/05	CONT.	0.000	
Transportation													0.000	
SBIR Assessment													0.000	
Subtotal Management			0.000	0.700		0.750		0.800		0.800		0.000	0.000	
Remarks:														
Total Cost			0.000	13.929		44.891		46.896		47.475		0.000	0.000	
Remarks:														

R-1 SHOPPING LIST - Item No. 37

CLASSIFICATION:

EXHIBIT R-4, SCHEDULE PROFILE (page 1)	DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**	R-1 ITEM NOMENCLATURE Surface Ship Torpedo Defense 0225/2854



R-1 SHOPPING LIST - Item No. 37

EXHIBIT R-2, RDT&E Budget Item Justification						DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-04**				R-1 ITEM NOMENCLATURE **0603512N - Carrier Systems Development**			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost	**88.360**	**156.603**	**157.479**	**132.210**	**79.999**	**287.609**	**369.674**
9181 - Advanced Battlestation/Decision Support System	**3.428**	**3.560**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9349 - Aviation Ship Integration Center	**0.000**	**9.691**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
2208 - CVN 21	**30.440**	**101.662**	**104.465**	**95.297**	**49.548**	**46.921**	**49.557**
4004 - EMALS	**44.679**	**38.660**	**51.094**	**35.083**	**28.634**	**47.318**	**2.539**
4005 - Smart Carrier	**1.942**	**1.860**	**1.843**	**1.830**	**1.817**	**1.804**	**1.799**
4006 - CVN 21 Follow Ship	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**191.566**	**315.779**
1723 - CV Launch and Recovery Systems	**7.871**	**1.170**	**0.077**	**0.000**	**0.000**	**0.000**	**0.000**

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This Navy unique program addresses all technology areas associated with Navy/Marine Corps aircraft operations aboard ships. The program includes:

- (U) (9181) - The Advanced Battlestation/Decision Support System (ABS/DSS) provides a low-risk decision support capability that has great potential for multiple Navy platforms and possible application for other services. Expected benefits include: improved situational awareness, reduced response time in a multiple threat environment, manpower reductions, and reductions in Total Ownership Costs (TOC).

- (U) (9349) -- The Aviation Ship Integration Center provides an environment that supports the development and conceptualization of fully integrated future aircraft carrier advanced technology design. The Center will be used to identify, test, and integrate potential design approaches and products for the CVN 21 Warfare System that are focused on reducing costs by increasing efficiencies in air capable shipbuilding programs. The Center will mitigate CVN 21 advanced technology design risk by enabling detection and resolution of potential problems early in the development cycle, thereby maximizing the Navy's return on its non-recurring design investment and enhancing transformational initiatives necessary to support the CVN 21 Warfare System.

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

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-04**	R-1 ITEM NOMENCLATURE **0603512N - Carrier Systems Development**

- (U) (4004) - Development of an advanced technology aircraft launch system in support of the CVN 21 Class design and construction schedule. The Electro Magnetic Aircraft Launch System (EMALS) will replace the current steam catapult on CVN 21 Class ships and will also be retrofit on existing CVNs. EMALS provides better control of applied forces, both peak and transient dynamic, improved reliability and maintainability, increased operational availability and reduced operator and maintainer workload.

- (U) (4005) - The Smart Carrier Demonstration and Validation program exploits available technologies to deliver an affordable, robust, operator-friendly automation control environment for Navy Aircraft Carrier shipboard equipment. The program provides the system architecture, requirements/specification development, technology selection, software development (including software baseline), as well as land-based and shipboard testing of new technologies to improve shipboard operations and to reduce workload, manpower requirements, and Total Ownership Costs (TOC).

- (U) (4006) - Development of aircraft carrier specific technologies, the infusion of the ship technology base into existing and future aircraft carriers and the potential realization of subsystem design capabilities not currently feasible. This project also funds the Contract Design efforts for the CVN 21 follow ship. .

- (U) (1723) -- Development of all systems required to provide approach and landing guidance and control, recovery, service, support and launch aircraft operating onto or from ships. Payoffs include increased safety, greater sortie generation rates, enhanced aircraft boarding rates, reduced manning, increased aircraft service life and fleet modernization.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-04**	**PE 0603512N - Carrier Systems Development**				PROJECT NUMBER AND NAME **PU 9181 - Advanced Battlestation/Decision Support System**		
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**3.428**	**3.560**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
RDT&E Articles Qty							

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Advanced Battlestation/Decision Support System (ABS/DSS) provides a low-risk decision support capability that has great potential for multiple Navy platforms, and possible application for other services. Expected benefits include: improved situational awareness, reduced response time in a multiple threat environment, manpower reductions, and reductions in Total Ownership Costs (TOC).

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-04	**PE 0603512N - Carrier Systems Development**	**PU 9181 - Advanced Battlestation/Decision Support System**

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	3.428	3.560	0.000
RDT&E Articles Quantity			

- (U) Advanced Battlestation/Decision Support System (ABS/DSS) FY03 accomplishments include the addition of new functionality in the baseline ABS/DSS system based on inputs from USS CARL VINSON (CVN-70) staff and USS ABRAHAM LINCOLN (CVN-72) DESRON staff. Technical accomplishments also include Combat System test and certification at the Integrated Combat System Test Facility (ICSTF), San Diego, CA and approval to install in CV-67 by NAVSEASYSCOM 062 and PEO Carriers. FY04 planned accomplishments include enhancing ABS/DSS capability based on Fleet operator feedback from multiple Fleet demonstrations. ABS/DSS will be fully integrated into the Aircraft Carrier Tactical Support Center (CV-TSC) and Integrated Warfare Commander Cell (IWCC). Fleet demonstrations/requirements working groups are planned for USS JOHN F. KENNEDY (CV-67) and USS ABRAHAM LINCOLN (CVN-72). Potential exercise participation includes RIMPAC '04 with CVN-74.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA 04	**PE 0603512N - Carrier Systems Development**	**PU 9181 - Advanced Battlestation/Decision Support System**

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:	3.521	0.000	0.000
FY05 President's Budget	3.428	3.560	0.000
Total Adjustments	-0.093	3.560	0.000
Summary of Adjustments			
SBIR	-0.093		
Congressional Add		3.600	
Congressional Undistributed Adjustments		-0.040	
	-0.093	3.560	0.000

Schedule:

FY03 Contract Award Q4FY03/Q1FY04; FY04 Contract Award Q3FY04.

Technical:

Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-04	**PE 0603512N - Carrier Systems Development**	**PU 9181 - Advanced Battlestation/Decision Support System**

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
SCN: 200100 - Carrier Replacement Program	483.663	1,177.242	626.084	611.940	2,968.918	3,250.918	1,568.616	Cont.	Cont.
RDT&E: 0604567N - Ship Contract Design, Live Fire T&E	196.697	134.061	130.908	110.862	97.160	51.263	22.961	Cont.	Cont.
0603570N - Advanced Nuclear Power Systems	211.314	198.999	169.733	168.955	171.262	161.601	153.581	Cont.	Cont.

E. ACQUISITION STRATEGY:

This procurement is an SBIR transition and will be awarded on a sole source basis to 21st Century Systems, Inc., Omaha, Nebraska.

F. MAJOR PERFORMERS:

NUWC Keyport, WA
21st Century Systems, Inc., Omaha, NE, Development, (FY03 Award)

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)

DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NUMBER AND NAME
RDT&E, N / BA-04	**PE 0603512N - Carrier Systems Development**	**PU 9181 - Advanced Battlestation/Decision Support System**

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Product Development												
Advanced Battlestation/Decision Support System	WX	NSWC Dahlgren	0.000	3.384	10/03						3.384	
	WX	NUWC Keyport, WA	0.000	0.000		3.560	03/04-06/04				3.560	
	Various	Miscellaneous	0.000	0.044	01/04-06/04						0.044	
Subtotal Product Development			0	3.428		3.560		0.000			6.988	

Remarks: Contract Award 4th Quarter FY03

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-04**			PROGRAM ELEMENT **PE 0603512N - Carrier Systems Development**			PROJECT NUMBER AND NAME **PU 9181 - Advanced Battlestation/Decision Support System**						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation												
Operational Test & Evaluation												
Live Fire Test & Evaluation												
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Travel												
Transportation												
SBIR Assessment												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			0.000	3.428		3.560		0.000		0.000	6.988	
Remarks:												

CLASSIFICATION:

EXHIBIT R4, Schedule Profile | DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-04**

PROGRAM ELEMENT NUMBER AND NAME: **PE 0603512N - Carrier Systems Development**

PROJECT NUMBER AND NAME: **PU 9181 - Advanced Battlestation/Decision Support System**

Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																																
ABS/DSS Development											PDR				IOC																	
ABS/DSS Fleet Demo										CV-67	CVN-72																					
Follow-on Development/ Spiral I																																
Test & Evaluation Milestones																																
Development Test					DT C1								DT C2																			
Contract Milestones																																
Development Contract								Contract Award			Contract Award																					
Full Funding (OPN & O&M,N)																	X															

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-04**	**PE 0603512N - Carrier Systems Development**				PROJECT NUMBER AND NAME **PU 9349 Aviation Ship Integration Center**		
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**0.000**	**9.691**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
RDT&E Articles Qty							

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Aviation Ship Integration Center provides an environment that supports the development and conceptualization of fully integrated future aircraft carrier advanced technology design. The Center will be used to identify, test, and integrate potential design approaches and products for the CVN 21 Warfare System that are focused on reducing costs by increasing efficiencies in air capable shipbuilding programs. The Center will mitigate CVN 21 advanced technology design risk by enabling detection and resolution of potential problems early in the development cycle, thereby maximizing the Navy's return on its non-recurring design investment and enhancing transformational initiatives necessary to support the CVN 21 Warfare System.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-04	**PE 0603512N - Carrier Systems Development**	**PU 9349 Aviation Ship Integration Center**

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	9.691	0.000
RDT&E Articles Quantity			

- (U) Aviation Ship Integration Center - Develop modeling and simulation capability through integration of existing M&S assets with new M&S Systems. Investigate and develop connectivity to various government and industry M&S activities. Relocate the existing M&S facility to the VASCIC Research Center. Build a support structure in the Center, procure hardware and software, and integrate various commercial and government M&S software programs. Develop and implement an Aircraft Carrier Compartment Flexibility/Modularity Program and laboratory to provide an evaluation environment for investigating, prototyping, testing and qualifying new compartment outfitting techniques and products focusing on reducing the construction cost and schedule impacts associated with the installation of electronic systems during new construction and improving fleet maintenance and modernization after delivery. Investigate existing commercial and military technologies that have the potential to simplify and accelerate the equipment installation process during ship construction and technology refresh/reconfiguration updates.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA 04	**PE 0603512N - Carrier Systems Development**	**PU 9349 Aviation Ship Integration Center**

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:	0.000	0.000	0.000
FY05 President's Budget	0.000	9.691	0.000
Total Adjustments	0.000	9.691	0.000
Summary of Adjustments			
Congressional Add		9.800	
Congressional Undistributed Adjustments		-0.109	
	0	9.691	0

Schedule:

Not Applicable

Technical:

Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-04**	PROGRAM ELEMENT NUMBER AND NAME **PE 0603512N - Carrier Systems Development**	PROJECT NUMBER AND NAME **PU 9349 Aviation Ship Integration Center**

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
SCN: 200100 - Carrier Replacement Program	483.663	1,177.242	626.084	611.940	2,968.918	3,250.918	1,568.616	Cont.	Cont.
RDT&E: 0604567N - Ship Contract Design, Live Fire T&E	196.697	134.061	130.908	110.862	97.160	51.263	22.961	Cont.	Cont.
0603570N - Advanced Nuclear Power Systems	211.314	198.999	169.733	168.955	171.262	161.601	153.581	Cont.	Cont.

E. ACQUISITION STRATEGY:

The CVN 21 will be the first ship of the new class of aircraft carriers consisting of 12 ships. Due to the length and cost of construction, each carrier will be contracted for separately. The CVN 21 will feature a new nuclear propulsion and electrical generation/distribution system, new electromagnetic aircraft launching system, advanced arresting gear system, all electric auxiliaries, warfare system improvements, survivability enhancements, improved weapons handling, and improved aircraft servicing. These design features will result in lower manpower and total ownership costs as compared to the Nimitz Class. Additionally, the following warfighting benefits will be realized: increased sortie generation rate, improved ship self defense capability, increased launch and recovery capability/flexibility, increased operational availability, and increased flexibility to support future upgrades.

F. MAJOR PERFORMERS:

Northrop Grumman Newport News, Newport News, VA, Design/Component Development/Construction

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)

DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NUMBER AND NAME
RDT&E, N / BA-04	**PE 0603512N - Carrier Systems Development**	**PU 9349 Aviation Ship Integration Center**

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Product Development												
Aviation Ship Integration Center	CPAF	NGNN, VA	0.000	0.000		9.691	12/03-05/04				9.691	
Subtotal Product Development			0	0.000		9.691		0.000			9.691	

Remarks: Contract Award 4th Quarter FY03

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-04**			PROGRAM ELEMENT **PE 0603512N - Carrier Systems Development**			PROJECT NUMBER AND NAME **PU 9349 Aviation Ship Integration Center**						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation												
Operational Test & Evaluation												
Live Fire Test & Evaluation												
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Travel												
Transportation												
SBIR Assessment												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			0.000	0.000		9.691		0.000		0.000	9.691	
Remarks:												

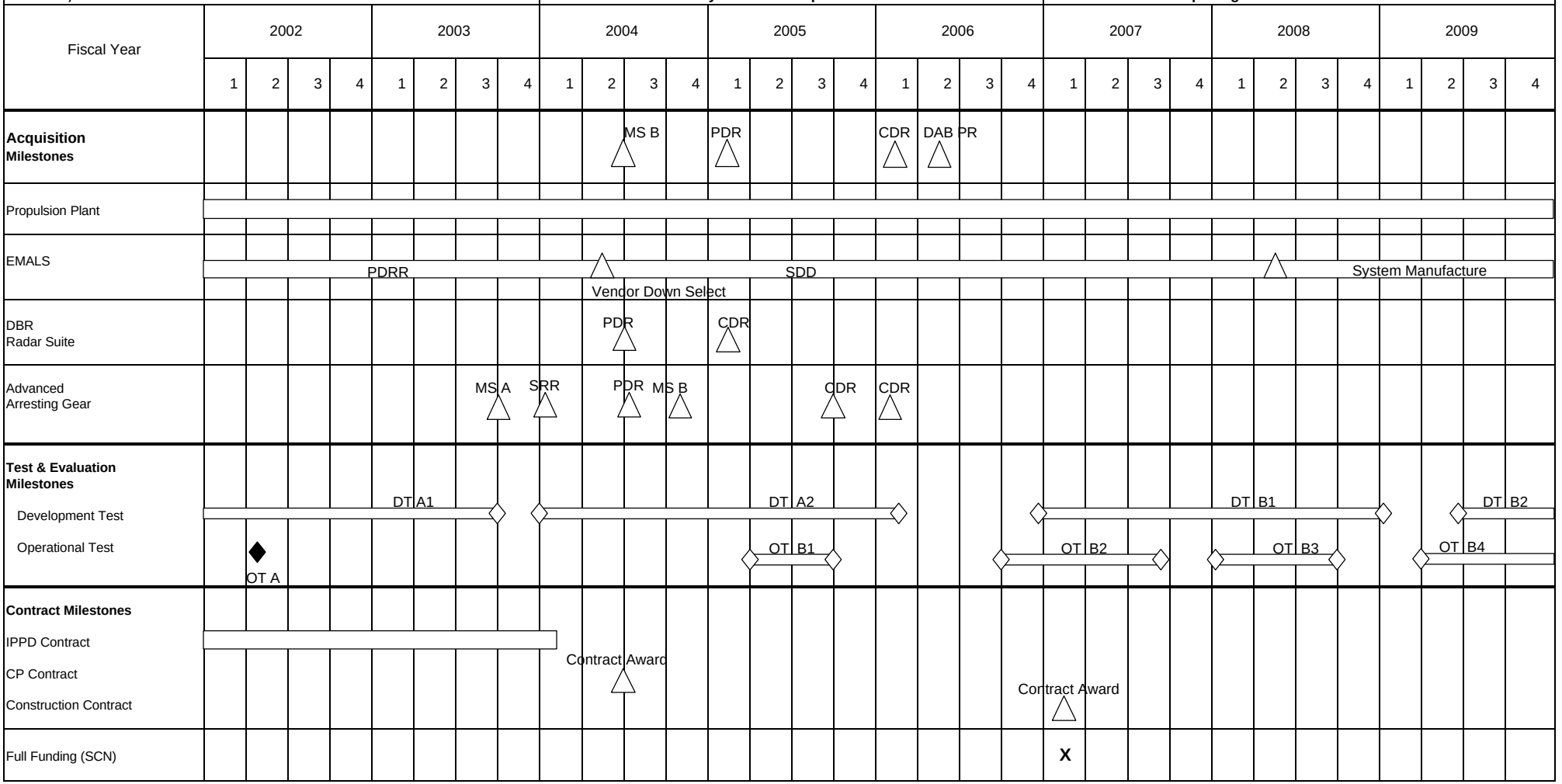
CLASSIFICATION:

EXHIBIT R4, Schedule Profile | DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-04**

PROGRAM ELEMENT NUMBER AND NAME: **PE 0603512N - Carrier Systems Development**

PROJECT NUMBER AND NAME: **PU 9349 Aviation Ship Integration Center**



* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-04**	PROGRAM ELEMENT NUMBER AND NAME **PE 0603512N - Carrier Systems Development**				PROJECT NUMBER AND NAME **PU 2208 - CVN 21**		
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**30.440**	**101.662**	**104.465**	**95.297**	**49.548**	**46.921**	**49.557**
RDT&E Articles Qty							

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project provides for the development of aircraft carrier specific technologies, the infusion of the ship technology base into existing and future aircraft carriers, and the potential realization of subsystem design capabilities not currently feasible. This project transitions the most promising technologies from the Navy technology base, other government laboratories, and the private sector into specific advanced development efforts. All systems developed in this project have the potential to support emerging requirements and other promising systems technologies for insertion into new aircraft carrier designs. The emphasis is directed toward developing ship hull, mechanical, propulsion, electrical, aviation and combat support systems, sub-systems and components to significantly improve aircraft carrier affordability, manpower requirements, survivability, and operational capabilities and to meet the requirements of existing and pending regulations and statutes critical to the operation of future aircraft carriers.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-04	**PE 0603512N - Carrier Systems Development**	**PU 2208 - CVN 21**

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	20.900	21.900	13.400
RDT&E Articles Quantity			

- (U) Non-Nuclear Propulsion Plant Development - Complete fabrication of prototype MTG and detailed design. Develop prototype qualification test plans. Initiate and complete MTG prototype qualification testing and shock test. Prepare for post-shock steam testing and prototype disassembly and inspection.
Continue development of testing requirements and the identification and evaluation of testing capabilities. Continue development of inputs to the integrated product model. Continue prototyping and implementation of automated workflow for construction deliverables. Continue to integrate analysis and other required functions into product model design. Continue development of mechanical and electrical systems that interface with the propulsion plant.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	9.540	73.002	85.365
RDT&E Articles Quantity			

- (U) CVN 21 Advanced Technology Design & Development- Commence and continue development and transition of technologies to support CVN 21 Key Performance Parameters (KPPs): increased sortie generation rate, further reductions in manpower, and further recovery of weight and stability service life margins. Continue design activities to integrate the new propulsion plant and Electromagnetic Aircraft Launch System, and expand the design build approach to include the whole ship, to optimize various systems and arrangements to meet KPPs, and to improve overall performance. Technologies and design efforts include, but are not limited to: Advanced Weapons Elevators technologies to increase throughput and improve survivability; Heavy Underway Replenishment technologies to increase individual payload limits and transfer rates per station per hour; Improved Material and Weapons Handling Arrangements and Equipment Modifications to improve the flow of material and weapons while simultaneously reducing required manpower; Improved Survivability technologies; Warfare Systems design; and an Improved/Enlarged Flight Deck to improve aircraft spotting and movement and to incorporate the Advanced Arresting Gear.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-04	**PE 0603512N - Carrier Systems Development**	**PU 2208 - CVN 21**

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	6.760	5.700
RDT&E Articles Quantity			

- (U) CVN 21 - Test & Evaluation - Determine specific developmental test requirements (DT) and related modeling and simulation and conduct actual test events including Large Test Asset. DT-A2 events will be based on CVN 21 system requirements and capabilities. Items such as test articles, instrumentation, support equipment, threat representation, test targets and other expendables, operational force test support, models, simulations, test-beds, special requirements, and funding needs will be finalized and provided in TEMP 1610 Rev B (in support of the FY07 construction contract award). Furthermore, the NGNN T&E IPT will begin to plan and execute DT-A2 events to demonstrate the CVN 21 concepts meet required capabilities.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA 04	**PE 0603512N - Carrier Systems Development**	**PU 2208 - CVN 21**

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:	52.895	102.806	108.874
FY05 President's Budget	30.440	101.662	104.465
Total Adjustments	-22.455	-1.144	-4.409
Summary of Adjustments			
Technical Adjustment	-21.300		
Reprogrammings			-3.497
SBIR	-0.834		
Congressional Undistributed Adjustments		-1.144	
PBD 604 Inflation Adjustments			-0.338
Navy Working Capital Fund Rate Adjustments			-0.574
Miscellaneous Adjustments	-0.321		
Subtotal	-22.455	-1.144	-4.409

Schedule:

The CVN 21 Basic Construction contract will be awarded in FY07 with delivery in FY14. Funding in this R&D project supports this schedule.

Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-04	**PE 0603512N - Carrier Systems Development**	**PU 2208 - CVN 21**

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
SCN: 200100 - Carrier Replacement Program	483.663	1,177.242	626.084	611.940	2,968.918	3,250.918	1,568.616	Cont.	Cont.
RDT&E: 0604567N - Ship Contract Design, Live Fire T&E	196.697	134.061	130.908	110.862	97.160	51.263	22.961	Cont.	Cont.
0603570N - Advanced Nuclear Power Systems	211.314	198.999	169.733	168.955	171.262	161.601	153.581	Cont.	Cont.

E. ACQUISITION STRATEGY:

The CVN 21 will be the first ship of the new class of aircraft carriers consisting of 12 ships. Due to the length and cost of construction, each carrier will be contracted for separately. The CVN 21 will feature a new nuclear propulsion and electrical generation/distribution system, new electromagnetic aircraft launching system, advanced arresting gear system, all electric auxiliaries, warfare system improvements, survivability enhancements, improved weapons handling, and improved aircraft servicing. These design features will result in lower manpower and total ownership costs as compared to the Nimitz Class. Additionally, the following warfighting benefits will be realized: increased sortie generation rate, improved ship self defense capability, increased launch and recovery capability/flexibility, increased operational availability, and increased flexibility to support future upgrades.

F. MAJOR PERFORMERS:

Northrop Grumman Newport News, Newport News, VA, Design/Component Development/Construction

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)

DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NUMBER AND NAME
RDT&E, N / BA-04	**PE 0603512N - Carrier Systems Development**	**PU 2208 - CVN 21**

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Product Development											0.000	
Propulsion Plant Development	SS,CPFF	BETTIS, PA	71.627								71.627	71.627
	CPFF	NGNN, VA	101.547	18.800	11/02-01/03	20.547	11/03	12.864	11/04		153.758	153.758
	Various	Miscellaneous	6.962	2.100	11/02-01/03	1.353	11/03	0.536	11/04	Continuing	Continuing	10.474
Advanced Design & Development	CPAF	NGNN	11.717	1.409	11/02-05/03	29.985	11/03	40.000	11/04	Continuing	Continuing	
	WX	NSWC Carderock	16.161	2.140	11/02-05/03	21.625	11/03	32.000	11/04	Continuing	Continuing	
	WX	NAWC Lakehurst	0.000	1.500	11/02-05/03	1.166	11/03	3.500	11/04	Continuing	Continuing	
	WX	NSWC Dahlgren	0.000	1.938	11/02-05/03	0.885	11/03	1.080	11/04	Continuing	Continuing	
	WX	NSWC P. H.	0.000	0.000	11/02-05/03	4.000	11/03	1.000	11/04	Continuing	Continuing	
	PD	SPAWAR	0.000	0.715	11/02-05/03	1.177	11/03	0.000		Continuing	Continuing	
	WX	NAWC AD	0.000	0.000	11/02-05/03	2.148	11/03	0.000		Continuing	Continuing	
	WX	SUPSHIP	0.000	1.000	11/02-05/03	0.498	11/03	0.000			1.000	
		MANTECH	0.000			0.929	11/03-05/04	0.000				
	Various	Miscellaneous	12.285	0.838	11/02-05/03	10.589	11/03	7.785	11/04	Continuing	Continuing	
Subtotal Product Development			220.299	30.440		94.902		98.765			444.406	

Remarks: Prior Year values for FY98-FY02 for applicable efforts within PU 2208 that were consistent with the purpose were shifted to the Advanced Design and Development category.
Prior year values for Aircraft Launch, Recovery and EMALS were shifted in PB04 from PU 2208 to PU 4004 as part of the realignment of Aircraft Carrier funds to more discreet projects.
Prior year values for Smart Carrier were shifted in PB04 from PU 2208 to PU 4005 as part of the realignment of Aircraft Carrier funds to more discreet projects.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-04**			PROGRAM ELEMENT **PE 0603512N - Carrier Systems Development**			PROJECT NUMBER AND NAME **PU 2208 - CVN 21**						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation												
CVN 21 Class												
	CPAF	NGNN	0.000	0.000		0.990	01/04-03/04	2.650	11/04	Continuing	Continuing	
	WX	NSWC Carderock	0.000	0.000		1.379	01/04-03/04	0.000		Continuing	Continuing	
	WX	NSWC Dahlgren	0.000	0.000		0.674	11/03	0.000		Continuing	Continuing	
	WX	NAWC AD	0.000	0.000		0.275	11/03	0.000		Continuing	Continuing	
	WX	NUWC Newport	0.000	0.000		0.934	01/04-03/04	0.000		Continuing	Continuing	
	Various	Miscellaneous	0.000	0.000		2.112	11/03-03/04	2.250	11/04	Continuing	Continuing	
Operational Test & Evaluation	WX	COMOPTEVFOR	0.000	0.000		0.396	01/04	0.800	11/04	Continuing	Continuing	
Live Fire Test & Evaluation												
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			0.000	0.000		6.760		5.700		0.000	12.460	
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Travel												
Transportation												
SBIR Assessment												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			220.299	30.440		101.662		104.465		0.000	456.866	
Remarks:												

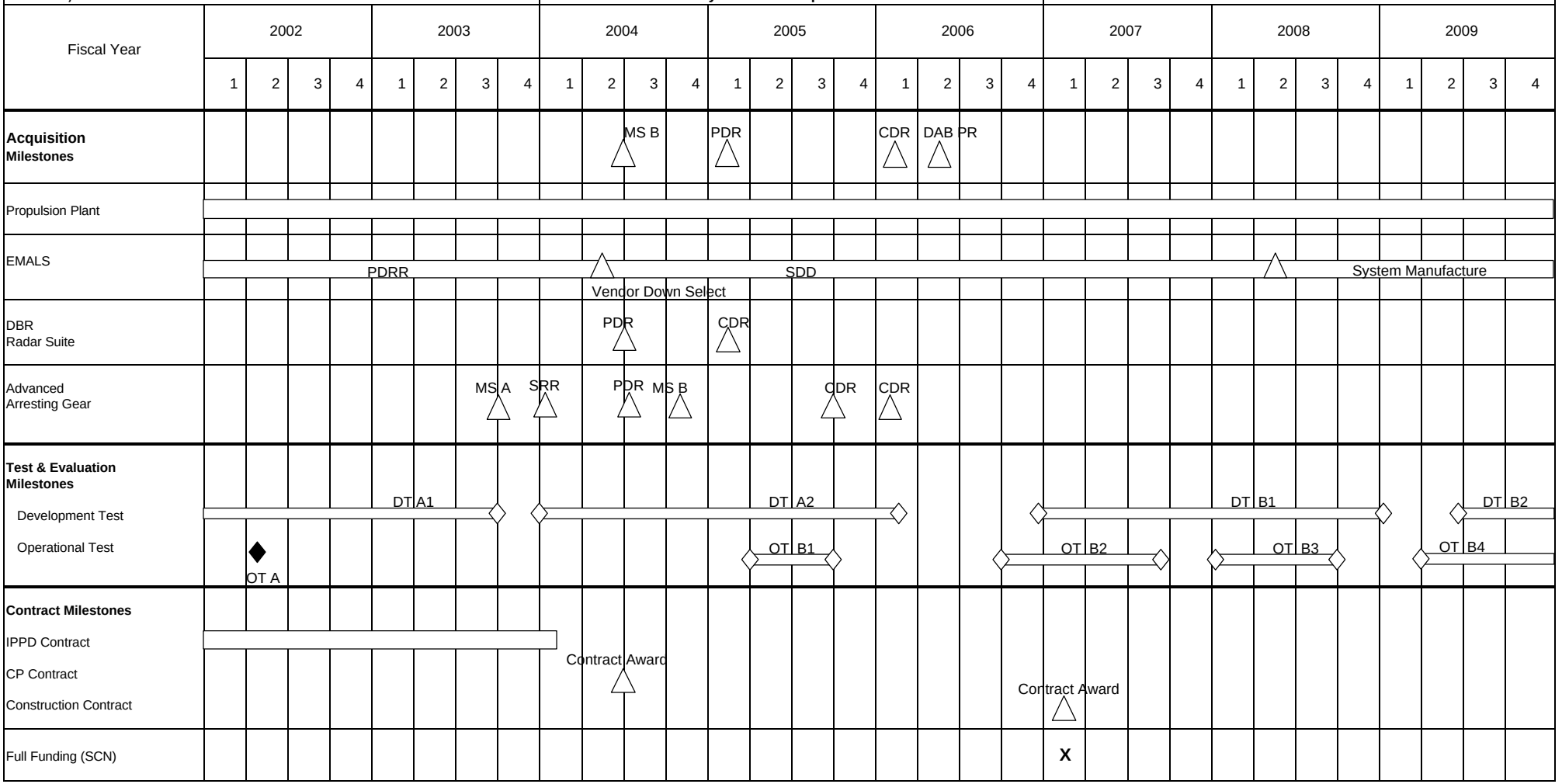
CLASSIFICATION:

EXHIBIT R4, Schedule Profile | DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-04**

PROGRAM ELEMENT NUMBER AND NAME: **PE 0603512N - Carrier Systems Development**

PROJECT NUMBER AND NAME: **PU 2208 - CVN 21**



* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-04**	PROGRAM ELEMENT NUMBER AND NAME **PE 0603512N - Carrier Systems Development**				PROJECT NUMBER AND NAME **PU 4004 - EMALS**		
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**44.679**	**38.660**	**51.094**	**35.083**	**28.634**	**47.318**	**2.539**
RDT&E Articles Qty							

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project provides for the development of an advanced technology aircraft launch system in support of the CVN 21 design and construction schedule. The Electro Magnetic Aircraft Launch System (EMALS) will replace the current steam catapult on CVN 21 and follow-on ships of the CVN 21 Class. EMALS provides better control of applied forces, both peak and transient dynamic, improved reliability and maintainability, increased operational availability, and reduced operator and maintainer workload.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-04	**PE 0603512N - Carrier Systems Development**	**PU 4004 - EMALS**

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	44.679	38.660	51.094
RDT&E Articles Quantity			

-(U) EMALS -

FY-03: Continue and complete EMALS Program Definition and Risk Reduction phase. Complete prototype test facility construction. Complete full scale EMALS system manufacture, subsystem integration, and system installation at NAVAIR Lakehurst. Conduct installation checkout and commissioning tests. Conduct full scale, full power, half-length EMALS demonstration testing and technical evaluation using deadloads. Continue CVN 21 integration development. Provide management, systems engineering, test and ship integration support.

FY-04: Complete full scale, full power, half-length EMALS demonstration testing and technical evaluation using deadloads. Analyze test data, proposed contractor production system configurations, and program proposals. Select contractor for and begin System Development and Demonstration phase. Conduct Systems Requirements review. Initiate production design effort. Conduct follow on development testing. Conduct Preliminary Design Review. Continue CVN 21 integration development. Provide management, systems engineering, test, and ship integration support.

FY-05: Continue System Development and Demonstration phase. Complete Critical Design Reviews and initiate manufacture of production representative system for Technical Evaluation and Operational assessment. Continue CVN 21 integration development. Provide management, systems engineering, test, and ship integration support.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-04	**PE 0603512N - Carrier Systems Development**	**PU 4004 - EMALS**

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:	45.366	39.095	51.249
FY05 President's Budget	44.679	38.660	51.094
Total Adjustments	-0.687	-0.435	-0.155
Summary of Adjustments			
SBIR	-0.988		
Congressional Undistributed Adjustments		-0.435	
PBD 604 Inflation Adjustments			-0.165
Navy Working Capital Fund Rate Adjustments			0.010
Miscellaneous	0.301		
Subtotal	-0.687	-0.435	-0.155

Remarks:

Schedule:

Not Applicable.

Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-04**	PROGRAM ELEMENT NUMBER AND NAME **PE 0603512N - Carrier Systems Development**	PROJECT NUMBER AND NAME **PU 4004 - EMALS**

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
SCN: 200100 - Carrier Replacement Program	483.663	1,177.242	626.084	611.940	2,968.918	3,250.918	1,568.616	Cont.	Cont.
RDT&E: 0604567N - Ship Contract Design, Live Fire T&E	196.697	134.061	130.908	110.862	97.160	51.263	22.961	Cont.	Cont.
0603570N - Advanced Nuclear Power Systems	211.314	198.999	169.733	168.955	171.262	161.601	153.581	Cont.	Cont.

E. ACQUISITION STRATEGY:

The CVN 21 will be the first ship of the new class of aircraft carriers consisting of 12 ships. Due to the length and cost of construction, each carrier will be contracted for separately. The CVN 21 will feature a new nuclear propulsion and electrical generation/distribution system, new electromagnetic aircraft launching system, advanced arresting gear system, all electric auxiliaries, warfare system improvements, survivability enhancements, improved weapons handling, and improved aircraft servicing. These design features will result in lower manpower and total ownership costs as compared to the Nimitz Class. Additionally, the following warfighting benefits will be realized: increased sortie generation rate, improved ship self defense capability, increased launch and recovery capability/flexibility, increased operational availability, and increased flexibility to support future upgrades.

F. MAJOR PERFORMERS:

Northrop Grumman, Sunnyvale, CA, EMALS Design and Development
General Atomics, La Jolla, CA, EMALS Design and Development
NAWC, Lakehurst, NJ, EMALS Interface.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-04**			PROGRAM ELEMENT **PE 0603512N - Carrier Systems Development**			PROJECT NUMBER AND NAME **PU 4004 - EMALS**						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Product Development												
Aircraft Launch, Recovery & Support	CPAF	Northrop Grumman	53.306	16.900	11/02-06/03	5.549	11/03			Continuing	Continuing	
	CPAF	General Atomics	52.592	22.600	11/02-06/03	6.845	11/03			Continuing	Continuing	
	CPIF	EMALS Contractor TBD				20.000	11/03	46.485	11/04	Continuing	Continuing	
	WX	NAWC Lakehurst, NJ	8.224	2.660	11/02-06/03	3.200	11/03	2.609	11/04	Continuing	Continuing	
	CPAF	NGNN, VA	2.270								2.270	
	Various	Miscellaneous	46.715								46.715	
Subtotal Product Development			163.107	42.160		35.594		49.094		0.000	289.955	

Remarks: Prior Years were funded under PE 0603512N, PU 42208; however, prior year values have been shifted to PU 44004 in keeping with the CVN 21 Project realignment and in order to reflect program continuity on the PU 44004 Exhibit.

Development Support												
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
GFE												
Award Fees												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	

Remarks: Prior Years were funded under PE 0603512N, PU 42208; however, prior year values have been shifted to PU 44004 in keeping with the CVN 21 Project realignment and in order to reflect program continuity on the PU 44004 Exhibit.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-04**			PROGRAM ELEMENT **PE 0603512N - Carrier Systems Development**			PROJECT NUMBER AND NAME **PU 4004 - EMALS**						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation												
Aircraft Launch, Recovery & Support	WX	Lakehurst NJ	2.519	2.519	11/02	3.066	11/03	2.000	11/04	Continuing	Continuing	
Subtotal T&E			2.519	2.519		3.066		2.000		0.000	10.104	
Remarks: Prior Years were funded under PE 0603512N, PU 42208; however, prior year values have been shifted to PU 44004 in keeping with the CVN 21 Project realignment and in order to reflect program continuity on the PU 44004 Exhibit.												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Travel											0.000	
Labor (Research Personnel)												
SBIR Assessment												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks: Prior Years were funded under PE 0603512N, PU 42208; however, prior year values have been shifted to PU 44004 in keeping with the CVN 21 Project realignment and in order to reflect program continuity on the PU 44004 Exhibit.												
Total Cost			165.626	44.679		38.660		51.094		0.000	300.059	
Remarks: FY02 and Prior Years were funded under PE 0603512N, PU 42208												

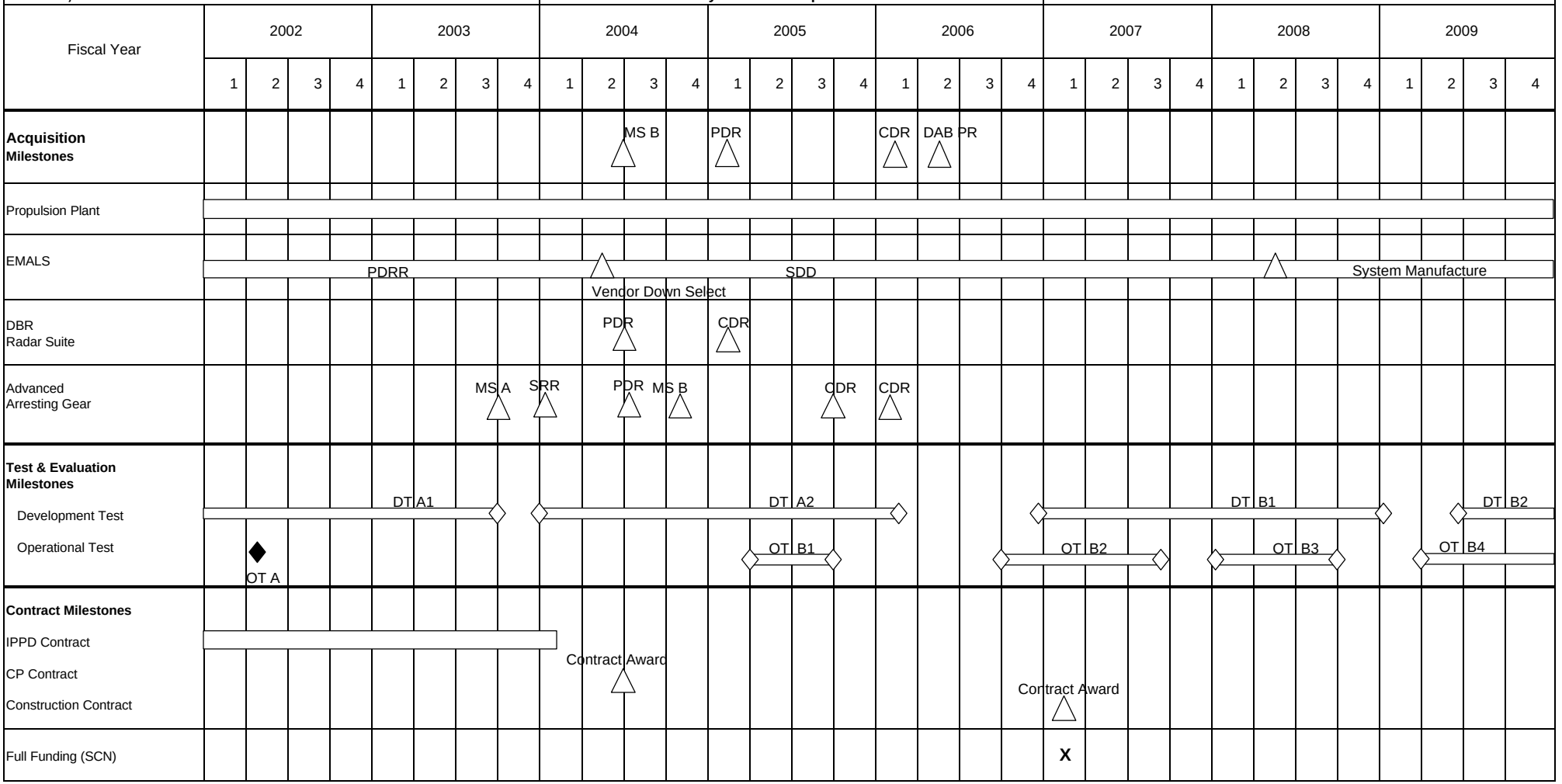
CLASSIFICATION:

EXHIBIT R4, Schedule Profile | DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-04**

PROGRAM ELEMENT NUMBER AND NAME: **PE 0603512N - Carrier Systems Development**

PROJECT NUMBER AND NAME: **PU 4004 - EMALS**



* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME **0603512N - Carrier Systems Development**				PROJECT NUMBER AND NAME **PU 4005 - Smart Carrier**		
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**1.942**	**1.860**	**1.843**	**1.830**	**1.817**	**1.804**	**1.799**
RDT&E Articles Qty			**2**				

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Smart Carrier Demonstration and Validation program exploits available technologies to deliver an affordable, robust, operator-friendly automation control environment for Navy Aircraft Carrier shipboard equipment. The program provides the system architecture, requirements/specification development, technology selection, software development (including software baseline), as well as land-based and shipboard testing of new technologies to improve shipboard operations and to reduce workload, manpower requirements, and Total Ownership Costs. Initial technologies include Aviation Fuels (JP-5) Automation, the Advanced Damage Control System (ADCS), Automated Material Handling Systems, Damage Control Inventory Management and Stowage System (DCIMSS), List Control, Firemain Control, Integrated Condition Assessment System, Interior Communications/Systems Monitoring Alarm Upgrades, and the Digital Video Surveillance System. Demonstration technologies include Smart Vent, Machinery Online Monitoring, Superior Sound Technology, Flat Plane Speakers, Smart Circuit Breakers, Distilling Unit Automation, Reboiler Automation, In-line Aviation Fuels Sampling, Advanced Oil Purification System, Oil Monitoring Sensors, and Voice Interactive Display. Wireless systems, smart sensors, knowledge-based systems, automated casualty control, automated technology for workload reduction, linked smart devices, common software tools for interoperability, and self-healing network are technologies being considered for future applications. This project was previously funded under Project 42208, Future Carrier R&D.

Remarks: Prior Years were funded under PE 0603512N, PU 42208; however, prior year values have been shifted to PU 4005 in keeping with the CVN 21 Project realignment and in order to reflect program continuity on the PU 4005 exhibit.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-4	**0603512N - Carrier Systems Development**	**PU 4005 - Smart Carrier**

B. Accomplishments/Planned Program

	FY 03	FY 04	FY05
Accomplishments/Effort/Subtotal Cost	1.942	1.860	1.843
RDT&E Articles Quantity			

- (U) Smart Carrier - In Fiscal Year 2003, completed software development for and initiated/completed test, evaluation and demonstration/validation of Aviation Fuels (JP-5) Automation and In-Line Fuel Monitoring for Smart Carrier technology insertion on USS ABRAHAM LINCOLN (CVN 72) and USS GEORGE WASHINGTON (CVN 73). Efforts continue in Fiscal Years 2004 and 2005 to identify, evaluate, demonstrate, install, test and measure the effectiveness of revised processes and selected technologies with the highest potential to meet Aircraft Carrier goals for manpower and Total Ownership Cost (TOC) reductions, such as an On-Board Training System for Aviation Fuels Operations, In-Line Fuel Monitoring, and Condition-Based Maintenance.

Remarks: Prior Years were funded under PE 0603512N, PU 42208; however, prior year values have been shifted to PU 4005 in keeping with the CVN 21 Project realignment and in order to reflect program continuity on the PU 4005 exhibit.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	**0603512N - Carrier Systems Development**	**PU 4005 - Smart Carrier**

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:	1.967	1.881	1.880
FY05 President's Budget	1.942	1.860	1.843
Total Adjustments	-0.025	-0.021	-0.037
Summary of Adjustments			
BSO Adjustments	-0.005		
Congressional Undistributed Adjustments		-0.021	
PBD 604 Inflation Adjustments			-0.006
Navy Working Capital Fund Rate Adjustments			-0.031
Miscellaneous	-0.020		
Subtotal	-0.025	-0.021	-0.037

Schedule: Not Applicable

Technical: Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	**0603512N - Carrier Systems Development**	**PU 4005 - Smart Carrier**

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
098100 Items Under $5 million Smart Carrier	45.554	6.988	44.946	33.495	33.850	25.277	26.463	26.000	242.573

E. ACQUISITION STRATEGY:

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

F. MAJOR PERFORMERS:

Naval Sea Systems Command - Philadelphia (formerly Naval Surface Warfare Center, Carderock Division), Philadelphia, PA and Naval Air Systems Command - Lakehurst (formerly Naval Air Warfare Center, Lakehurst), Lakehurst NJ, perform software development, test and evaluation, integration and program management to include training development and integrated logistics support development. Funds are typically issued in the first fiscal quarter.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT **0603512N - Carrier Systems Development**			PROJECT NUMBER AND NAME **PU 4005 - Smart Carrier**						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost*	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development												
Ancillary Hardware Development												
Component Development												
Ship Integration	WX	NAVSEA, Phil./NAVAIR Lke		0.200	12/02	0.100	11/03	0.100	11/04	0.500	0.900	
Ship Suitability												
Systems Engineering	CPAF	NGNN, VA	0.205								0.205	
	Various	Miscellaneous	7.978								7.978	
Training Development												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			8.183	0.200		0.100		0.100		0.500	9.083	

Remarks: Prior Years were funded under PE 0603512N, PU 2208; however, prior year values have been shifted to PU 4005 in keeping with the CVN 21 Project realignment and in order to reflect program continuity on the PU 4005 exhibit.

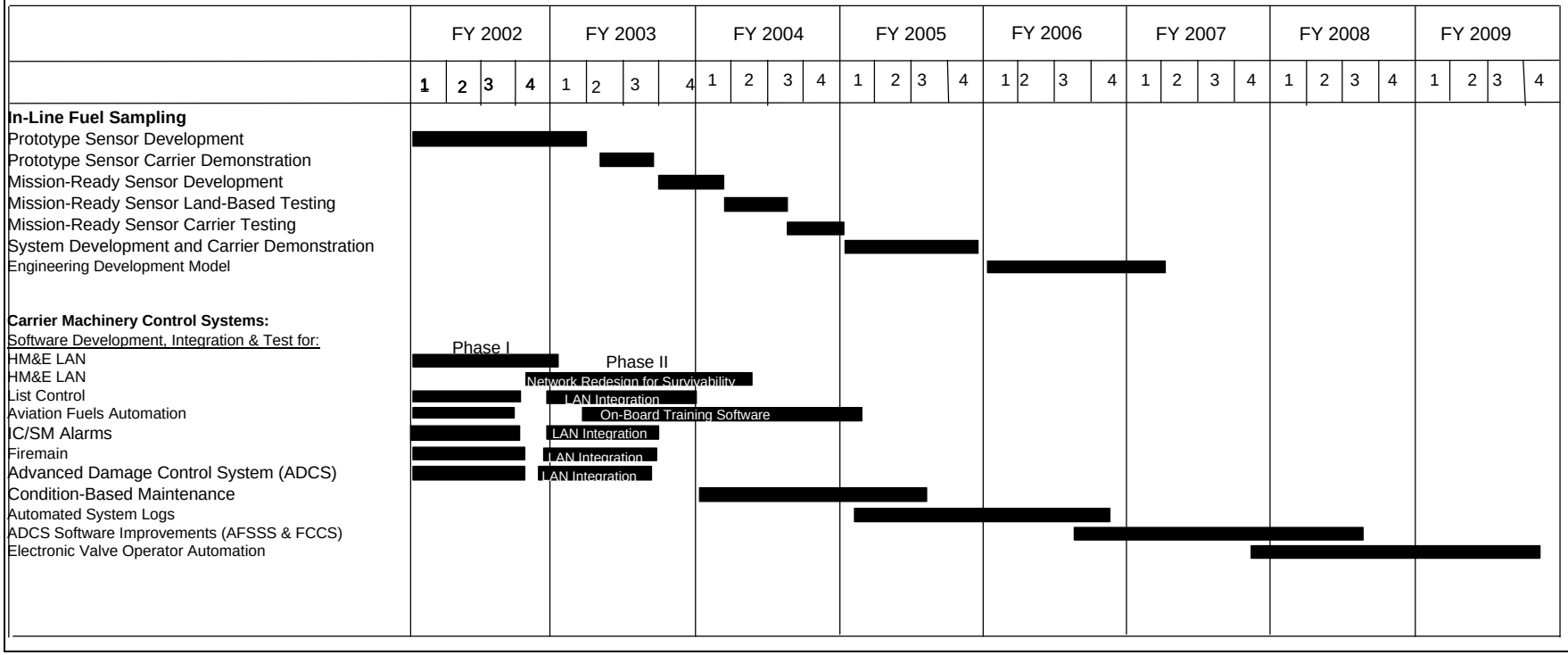
Development Support											0.000	
Software Development	WX	NAVSEA, Phil./NAVAIR Lke		1.042	12/02	0.910	11/03	0.843	11/04	3.250	6.045	
Training Development	WX	NAVSEA, Phil./NAVAIR Lke		0.050	12/02	0.050	11/03	0.080	11/04	0.300	0.480	
Integrated Logistics Support	WX	NAVSEA, Phil./NAVAIR Lke		0.100	12/02	0.150	11/03	0.120	11/04	0.600	0.970	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	1.192		1.110		1.043		4.150	7.495	

Remarks: Prior Years were funded under PE 0603512N, PU 42208; however, prior year values have been shifted to PU 4005 in keeping with the CVN 21 Project realignment and in order to reflect program continuity on the PU 4005 exhibit.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT **0603512N - Carrier Systems Development**			PROJECT NUMBER AND NAME **PU 4005 - Smart Carrier**							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost *	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NAVSEA, Phil./NAVAIR Lke		0.300	12/02	0.400	11/03	0.450	11/04	1.600	2.750	
Operational Test & Evaluation												
Live Fire Test & Evaluation												
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			0.000	0.300		0.400		0.450		1.600	2.750	
Remarks: Prior Years were funded under PE 0603512N, PU 2208; however, prior year values have been shifted to PU 4005 in keeping with the CVN 21 Project realignment and in order to reflect program continuity on the PU 4005 exhibit.												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support	WX	NAVSEA, Phil./NAVAIR Lke		0.250	12/02	0.250	11/03	0.250	11/04	1.000	1.750	
Travel												
Labor (Research Personnel)												
SBIR Assessment												
Subtotal Management			0.000	0.250		0.250		0.250		1.000	1.750	
Remarks: Prior Years were funded under PE 0603512N, PU 2208; however, prior year values have been shifted to PU 4005 in keeping with the CVN 21 Project realignment and in order to reflect program continuity on the PU 4005 exhibit.												
Total Cost			8.183	1.942		1.860		1.843		7.250	21.078	

EXHIBIT R-4, Schedule Profile		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E, N/BA-4	**0603512N - Carrier Systems Development**	**PU 4005 - Smart Carrier**



CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME **0603512N Carrier Systems Development**				PROJECT NUMBER AND NAME **PU 1723 CV Launch and Recovery Systems**			
COST ($ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		7.871	1.170	0.077	0.000	0.000	0.000	0.000
RDT&E Articles Qty			2					

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project addresses the development of systems providing approach and landing guidance, recovery, service, support, and launch of aircraft operating on or from ships. Payoffs include increased safety, greater sortie generation rates, enhanced aircraft boarding rates, reduced manning, and increased aircraft service life. Specific programs include:

- (U) Advanced Recovey Control (ARC) System: The ARC system development effort will replace the existing control valve and valve actuation control system on the MK7 arresting gear, providing enhanced performance, improved reliability and maintainability, and restoring operational margins of safety.
- (U) Cost Reduction Effective Improvement Initiative (CREI) Arresting Gear Fairlead Sheaves: This program seeks to replace the arresting gear fairlead drive system sheaves with a more durable product that will have a longer service life, thus decreasing system life cycle costs.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under DEMONSTRATION AND VALIDATION because it develops and integrates hardware for experimental tests related to specific ship or aircraft application.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	**0603512N Carrier Systems Development**	**PU 1723 CV Launch and Recovery Systems**

(U) B. Accomplishments/Planned Program

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		7.664	1.043	
RDT&E Articles Quantity			2	

- (U) ARC -
Developed ARC System Specification, contract Statement of Work, and Request for Proposal. Conducted source selection process, completed Milestone B review and awarded development contract. Conducted testing to characterize existing Constant Run Out Valve (CROV) performance in support of ARC control system development. Completed System Requirements Review, Preliminary Design Review, Critical Design Review and fabricated/delivered two (2) test articles. Conducted developmental testing of test articles on arresting gear. Conducted development testing using deadloads at the Jet Car Track Site (JCTS) and aircraft at the Runway Arrested Landing Site (RALS). Conducted rapid cycle reliability testing and environmental testing. Complete Tech Evaluation and achieve Milestone C. Provide engineering and management support to the program.

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.207	0.127	0.077
RDT&E Articles Quantity				

- (U) CREI -
(Arresting Gear Fairlead Sheaves) - Selected candidate materials and conducted laboratory testing on samples. Award contract, conduct design and manufacture prototype of CREI Sheaves. Conduct developmental and environmental testing of protoype sheaves. Provide engineering and management support to the program.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	**0603512N Carrier Systems Development**	**PU 1723 CV Launch and Recovery Systems**

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:	7.646	1.183	0.077
Current President's Budget	7.871	1.170	0.077
Total Adjustments	0.225	-0.013	0.000
Summary of Adjustments			
Congressional program reductions			
Congressional undistributed reductions		-0.013	
Congressional rescissions			
SBIR/STTR Transfer	-0.110		
Economic Assumtions			
Reprogrammings	0.335		
Sponsor/FMB/NAVAIR Adjustments			
Congressional increases			
Subtotal	0.225	-0.013	0.000

(U) Schedule:

Change in ARC schedule due to additional EA-18G requirements. TECHEVAL extension from 1Q-2Q/04 to 2Q-4Q/04. TRR slips from 1Q/04 to 2Q/04; EDM delivery and Software delivery slips from 4Q/03 to 2Q/04; Milestone C slips from 3Q/04 to 4Q/04; PRR slips from 2Q/04 to 4Q/04; FRP decision slips from 3Q/04 to 4Q/04 and IOC slips from 4Q/05 to 1Q/06.

(U) Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	**0603512N Carrier Systems Development**	**PU 1723 CV Launch and Recovery Systems**

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
OPN Aircraft Launch & Recovery Equipment, 43SJ	0.248	0.000	3.616	5.959	6.470	9.535	7.390	5.789	39.007

(U) E. ACQUISITION STRATEGY:

The ARC acquisition strategy calls for full and open competition leading to a single contract award for the System Development and Demonstration Phase. Production quantities are included as options to the development contract.

CREI A/G Fairlead Sheaves: The A/G Fairlead Sheave Development effort will be competitively awarded to industry to develop sample materials and perform laboratory testing for resistance. Based on the results of the testing, one material and heat treatment process will be selected and prototype sheaves manufactured and tested on two arresting gear engines at NAVAIR Lakehurst.

(U) F. MAJOR PERFORMERS:

Major Performer	Location	Description of Work	FY03 Amt	FY03 Award Date	FY04 Amt	FY04 Award Date	FY05 Amt	FY05 Award Date
NAWCAD	Lakehurst, NJ	Systems Engineering and Developmental Test and Evaluation Primary H/W Development	2.402	11/02	1.170	11/03	0.077	11/04
Northrup Grumman	Sykesville, MD	Primary H/W Development	5.469	12/02				

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT **0603512N Carrier Systems Development**			PROJECT NUMBER AND NAME **PU 1723 CV Launch and Recovery Systems**						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development (ARC	C/CPAF	Northrup Grumman,	1.970	5.469	11/02						7.439	7.439
Primary Hardware Development (ARC	WX	NAWCAD Lakehurst, NJ	3.636	0.685	11/02	0.996	11/03				5.317	
Primary Hardware Development (CRI	FFP	Advanced Dev. Mfg. Corp		0.108	12/03						0.108	
Systems Engineering (ARC)	WX	NAWCAD Lakehurst, NJ		1.125	11/02	0.005	11/03				1.130	
Systems Engineering (CREI)	WX	NAWCAD Lakehurst, NJ		0.099	11/02						0.099	
Award Fees												
Subtotal Product Development			5.606	7.486		1.001					14.093	
Remarks:												
Subtotal Support												
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2) | DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4** | PROGRAM ELEMENT: **0603512N Carrier Systems Development** | PROJECT NUMBER AND NAME: **PU 1723 CV Launch and Recovery Systems**

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental T&E (ARC)	WX	NAWCAD Lakehurst, NJ		0.335	11/02						0.335	
Developmental T&E (CREI)	WX	NAWCAD Lakehurst, NJ				0.127	11/03	0.077	11/04		0.204	
Award Fees												
Subtotal T&E				0.335		0.127		0.077			0.539	

Remarks:

Travel	WX	NAWCAD Lakehurst, NJ		0.050	11/02	0.042	10/03				0.092	
Subtotal Management				0.050		0.042					0.092	

Remarks:

Total Cost			5.606	7.871		1.170		0.077			14.724	

Remarks:

R-1 SHOPPING LIST - Item No. 38

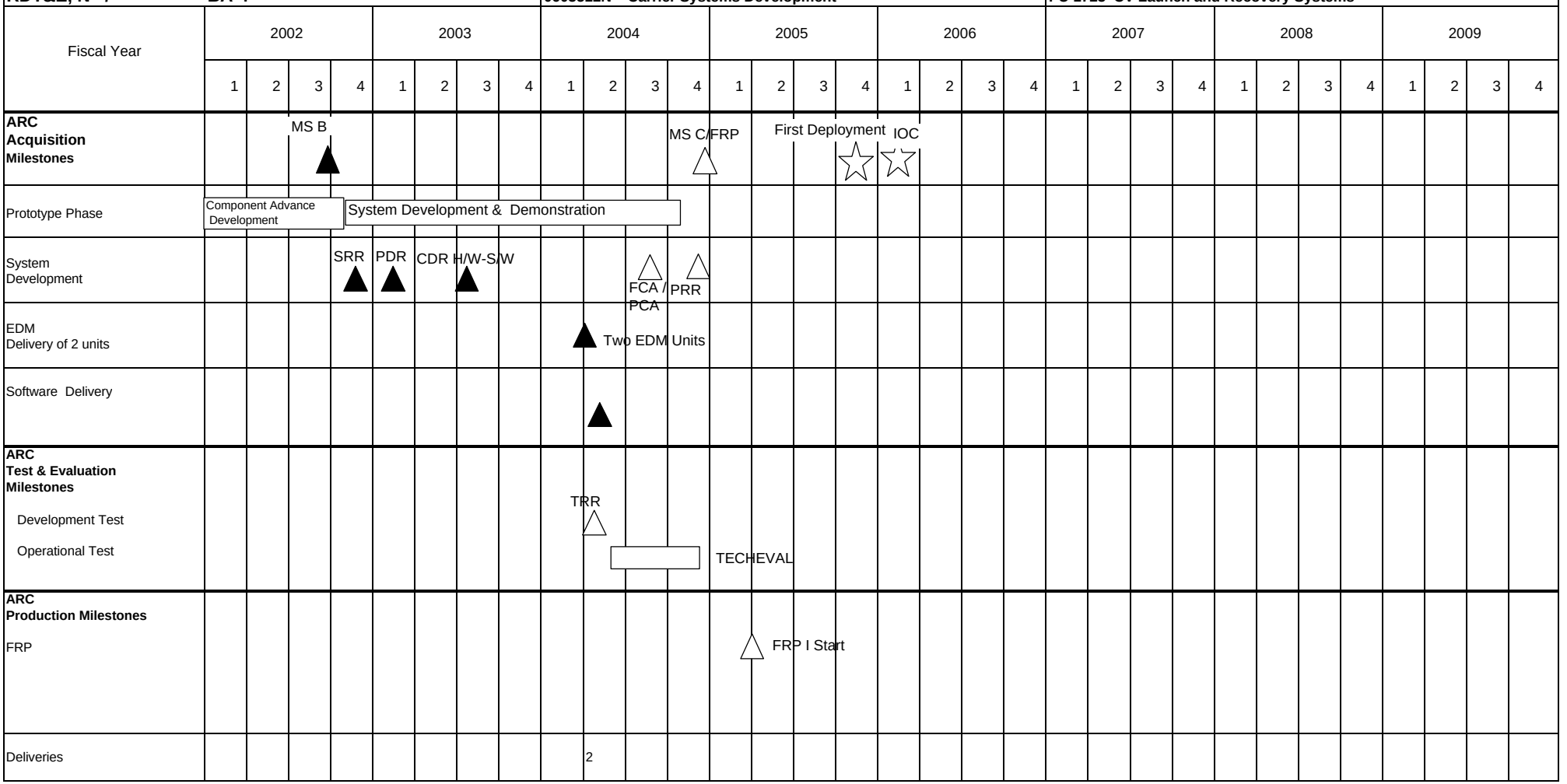
CLASSIFICATION:

EXHIBIT R4, Schedule Profile — DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4**

PROGRAM ELEMENT NUMBER AND NAME: **0603512N Carrier Systems Development**

PROJECT NUMBER AND NAME: **PU 1723 CV Launch and Recovery Systems**



R-1 SHOPPING LIST - Item No. 38

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT **0603512N Carrier Systems Development**				PROJECT NUMBER AND NAME **PU 1723 CV Launch and Recovery Systems**			
Schedule Profile - ARC	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
System Requirements Review (SRR)	4Q							
Milestone B (MSB)	3Q							
Contract Preparation	1Q-3Q							
Contract Award	3Q							
Preliminary Design Review (PDR)		1Q						
System Development	4Q	1Q-4Q	1Q-3Q					
Critical Design Review (CDR) H/W & S/W		3Q						
Test Readiness Review (TRR)			2Q					
Eng Dev Model (EDM) Delivery			2Q					
Software Delivery			2Q					
Preproduction Readiness Review (PRR)			4Q					
Milestone C (MS C)			4Q					
Technical Evaluation (TECHEVAL)			2Q-4Q					
IOC					1Q			
Full Rate Production (FRP) Decision			4Q					
Full Rate Production Start				1Q				
First Deployment				4Q				

EXHIBIT R-2, RDT&E Budget Item Justification						DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**				R-1 ITEM NOMENCLATURE 0603513N/Shipboard System Component Development			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost	**247.513**	**36.664**	**18.993**	**33.276**	**23.125**	**21.393**	**21.780**
2465/DC/Survivability	**5.488**	**6.443**	**6.142**	**4.032**	**1.952**	**1.940**	**1.965**
2467/AGS - Advanced Gun System	**102.328**	**0.000***	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
2468/Undersea Warfare (USW)	**18.644**	**1.419**	**1.669**	**4.178**	**1.976**	**0.000**	**0.000**
2469/ Open Systems Architecture (OSA)	**4.358**	**3.723**	**3.463**	**2.520**	**2.013**	**2.042**	**2.077**
2470/Integrated Topside Design (ITD)	**4.001**	**3.665**	**3.589**	**2.773**	**0.816**	**0.813**	**0.822**
2471/Integrated Power Systems (IPS)	**94.528**	**4.949**	**4.130**	**9.750**	**9.562**	**9.664**	**9.844**
2858/MTTC/IPI	**7.998**	**8.900**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
4019/Radar Upgrades	**0.000**	**0.000**	**0.000**	**10.023****	**6.806**	**6.934**	**7.072**
9038/Automated Maintenance Environment	**3.259**	**2.374**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9182/Advanced Variable Speed Drive	**0.959**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9183/Electro-Magnetic Launcher	**3.094**	**0.989**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9185/Airbag Technology	**2.856**	**1.483**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9350/Circuit Breakers	**0.000**	**0.989**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9351/Power & Propulsion Technologies	**0.000**	**1.730**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**

Note: * (U) FY 04 and out funding for this project was reprogrammed to BA-5 PE 0604300N, AGS Project 4009.
****(U) FY 06 and out funding for this project was reprogrammed from BA-5 PE 0604300N, MFR Project 2466.**

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This PE focuses on the development of shipboard system components and technologies for the future surface combatant family of ships. The Radar Upgrade funds future upgrades/technology insertion efforts for the Multi Function Radar (MFR)/Volume Search Radar (VSR) radar suite. The MTTC/IPI Congressional add is to perform Manufacturing Technology (MANTECH) studies at the McConnell Technology Transition Center, operated by Innovative Productivity, Inc. (MTTC/IPI). The MTTC/IPI funds are to work with Navy, DoD, government, laboratories, universities, and industry to identify innovative technologies, processes and concepts that can help Navy activities and contractors, while reducing operating costs and increasing product quality . The Congressional add for Automated Maintenance Environment is an effort that focuses on connecting ships with other ships in a battle group via wireless networks, and connecting the battle group with the shore-based facility for routing to support services. The Advanced Variable Speed Drive (AVSD) Congressional add will re-engineer the high voltage VSD technology for application to the 450 VAC operating level. The Electro-Magnetic Launcher Congressional add will be used to demonstrate the feasibility of a kinetic energy electromagnetic railgun. The Airbag Technology Congressional add focuses on the development and evaluation of replacing the current high-pressure air system used to launch over-the-side torpedoes with commercial off the shelf automobile air bag inflators for launch energy. The Circuit Breakers Congressional add funds development and qualification of a second source for Navy AQB-type circuit breakers with Root Mean Square (RMS) current sensing, electronic trip feature. The Power and Propulsion Technologies Congressional add funds will be used to conduct modeling and simulation in some additional areas of Navy interest linked to the Integrated Fight Through Power (IFTP) concept. Additionally, funds would be applied towards enhanced risk reduction efforts associated with survivable Integrated Power System (IPS) architectures.

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2465/DC/Survivability		
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**5.488**	**6.443**	**6.142**	**4.032**	**1.952**	**1.940**	**1.965**
RDT&E Articles Qty	**0**	**0**	**0**	**0**	**0**	**0**	**0**

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project funds development of DD(X) applicable and future surface combatant survivability and damage control (DC)/ firefighting systems and features that reduce vulnerability against weapons (e.g., missiles, mines, torpedoes) and enable effective recovery of mission capability under reduced manning conditions. Additionally, this project supports development of systems that reduce susceptibility to magnetic and acoustic influence mines. The requirements for this project are based on the need to develop affordable, balanced survivability designs that address recent wartime lessons learned and emerging and future threats.

(U) System development areas include: 1) automated degaussing control system that maintains a reduced, constant electromagnetic signature level for an extended deployment and provides on-board, real-time, tactical information on safe operating areas; 2) underwater shock isolation systems that use rafting and advanced mounts to provide increased survivability while operating in littoral environments; 3) ship design modeling and simulation program that predicts the vulnerability and recoverability response time of the ship, systems, and crew to primary and secondary weapons effects 4) advanced DC and auxiliary system architectures and control methods that enable automated isolation, reconfiguration and fire suppression actions after damage; and 5) low cost ship shock testing methods that eliminate the need for costly environmental assessments and at-sea measures.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2465/DC/Survivability

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.999	1.164	1.000
RDT&E Articles Quantity	0	0	0

(U) For FY 03, completed development of control logic for rapidly isolating a fault on 450 volt electrical systems and integrated software with commercial control technology; conducted laboratory demonstration and transitioned to the DDG 51 program. In FY 04, conduct tests to determine the fault susceptibility of 13.8 KV switch gear to water mist; develop switch gear control system doctrine that defines if the power must be secured prior to activation of the water mist fire suppression system. In FY 04 through FY 05, develop fault isolation approaches for 13.8KV electrical systems that prevent peacetime arcing faults within switchgear and approaches for rapidly isolating bus level combat induced faults; identify fault isolation approaches and initiate testing in FY 04.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.024	1.764	1.300
RDT&E Articles Quantity	0	0	0

(U) In FY 03, conducted survivability demonstration of a candidate automated fire suppression system piping architecture under realistic live ordnance and shipboard conditions and conducted laboratory fire suppression effectiveness testing of alternative water mist nozzle configurations that provide for directly cooling the blast area; transitioned to DD(X) program. In FY 04 through FY 05, develop survivable control system architectures that provide a cost effective, redundant communications path after blast or fire damage to the network; in FY 04 develop a control system demonstration platform including fluid system piping and control components for demonstrating the performance of alternative computing architectures including wireless inter compartment networks and ring network topologies using network fragment healing control processing

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.198	0.800	0.843
RDT&E Articles Quantity			

(U) In FY 03 developed an advanced prototype shock mount concept that provides an ultra low shock environment ensuring a very high probability of equipment survival and enabling a streamlined, low cost shock qualification process; transitioned to the DD(X) program. In FY 04, conduct an underwater explosion shock test employing a raft, prototype shock mount and representative electronic equipment to demonstrate equipment survivability . For FY 05, develop a low-cost, portable shock testing device/ machine for rapidly shock qualifying commercial off the shelf (COTS) equipment; demonstrate the ability of the devices to replicate the shock environment and conduct tests using representative COTS equipment.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2465/DC/Survivability

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.167	1.515	1.799
RDT&E Articles Quantity	0	0	0

(U) In FY 03 continued development of the real-time, closed loop degaussing control system; complete rangings in FY 04 to monitor stability of control algorithm/ system aboard the USS HIGGINS, DDG 76, and transition to the DD(X) program. For FY 03 through FY 05, develop a software upgrade for the closed loop degaussing system that provides for a low signature during ship rolling conditions by compensating for eddy currents. Developed eddy current control system algorithm approaches in FY 03; develop control algorithm and initiate scaled model testing in FY 04.
For FY 03 through FY 05, develop a real-time tactical decision aid that provides safe operating areas as a function of mine threat. Developed decision aid requirements in FY 03 ; initiate coding in FY 04.
In FY 05, initiate development of a closed loop de-amping system that will reduce the near-field underwater corrosion-related magnetic and electric field signatures emanating from a steel hull surface ship. Initiate plans for installation aboard an operational destroyer.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.100	0.900	0.600
RDT&E Articles Quantity	0	0	0

(U) Continued development of the ship survivability design modeling and simulation program, Advanced Survivability Assessment Program (ASAP); for FY 03 completed development of crew casualty and electrical models. In FY 04 and FY 05, conduct verification and validation and develop new weapons effect and recoverability models.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.300	0.600
RDT&E Articles Quantity	0	0	0

(U) For FY 04 through FY 05, develop environmentally safe shock testing methods for conducting at-sea, or pier side ship shock trials that eliminate the need for costly environmental impact assessments and at-sea measures. In FY 04, conduct scaled demonstration tests of alternative methods including the use of innovative approaches for focusing the energy from conventional explosives in one direction. □

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2465/DC/Survivability

C. (U) PROGRAM CHANGE SUMMARY:

(U)Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:(FY 04 Pres Controls)	5.665	6.515	6.268
Current BES/President's Budget: (FY 05 Pres Controls)	5.488	6.443	6.142
Total Adjustments	-0.177	-0.072	-0.126
(U)Summary of Adjustments			
Congressional program reductions		-0.072	
SBIR/STTR Transfer	-0.163		
Miscellaneous Minor Adjustments	-0.014		-0.126
Subtotal	-0.177	-0.072	-0.126

(U)Schedule:

Not Applicable

(U)Technical:

Not Applicable

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2465/DC/Survivability

D. (U) OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
PE 0604300N/ DD(X) Total Ship Sys Engineering	668.472	1052.273	1431.585	1701.238	1314.772	897.563	592.981	CONT.	CONT.
PE 211900 / SCN	0.000	0.000	0.000	99.418	3,594.003	3,320.500	4,695.647	CONT.	CONT.

E. ACQUISITION STRATEGY:

F. (U) MAJOR PERFORMERS:

(U) Government Field Activities - NSWC Carderock

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2465/DC/Survivability						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	CPAF	DD(X) Design Agent	1.500	0.000	N/A	0.000	N/A	0.000	N/A	0.000	1.500	
Ancillary Hardware Development												
Product Development	WX	NSWC CD Bethesda, MD	7.868	4.543	11/02	6.443	12/03	6.142	12/04	CONT	CONT	
	Various	Other Contractors	5.251	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
Ship Integration												
Ship Suitability												
Systems Engineering												
Training Development												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			14.619	4.543		6.443		6.142		CONT	CONT	
Remarks:												
Development Support											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2465/DC/Survivability						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support	GSA	Anteon Arlington, VA	0.000	0.234	01/03	0.000	N/A	0.000	N/A	CONT	CONT	
Government Engineering Support	VAR	Othe Gov't Act	0.000	0.590	02/03	0.000	N/A	0.000	N/A	CONT	CONT	
Program Management Support	WX	NSWC CD Bethesda, MD	0.075	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.075	
Travel												
Labor (Research Personnel)	CPFF	Various	0.000	0.121	Various	0.000	N/A	0.000	N/A	CONT	CONT	
SBIR Assessment												
Subtotal Management			0.075	0.945		0.000		0.000		CONT	CONT	
Remarks:												
Total Cost			14.694	5.488		6.443		6.142		CONT	CONT	
Remarks:												

R-1 SHOPPING LIST - Item No. 39

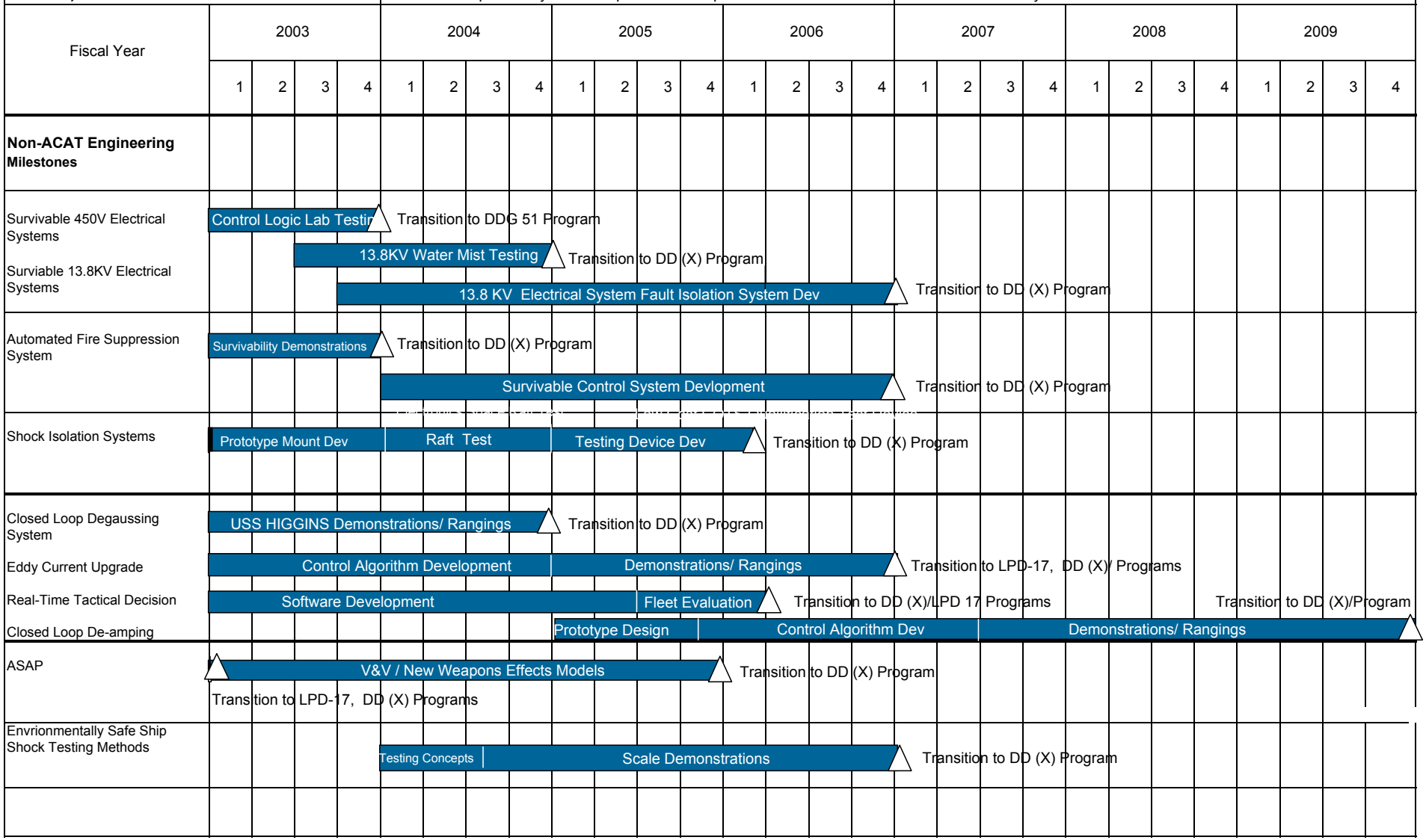
CLASSIFICATION:

EXHIBIT R4, Schedule Profile | DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4**

PROGRAM ELEMENT NUMBER AND NAME: 0603513N/Shipboard System Component Development

PROJECT NUMBER AND NAME: 2465/DC/Survivability



CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2465/DC/Survivability		
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
450 Volt Electrical Control Logic	4Q						
13.8KV Water Mist Tests		4Q					
13.8KV Peactime Fault Isolation Approaches		2Q					
13.8KV Fault Isolation Tests		4Q	1Q				
13.8 KV Bus Level Fault Isolation Approaches			IQ				
13.8KV Bus Level Fault Testing			4Q	3Q			
Automated Fire Suppression Piping Architecture Demo	2Q						
Fire Suppression Effectiveness Lab Demonstrations	4Q						
Control System Demonstration Platform		4Q					
Survivable Control System Software		4Q	2Q				
Survivable Control System Testing			3Q	3Q			
Ultra Low G Shock Mount	1Q						
Ultra Low G Shock Mount Test	3Q						
Electronics Space Raft Test		4Q					
Low Cost COTS Qualification Test Devices			4Q				
Low Cost COTS Qualification Test Demonstrations				1Q			
Closed Loop Degaussing Rangings		2Q-4Q					
Eddy Current Compensation Control Algorithm		3Q					
Eddy Current Demonstrations		4Q	4Q	4Q			
Tactical Decision Aid Requirements	4Q						
Tactical Decision Aid Prototype Code		4Q					
Tactical Decision Aid Fleet Evaluation			3Q	1Q			
De-Amping System Prototype Design			4Q				
De-Amping System Control Algorithm			4Q	1Q-4Q	1Q-2Q		
De-Amping System Prototype Installation					4Q		
De-Amping System Demonstrations					3Q-4Q	1Q-4Q	1Q-4Q
ASAP Crew Casualty and Electrical Models	4Q						
ASAP V&V		4Q					
ASAP Recoverability/ New Weapons Effects models			4Q				
Envrionmentally Safe Ship Shock Testing Concepts		3Q					
Alternative Test Method Scale Demonstrations		3Q	4Q	4Q			

R-1 SHOPPING LIST - Item No. 39

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2467/AGS-Advanced Gun System		
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**102.328**	**0.000***	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
RDT&E Articles Qty	**2**	**0**	**0**	**0**	**0**	**0**	**0**

Note: * (U) FY04 and out funding for this project was reprogrammed to BA-5 PE 0604300N, DD(X) Total Ship Systems Engineering, AGS Project 4009.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: These funds provide for the development of the Advanced Gun System (AGS) associated with the development of DD(X). The AGS will consist of a major caliber gun, an automated ammunition handling system, and a family of munitions/propelling charges. The AGS will, at a minimum, meet the Land Attack and Surface Dominance Missions assigned to the gun system. The system will provide a high rate of fire (approximately 12 rounds per minute) with a magazine capacity sufficient in size for meeting USMC operational requirements. Land Based testing of Engineering Development Model (EDM) hardware components to verify system design will commence in FY 03.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2467/AGS-Advanced Gun System

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	24.359	0.000	0.000
RDT&E Articles Quantity	0	0	0

(U) Initiated AGS System design and DD(X) Spiral Development Study. In FY04 and out, funding was reprogrammed to PE 0604300N, Project 4009.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	56.144	0.000	0.000
RDT&E Articles Quantity	2	0	0

(U) Commenced EDM fabrication for Gun, magazine, and Control system. In FY04 and out, funding was reprogrammed to PE 0604300N, Project 4009.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	9.475	0.000	0.000
RDT&E Articles Quantity	0	0	0

(U) Continued Risk Reduction Phase for AGS Long Range Land Attack Projectile (LRLAP). In FY04 and out, funding was reprogrammed to PE 0604300N, Project 4009.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2467/AGS-Advanced Gun System

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	12.350	0.000	0.000
RDT&E Articles Quantity	0	0	0

Initiate LRLAP EDM Development and Testing. In FY04 and out, funding was reprogrammed to PE 0604300N, Project 4009.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2467/AGS-Advanced Gun System

C. (U)PROGRAM CHANGE SUMMARY:

(U)Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:(FY 04 Pres Controls)	105.791	0.000	0.000
Current BES/President's Budget: (FY 05 Pres Controls)	102.328	0.000	0.000
Total Adjustments	-3.463	0.000	0.000
(U)Summary of Adjustments			
SBIR/STTR Transfer	-3.016		
Miscellaneous Minor Adjustments	-0.447		
Subtotal	-3.463	0.000	0.000

(U) Schedule:

Not Applicable

(U)Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2467/AGS-Advanced Gun System

D. (U) PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
PE 0604300N/ DD(X) Total Ship Sys Engineerin	668.472	1052.273	1431.585	1701.238	1314.772	897.563	592.981	CONT.	CONT.
PE 211900 / SCN	0.000	0.000	0.000	99.418	3,594.003	3,320.500	4,695.647	CONT.	CONT.

E. (U)ACQUISITION STRATEGY:

(U) The Navy conducted a comparison of concepts for the DD(X) Advanced Gun System, the results of which were reported to Congress by SECNAV on 10/99. The Advanced Gun System will be acquired in conjunction with the DD(X) development schedule. Initial phases will be conducted under section 845/804 other transaction authority. Initial phases include: Phase I – Concept Formulation, and Phase II - Initial Prototype Development. Downselection to a single DD(X) Design Agent occurred in the Third Quarter, FY 02 to begin Phase III. The AGS EDM development will continue under this contract.

F. (U)MAJOR PERFORMERS:

(U) Contractors - United Defense Limited Partnership, Northrop Grumman Ship Systems, Bath Iron Works

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603513N/Shipboard System Component Development			PROJECT NUMBER AND NAME 2467/AGS-Advanced Gun System							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	845/804	DD(X) Industry Teams	177.435	0.000	N/A					0.000	177.435	
	CPAF	DD(X) Design Agent	62.342	95.000	1QFY03					CONT	CONT	
Ancillary Hardware Development												
Product Development												
Ship Integration												
Ship Suitability												
Systems Engineering												
Training Development												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			239.777	95.000		0.000		0.000		CONT	CONT	

Remarks: FY04 and outyear funding for this effort was reprogrammed to PE 0604300N, Project 4009. See those exhibits for FY 04 and FY 05 data.

Development Support											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	

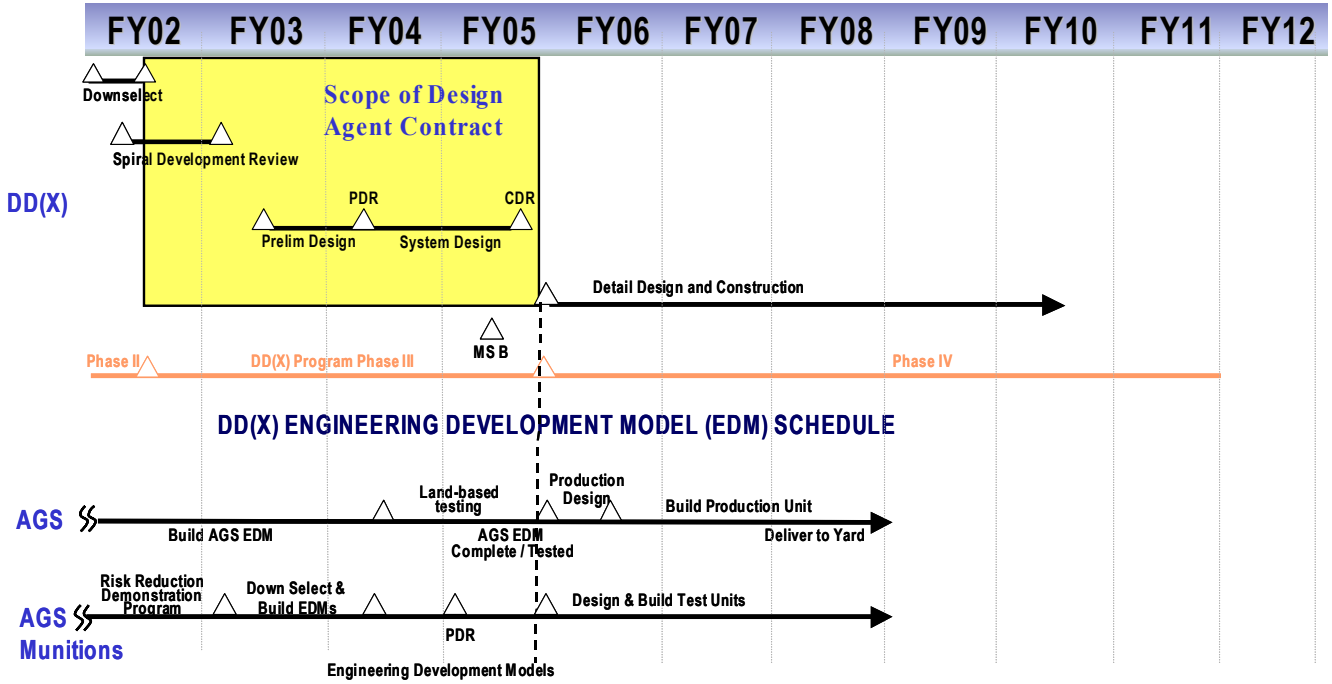
Remarks:

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603513N/Shipboard System Component Development			PROJECT NUMBER AND NAME 2467/AGS-Advanced Gun System							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation												
Operational Test & Evaluation												
Live Fire Test & Evaluation												
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support	GSA/FFP	Anteon Arlington, VA	2.776	1.000	10/02					CONT	CONT	
	Various	Other Contractors	1.444	0.000	N/A					CONT	CONT	
Government Engineering Support	WX	NSWC DD Dahlgren, VA	11.478	2.533	10/02					CONT	CONT	
	WX	NSWC PHD Pt. Hueneme, CA	5.342	1.600	10/02					CONT	CONT	
	WX	Other Gov't Activities	8.629	2.195	Various					CONT	CONT	
Program Management Support												
Travel												
Labor (Research Personnel)												
SBIR Assessment												
Subtotal Management			29.669	7.328		0.000		0.000		CONT	CONT	
Remarks: For FY 2004 and outyear funding for this effort was reprogrammed to PE 0604300N, Project 4009. See those exhibits for FY04 and FY05 data.												
Total Cost			269.446	102.328		0.000		0.000		CONT	CONT	
Remarks:												

CLASSIFICATION:

EXHIBIT R4, Schedule Profile		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development	PROJECT NUMBER AND NAME 2467/AGS-Advanced Gun System



CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2467/AGS-Advanced Gun System		
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009

The milestones on this page are covered under PE0604300N, Project 4009, Advanced Gun System.

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2468/Undersea Warfare		
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**18.644**	**1.419**	**1.669**	**4.178**	**1.976**	**0.000**	**0.000**
RDT&E Articles Qty	**0**	**0**	**0**	**0**	**0**	**0**	**0**

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Undersea Warfare (USW) project provides advanced development demonstration and validation of technology through a build-test-build process for potential surface sonar and combat system application. Efforts focus on resolution of technical issues associated with providing capability against the year 2010 and beyond threat with emphasis on shallow water/littoral area USW and on Demonstration and Validation (DEM/VAL) of DD(X) Integrated Undersea Warfare (IUSW-21) Advanced Development Model (ADM). The key technology areas being investigated include: (1) improvements in signal processing, (2) advanced information processing, (3) multi-sensor data fusion, (4) towed array technology, (5) hull array technology and (6) transducer technology to improve target detection and classification performance and reduce system manning requirements for anti-submarine, torpedo defense and in-stride mine avoidance. FY 2002 and subsequent efforts will focus on major technological and performance thrusts for DD(X) USW, which will define surface combatant USW capability for the Navy in the next century. These efforts will continue beyond DD(X) and provide improvements that apply across surface ship USW platforms.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2468/Undersea Warfare

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	5.000	0.374	0.472
RDT&E Articles Quantity	0	0	0

(U) IUSW-21 Risk reduction contracts/tasks - Completed integration of FY99 Broad Agency Announcements (BAAs) into the Advanced Development Model (ADM). Awarded DD(X) Design Agent (DA) contract to support the build-test-build process and the FY05 sea tests. DA will continue risk reduction tasks to further define advanced information processing for automated detect classify and localize, data fusion, automated environmental adaptation, mine avoidance, torpedo defense, and displays for reduced manning. In FY 03, began FY02 sea test data analysis, began integration of risk reduction tasks to support the build -test-build process and the FY 05 sea tests; continue risk reduction tasks to further define advanced information. For FY 04, continue risk reduction tasks to further define advanced information processing and complete integration of risk reduction into the ADM/EDM to support the build-test-build process and the FY 05 sea tests. In FY 05, execute risk reduction tasks into the ADM to support the build-test-build process and the FY 07 sea tests.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	10.045	0.730	0.823
RDT&E Articles Quantity	0	0	0

(U) IUSW-21 ADM/EDM Development - Performed Integrated Peer Group (IPG) engineering reviews of IUWS-21 advanced technologies. Finished the development and integration of IUSW-21 advanced technologies into ADM demonstration system for FY 02 sea test. For FY 03, began FY02 sea test data analysis and continued development and integration of IUSW-21 advanced technologies for the FY05 sea tests. Perform Integrated Product Team (IPT) engineering reviews of IUSW advanced technologies. In FY 04, continue IPT (IPT) engineering reviews of IUSW-21 advanced technologies. Complete the development and integration of IUSW-21 advanced technologies into ADM/EDM demonstration system for FY05 sea tests. In FY 05, complete the development and integration of IUSW-21 advanced technologies into ADM/EDM demonstration system for FY05 sea tests. Continue to perform IPT engineering reviews of IUSW-21 advanced technologies.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	3.599	0.315	0.374
RDT&E Articles Quantity	0	0	0

(U) FY02 Sea Test - Completed equipment preparation and integrated Multi-Function Towed Array (MFTA) into ADM. Shipped and installed equipment, conducted sea test and collected data. In FY 03, removed and transported equipment, refurbished ship, performed data analysis, and began planning for FY05 sea tests. In FY 04, complete equipment preparation for FY 05 sea tests. In FY 05, complete equipment preparation for FY 05 sea test. Ship and install equipment, conduct FY 05 sea tests and collect data.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2468/Undersea Warfare

C. (U)PROGRAM CHANGE SUMMARY:

(U)Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:(FY 04 Pres Controls)	20.093	1.435	1.684
Current BES/President's Budget: (FY 05 Pres Controls)	18.644	1.419	1.669
Total Adjustments	-1.449	-0.016	-0.015
(U)Summary of Adjustments			
Congressional program reductions		-0.016	
Realignment	-0.822		
SBIR/STTR Transfer	-0.576		
Miscellaneous Minor Adjustments	-0.051		-0.015
Subtotal	-1.449	-0.016	-0.015

(U)Schedule:

Not Applicable

(U)Technical:

Not Applicable

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2468/Undersea Warfare

D. (U) OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
PE 0604300N/ DD(X) Total Ship Sys Engineerir	668.472	1052.273	1431.585	1701.238	1314.772	897.563	592.981	CONT.	CONT.
PE 211900 / SCN	0.000	0.000	0.000	99.418	3,594.003	3,320.500	4,695.647	CONT.	CONT.

E. (U) ACQUISITION STRATEGY:

(U) In Contracting Phase I and II, DD(X) used Section 845/804 agreement authority for the efforts conducted by the DD(X) Industry Teams. BAAs were competitively awarded to further refine advanced information processing for automated detect classify and localize, data fusion, automated environmental adaptation, mine avoidance, torpedo defense, and displays for reduced manning to provide further risk mitigation for DD(X) USW activities. In Contract Phase III responsibility for IUSW-21 ADM/EDM development for the FY04 and FY05 sea tests will be with the DD(X) Design Agent.

F. (U)MAJOR PERFORMERS:

(U) DD(X) Design Agent-Ingalls Shipbuilding Inc (ISI)
(U) Field Activities - Naval Undersea Warfare Center, Newport .

CLASSIFICATION:

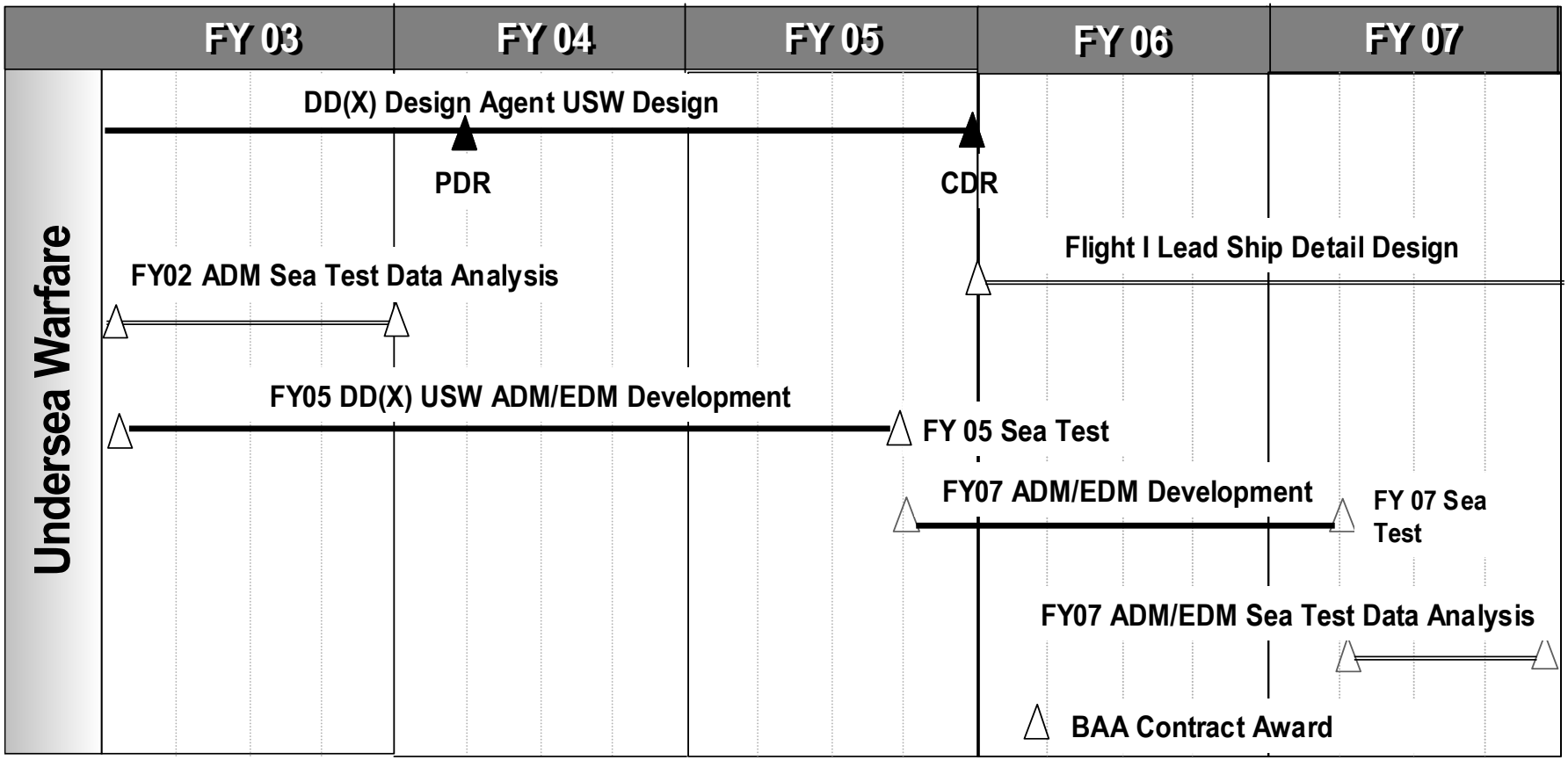
Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2468/Undersea Warfare						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	845/804	DD(X) Industry Teams	11.104	0.000	N/A	0.000	N/A	0.000	N/A	0.000	11.104	
	CPAF	DD(X) Design Agent	4.000	4.000	1QFY03	0.000	N/A	0.000	N/A	CONT	CONT	
	BAA/CPFF	Competition	14.176	0.600	Various	0.374	Various	0.472	Various	CONT	CONT	
Ancillary Hardware Development												
Systems Engineering	C/CPFF	LMC, Syracuse, NY	0.813	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	WX	Other Gov't Activities	0.000	0.400	1QFY03	0.000	N/A	0.000	N/A	CONT	CONT	
	C/CPFF	RSC, Newport, RI	0.827	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			30.920	5.000		0.374		0.472		CONT	CONT	
Remarks:												
Development Support											0.000	
Software Development	C/CPFF	LMC, Syracuse, NY	11.589	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	C/CPFF	RSC, Newport, RI	10.316	0.000	N/A	0.000	N/A	0.000	NA	CONT	CONT	
	WX	Other Gov't Activities	0.000	0.750	1QFY03	0.000	N/A	0.000	N/A	CONT	CONT	
	CPAF	DD(X) Design Agent	0.000	6.000	1QFY03	0.000	N/A	0.000	N/A	CONT	CONT	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			21.905	6.750		0.000		0.000		CONT	CONT	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2468/Undersea Warfare						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NUWC/N Newport, RI	5.238	2.599	1QFY03	0.000	N/A	0.000	N/A	CONT	CONT	
	SS/CPFF	APL/JHU Laurel, MD	1.430	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	CPAF	DD(X) Design Agent	0.000	1.000	1QFY03	0.000	N/A	0.000	N/A	CONT	CONT	
	PD/WR	Other Gov't Activities	0.000	0.000	N/A	0.315	Various	0.374	Various	CONT	CONT	
Operational Test & Evaluation												
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			6.668	3.599		0.315		0.374		CONT	CONT	
Remarks:												
Contractor Engineering Support										0.000	0.000	
Government Engineering Support	WX	Other Gov't Activities	1.631	0.200	Various	0.237	1QFY04	0.276	1QFY05	CONT	CONT	
	SS/CPFF	NUWC/N Newport, RI	4.415	2.362	12/02	0.374	1QFY04	0.436	1QFY05	CONT	CONT	
	SS/CPFF	Various	2.055	0.300	12/02	0.000	N/A	0.000	N/A	CONT	CONT	
Program Management Support	GSA/FFP	Anteon Arlington, VA	2.090	0.234	12/02	0.119	1QFY04	0.111	1QFY05	CONT	CONT	
	PD/WX	Other Gov't Activities	0.091	0.199	Various	0.000	N/A	0.000	N/A	CONT	CONT	
Travel												
Labor (Research Personnel)												
SBIR Assessment												
Subtotal Management			10.282	3.295		0.730		0.823		CONT	CONT	
Remarks:												
Total Cost			69.775	18.644		1.419		1.669		CONT	CONT	
Remarks:												

CLASSIFICATION:

EXHIBIT R4, Schedule Profile		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2468/Undersea Warfare



CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2468/Undersea Warfare		
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
FY02 ADM Sea Test Data Analysis	1Q-4Q						
DD(X) Preliminary Design Review (PDR)		2Q-3Q					
FY05 DD(X) USW ADM/EDM Development/Integration	1Q-4Q	1Q-4Q	1Q-3Q				
FY05 DD(X) USW ADM/EDM Sea Tests			3Q				
DD(X) Critical Design Review (CDR)			4Q				
FY07 ADM/EDM Development			4Q	1Q-4Q	1Q		
BAA Contract Award				1Q			
FY07 ADM/EDM Sea Test					1Q		
FY07 ADM/EDM Sea Test Data Analysis					2Q-4Q		

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2469/Open Systems Architecture (OSA)		
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**4.358**	**3.723**	**3.463**	**2.520**	**2.013**	**2.042**	**2.077**
RDT&E Articles Qty	**0**	**0**	**0**	**0**	**0**	**0**	**0**

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The following provides a mission description for each major development area (i.e., Fleet-Focused Initiative (FFI) and Open Systems Architecture (OSA):

(U) Fleet-Focused Initiative: For existing and future ships, this funding: 1) improves reliability/maintainability of fluid, electrical, and mechanical systems and 2) supports reduced manning through automation of operational, maintenance, and day-to-day functions traditionally performed by the crew, and supports development of auxiliary systems to reduce ship magnetic signature and vulnerability to mines.

(U) Architectures, Interfaces & Modular Systems (AIMS): This funding supports PEO Ships implementation of modular standard open systems architecture (OSA) at the total system/ship level. These modular interfaces facilitate mission and market adaptability, technology refresh and insertion, and competition. This funding supports the market surveillance and technology and other projections, cost and logistics analyses, process development, industry partnering, demonstrations and assessments necessary to translate into total ship acquisition.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2469/Open Systems Architecture (OSA)

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.000	0.960	0.963
RDT&E Articles Quantity	0	0	0

(U) Open Systems Architecture - Common Family of Ships (FOS) Business/Technical Architecture and Technology Management: FY03: Common AIMS / Modularity assessed for FOS / Spiral Design Reviewed with processes and metrics to assess/validate system architecture and interface adaptability for technology refresh and insertion. FY04: Draft architecture for common FOS AIMS. FY05: Integrate common PEO Ships FOS AIMS. Yearly: update TM plans.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.806	2.571	2.500
RDT&E Articles Quantity	0	0	0

(U) Open Systems Architecture - Implementation: Transition with industry common Architectures, Interfaces, and Modular Systems (AIMS) for shipboard zones A-E below.

A. Open Command and Control (C&C) Zone, FY03: Concept development, FY04-05: Architecture development, FY05: Interface development
The following two efforts are subsets of the C&C Zone:
1. Open C4ISR Zone, FY03: Foundation Interface promulgated and HVAC Interface developed and HVAC Interface refined and promulgated
2. Open C&C Zone Sensor/Network and Supply, Maintenance and Monitoring Open Architecture (SMMOA) Interfaces, FY03: risk reduced with demonstrators and industry and Navy outreach, FY03-4: Interface concepts, FY04-5: Interfaces.
B. Open Offboard Vehicle Zone, FY 03: Concepts, FY03-4: Architecture, FY05: Interfaces.
C. Open Weapons/Power Projection Zone: FY03: Concept, FY04: Architecture, FY05: Interfaces
D. Open Sensors Zone, FY05: Concepts
E. Open Machinery Zones, continuing: Support the implementation of common interfaces for environmental systems.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.862	0.000	0.000
RDT&E Articles Quantity	0	0	0

(U) Fleet-Focused Initiatives - Fuel Cell - Continued Ship Surface Fuel Cell (SSFC) ship impact assessments and model analysis of molten carbonate reduced scale demonstrator and PEM integrated fuel processor. For FY 03, validated static and dynamic models of molten carbonate SSFC.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2469/Open Systems Architecture (OSA)

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.345	0.000	0.000
RDT&E Articles Quantity	0	0	0

(U) Fleet-Focused Initiatives - Salvage and Underwater Ship Husbandry - Performed prototype assembly and testing for the Smart Tow Monitoring System. Continued development of materials for the improved Shaft Coating Systems. Acquired diagnostic hardware for evaluating Shaft Coating System performance. For FY 03, completed preliminary testing of the Smart Tow System. Evaluated inspection/diagnostic techniques and documented protocol for inspecting Shaft Coating Systems underwater.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.345	0.192	0.000
RDT&E Articles Quantity	0	0	0

(U) Fleet-Focused Initiatives - TOC Initiatives - Continued development of improved fuel system training that reduced sailor workload for the existing fleet. For FY 04, complete efforts to improve fuel system training that reduces workload for the existing fleet and issue final report.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2469/Open Systems Architecture (OSA)

C. (U) PROGRAM CHANGE SUMMARY:

(U)Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:(FY 04 Pres Controls)	4.499	3.765	3.504
Current BES/President's Budget: (FY 05 Pres Controls)	4.358	3.723	3.463
Total Adjustments	-0.141	-0.042	-0.041
(U)Summary of Adjustments			
Congressional program reductions		-0.042	
SBIR/STTR Transfer	-0.129		
Miscellaneous Minor Adjustments	-0.012		-0.041
Subtotal	-0.141	-0.042	-0.041

(U)Schedule:

Not Applicable

(U)Technical:

Not Applicable

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2469/Open Systems Architecture (OSA)

D. (U) OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
PE 0604300N/ DD(X) Total Ship Sys Engineerir	668.472	1052.273	1431.585	1701.238	1314.772	897.563	592.981	CONT.	CONT.
PE 211900 / SCN	0.000	0.000	0.000	99.418	3,594.003	3,320.500	4,695.647	CONT.	CONT.

E. ACQUISITION STRATEGY:

F. (U)MAJOR PERFORMERS:

(U) Government Field Activities- NSWC Carderock and NSWC Dahlgren

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2469/Open Systems Architecture (OSA)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	845/804	DD(X) Industry Teams	35.327	0.000	N/A	0.000	N/A	0.000	N/A	0.000	35.327	
	WX	NSWC CD Bethesda, MD	10.023	0.000	N/A	0.000	N/A	0.000	N/A	0.000	10.023	
	Various	Other Gov't Activities	4.987	0.000	N/A	0.000	N/A	0.000	N/A	0.000	4.987	
	Various	Other Contractors	2.735	0.000	N/A	0.000	N/A	0.000	N/A	0.000	2.735	
Ancillary Hardware Development											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			53.072	0.000		0.000		0.000		0.000	53.072	
Remarks:												
Development Support											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

R-1 SHOPPING LIST - Item No. 39

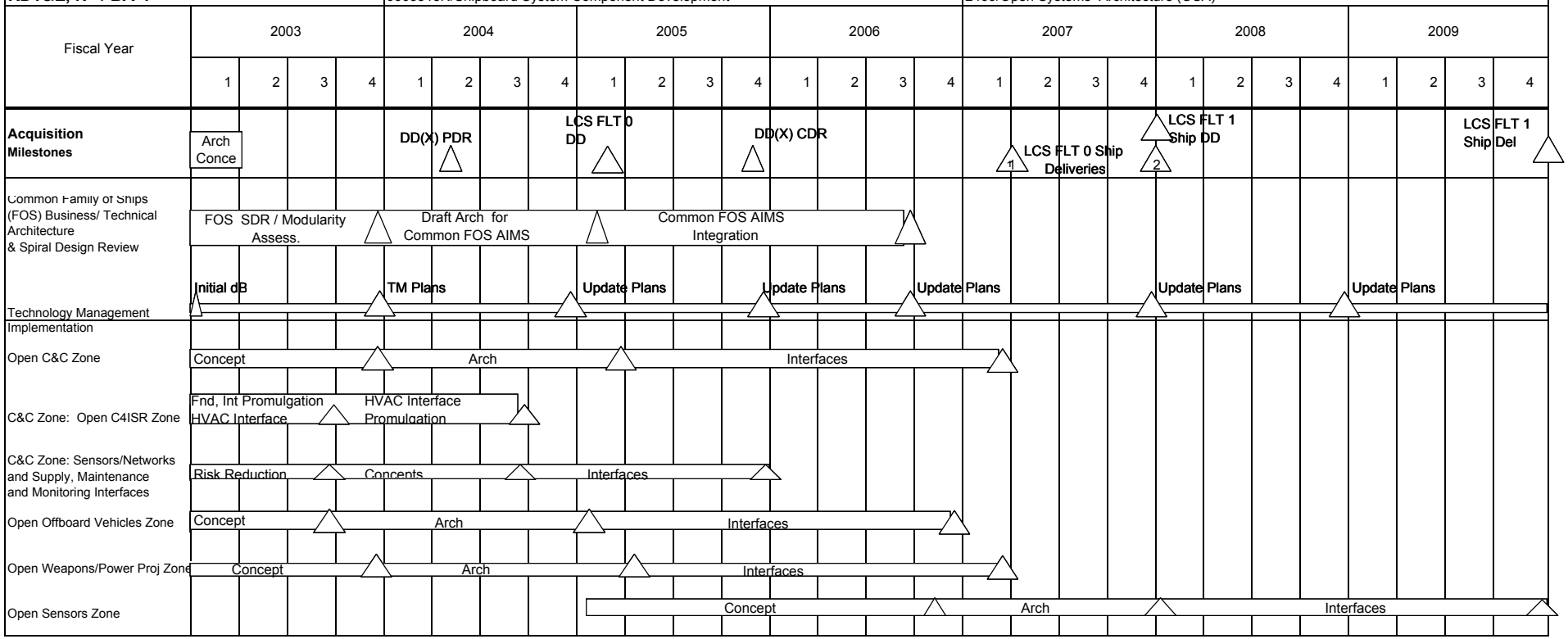
CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603513N/Shipboard System Component Development			PROJECT NUMBER AND NAME 2469/Open Systems Architecture (OSA)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support	Various	Other Contractors	7.210	1.519	Various	0.531	Various	0.000	N/A	CONT	CONT	
Government Engineering Support	WX	NSWC CD Philadelphia, PA	2.556	1.207	Various	0.000	N/A	0.000	N/A	0.000	3.763	
	WX	NSWC Dahlgren, Va.	0.000	0.000	N/A	1.050	10/03	1.075	10/04	CONT	CONT	
	WX	NSWC Carderock, Md.	0.000	0.000	N/A	1.550	10/03	1.593	10/04	CONT	CONT	
	Various	Other Gov't Activities	28.728	1.632	Various	0.592	Various	0.795	Various	CONT	CONT	
Program Management Support											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
SBIR Assessment											0.000	
Subtotal Management			38.494	4.358		3.723		3.463		CONT	CONT	
Remarks:												
Total Cost			91.566	4.358		3.723		3.463		CONT	CONT	
Remarks:												

CLASSIFICATION:

EXHIBIT R4, Schedule Profile | DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2469/Open Systems Architecture (OSA)



R-1 SHOPPING LIST - Item No. 39

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: February 2004		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT PE 0603513N Shipboard System Component Developmen				PROJECT NUMBER AND NAME 2469/ Open Systems Architecture (OSA)		
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Business/Technical Architecture							
FOS SDR / Modularity Assessment complete	4Q						
Draft Architecture for Common FOS AIMS Complete			1Q				
Common FOS AIMS Modularity Integration Complete				3Q			
Technology Management:							
Initial Database Complete	1Q						
TM Plans Issues	4Q						
Update TM plans		4Q/yearly					
Implementation							
Open Command and Control Zone							
Open C&C Zone Concept Complete	4Q						
Open C&C Zone Architecture Complete			1Q				
Open C&C Zone Interfaces Defined					1Q		
Open C4I Zone Foundation Promulgation	3Q						
Open C4I Zone HVAC Interface Defined	3Q						
Open C4I Zone HVAC Implementation Complete		3Q					
Sensor/Networks and SMMOA Risk Reduction	3Q						
Sensor/Networks and SMMOA Interface Concepts Complete		3Q					
Sensor/Networks and SMMOA Interfaces Defined			4Q				
Open Offboard Vehicles Zone:							
Open Offboard Vehicles Zone Concept Complete	3Q						
Open Offboard Vehicles Zone Architecture Complete			1Q				
Open Offboard Vehicles Zone Interfaces Defined				4Q			
Open Weapons/Power Projection Zone:							
Open Weapons Zone Concept Complete	4Q						
Open Weapons Zone Arch Complete			2Q				
Open Weapons Zone Interfaces Defined					1Q		
Open Sensors Zone:							
Open Sensors Zone Concept Complete				4Q			
Open Sensors Zone Architecture Complete						1Q	
Open Sensors Zone Interfaces Defined							4Q

R-1 SHOPPING LIST - Item No. 39

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2470/Integrated Topside Design (ITD)		
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**4.001**	**3.665**	**3.589**	**2.773**	**0.816**	**0.813**	**0.822**
RDT&E Articles Qty	**0**	**0**	**0**	**0**	**0**	**0**	**0**

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project develops the necessary technologies to achieve a total integrated topside design focused on DD(X) and other future surface combatant ships as well as supporting upgrades to existing ships in the Fleet. Technology focus areas include the development, enhancement, validation and verification of modeling and simulation (M&S) tools to support topside signature control, electronic warfare effectiveness, and electromagnetic engineering. This project also develops technical data to support the use of large-scale marine composites on surface combatants to facilitate topside signature control. Topside signature control and electronic warfare effectiveness M&S tools supported by this project enable Navy transformation efforts related to sea strike by facilitating the cost effective design, design approval, and Live Fire Test and Evaluation of low signature surface ships. The validated, integrated, physics-based, electromagnetic radiation (VIPER) M&S tool suite currently being developed under this project will provide the Navy with a state-of-the-art electromagnetic engineering (EME) capability that is applicable to both new construction and existing ships in the Fleet. By providing the design community with tools able to accurately predict the optimum arrangement of topside sensors to minimize electromagnetic interference (EMI), this project enables Navy transformation efforts by facilitating FORCEnet, the connection of sensors, networks, weapons, decision aids and warriors from seabed to space. Development of marine composite technical data supports Navy transformation efforts by enabling the cost effective design of stealthy surface ship topsides that have improved corrosion control which, in turn enables optimized manning. This project also develops improved components of non-propulsion HM&E systems. This program is directed toward improved affordability, performance, reduced life cycle cost, reliability and maintainability, signature reduction, standardization, and weight and manning reductions for the existing and future Fleet.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2470/Integrated Topside Design (ITD)

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.319	1.555	1.512
RDT&E Articles Quantity	0	0	0

Completed Aperture Signature Prediction Tool Assessment Study. Began development of Advanced EMI Design and Analysis Modeling Tool (Ver. 1.0). Completed collection and analysis of infrared (IR) signature data from SIMVEX 02 in Halifax, Nova Scotia. Completed collection of range data to Validation &Verification (V&V) radar cross section (RCS) signature prediction tool for low observable ships. Initiated collection of at-sea data to V&V IR signature prediction tool for low observable ships. Continue the development, enhancement, validation and verification of topside signature control and electronic warfare effectiveness for Materials & Signature (M&S) tools.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.335	1.551	1.500
RDT&E Articles Quantity	0	0	0

Completed V&V of Advanced Antenna Electronics, Advanced Array Antenna (Ver. 1.0), and Advanced Frequency Selective Surface (Ver. 1.0) Design and Analysis Modeling Tools. Completed Composite Materials Fire Safety Goals and Qualification Procedures and Composite Materials Outfitting Performance Design Guides. Completed development and V&V of Composite Materials Joint Analysis M&S Tool (SPLICE Ver. 2). Completed reports on Composite Material External Doubler Joint and Composite Material Adhesive Shear Testing. Completed development of Analytical Design Tool to Establish Performance Standards for Critical Flaw Evaluation in Marine Composites. Continue development, enhancement, validation and verification of topside Electro Magnetic Engineering (EME) Materials & Signature tools.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.887	0.000	0.000
RDT&E Articles Quantity	0	0	0

Continued development of auxiliary machinery, alternative hydrogen fuel, fuel storage, and architectures to support fleet and Strategic Studies Groups 19 and 20 initiatives. Continue development of affordable, efficient HM&E machinery and architectures for existing and future fleets.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2470/Integrated Topside Design (ITD)

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.460	0.559	0.577
RDT&E Articles Quantity	0	0	0

Continue development of acceptance guides for marine composites for surface ships.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2470/Integrated Topside Design (ITD)

C.(U) PROGRAM CHANGE SUMMARY:

(U)Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:(FY 04 Pres Controls)	4.129	3.711	3.638
Current BES/President's Budget: (FY 05 Pres Controls)	4.001	3.665	3.589
Total Adjustments	-0.128	-0.046	-0.049
(U)Summary of Adjustments			
Congressional program reductions		-0.041	
SBIR/STTR Transfer	-0.117		
Miscellaneous Minor Adjustments	-0.011	-0.005	-0.049
Subtotal	-0.128	-0.046	-0.049

(U)Schedule:

Not Applicable

(U)Technical:

Not Applicable

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2470/Integrated Topside Design (ITD)

D. (U)OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
PE 0604300N/ DD(X) Total Ship Sys Engineerin	668.472	1052.273	1431.585	1701.238	1314.772	897.563	592.981	CONT.	CONT.
PE 211900 / SCN	0.000	0.000	0.000	99.418	3,594.003	3,320.500	4,695.647	CONT.	CONT.

E. ACQUISITION STRATEGY:

F. (U) MAJOR PERFORMERS:

(U)Government Field Activities-NRL Washington DC, and SPAWAR Systems Center San Diego.

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2470/Integrated Topside Design (ITD)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	845/804	DD(X) Industry Teams	24.556	0.000	N/A	0.000	N/A	0.000	N/A	0.000	24.556	
Ancillary Hardware Development											0.000	
Systems Engineering										0.000	0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			24.556	0.000		0.000		0.000		0.000	24.556	
Remarks:												
Development Support											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603513N/Shipboard System Component Development			PROJECT NUMBER AND NAME 2470/Integrated Topside Design (ITD)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support	GSA/FFP	Anteon Arlington, Va.	3.408	0.052	Various	0.048	Various	0.041	Various	CONT	CONT	
Government Engineering Support	WX	NSWC CD Bethesda, MD	1.414	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	WX	NRL, Washington DC	0.000	1.120	10/02	1.025	10/03	0.993	10/04	CONT	CONT	
	WX	SSCSD, San Diego, CA	1.566	0.000	N/A	1.140	10/03	1.113	10/04	CONT	CONT	
	Various	Other Gov't Activities	20.823	2.829	Various	1.452	Various	1.442	Various	CONT	CONT	
Program Management Support											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
SBIR Assessment											0.000	
Subtotal Management			27.211	4.001		3.665		3.589		CONT	CONT	
Remarks:												
Total Cost			51.767	4.001		3.665		3.589		CONT	CONT	
Remarks:												

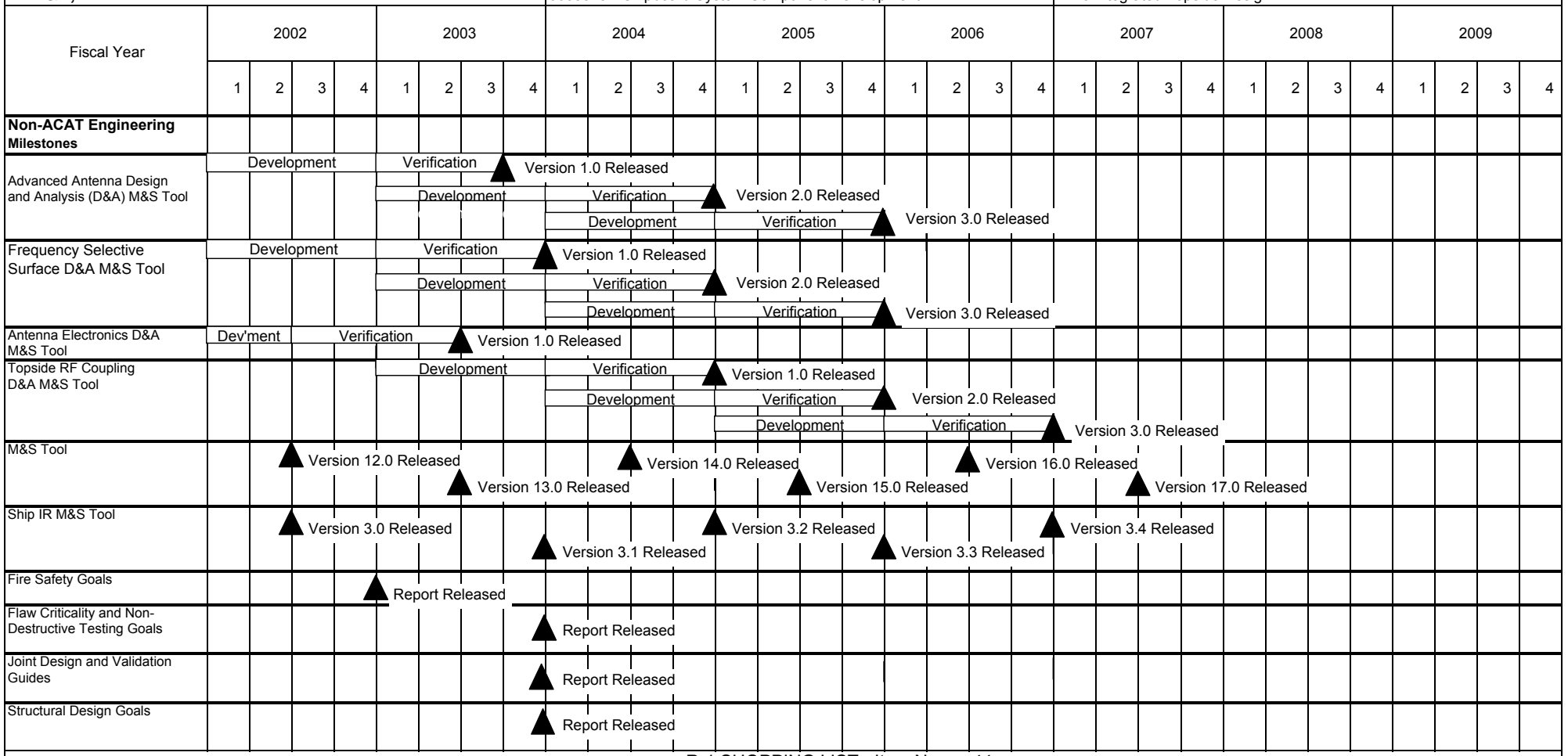
CLASSIFICATION:

EXHIBIT R4, Schedule Profile — DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4**

PROGRAM ELEMENT NUMBER AND NAME: 0603513N/Shipboard System Component Development

PROJECT NUMBER AND NAME: 2470/Integrated Topside Design



R-1 SHOPPING LIST - Item No. 44

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2470/Integrated Topside Design		
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Electromagnetic Engineering							
Advanced Antenna Design and Analysis (D&A) M&S Tool							
Version 1.0 Released	3Q						
Version 2.0 Released		4Q					
Version 3.0 Released			4Q				
Frequency Selective Surface D&A M&S Tool							
Version 1.0 Released	4Q						
Version 2.0 Released		4Q					
Version 3.0 Released			4Q				
Antenna Electronics D&A M&S Tool							
Version 1.0 Released	2Q						
Topside RF Coupling D&A M&S Tool							
Version 1.0 Released		4Q					
Version 2.0 Released			4Q				
Version 3.0 Released				4Q			
Electronic Warfare Effectiveness and Topside Signatures							
Radar Target Signature M&S Tool							
Version 13.0 Released	2Q						
Version 14.0 Released		2Q					
Version 15.0 Released			2Q				
Version 16.0 Released				2Q			
Version 17.0 Released					2Q		
ShipIR M&S Tool							
Version 3.1 Released	4Q						
Version 3.2 Released		4Q					
Version 3.3 Released			4Q				
Version 3.4 Released				4Q			
Composite Materials							
Flaw Criticality and Non Destructive Testing Goals	4Q						
Joint Design and Validation Guide	4Q						
Structural Design Goals	4Q						
R-1 SHOPPING LIST - Item No.			39				

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2471/Integrated Power Systems		
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**94.528**	**4.949**	**4.130**	**9.750**	**9.562**	**9.664**	**9.844**
RDT&E Articles Qty	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: (U) FY 2004 and FY 2005 IPS DD(X) funds transferred to BA-5 PE 0604300N IPS Project 4010.

A. (U) **MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:** This project supports the Integrated Power Systems (IPS) program. IPS provides total ship electric power, including electric propulsion, power conversion and distribution, and mission load interfaces to the electric power system. IPS supports multiple ship class applications for future surface ships, with DD (X) being the primary ship application target. On 6 January 2000, SECNAV announced Navy intent that DD(X) be an electric drive ship with integrated power architecture. IPS reduces acquisition and operating costs of naval ships and increases military effectiveness. IPS leverages investments in technologies that will be useable by both military and commercial sectors.

- (U) IPS has the potential to revolutionize the design, construction, and operation of U.S. naval ships by using electricity as the primary energy transfer medium aboard ship. The flexibility of electric power transmission allows power generating modules with various power ratings to be connected to propulsion loads and ship service in any arrangement that supports the ship's mission at lowest overall cost. Systems engineering in IPS is focused on increasing the commonality of components used across ship types and in developing modules which will be integral to standardization, zonal system architectures, and generic shipbuilding strategies. The purpose of increased commonality is to reduce the total cost of ship ownership by using common modules composed of standard components and/or standard interfaces.

- (U) IPS addresses ship platform program goals through: reduced ship acquisition cost through integration of propulsion and ship's service prime movers; lower ship operational costs resulting from more flexible operating characteristics and more efficient components; reduced ship construction costs by allowing more extensive modular construction of power generation, distribution, and loads; improved ship survivability and reduced vulnerability through increased arrangement flexibility and improved electrical system survivability; reduced manning through improved power management systems and reduced on-board maintenance requirements; improved ship signature characteristics; improved design adaptability to meet future requirements of multiple ship types or missions; integrating power management and protection by fully utilizing the power electronics in the system to perform fault protection as well as power conversion and load management functions; simplified technology insertion which allows new technologies to be installed within IPS much less expensively than presently possible; and, reduced machinery system acquisition costs through utilization of commercially shared technologies and components. The efforts in this project are divided into three major areas as follows:

- (U) System development: consists of the efforts necessary to develop and demonstrate broadly applicable warfighting improvements and cost reductions as well as related efforts for ship platform and mission load interface applications.

- (U) Platform Specific Development: includes all efforts to design, develop and test integrated power system equipment for ship specific application including DD(X) family of ships. This includes Permanent Magnet (PM) motor and motor drive technologies

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2471/Integrated Power Systems

- (U) RV Triton At Sea Testing: At Sea Testing of IPS subsystems and components will be conducted on the RV Triton Trimaran Demonstrator developed and built under a US/UK cooperative Memorandum of Understanding (MOU) signed 3 September 1997. The RV Triton was launched on 6 May 2000 under the contract for construction awarded in July 1998. The RV Triton is constructed with a commercial electric drive system as well as provisions for fitting and testing of IPS components. Initial testing on the RV Triton is non-IPS and will focus on Naval Architectural and sea-keeping aspects of the trimaran hull form. An opportunity for the US to backfit IPS components and conduct follow-on at sea testing is built into the MOU. The US financial contribution to the MOU is also funded from this project. The efforts in this project support the procurement, installation, and at sea testing of IPS components on the RV Triton.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2471/Integrated Power Systems

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	2.612	1.500	0.978
RDT&E Articles Quantity	0	0	0

Systems Development: IPS design, development, and integration including performance analysis and testing, modeling and simulation, life cycle cost analysis, producibility studies, manning studies, module development, ship integration, architecture design and related efforts. Demonstrate automated system reconfiguration and start-up. Mitigate potential risks associated with a fielded IPS Integrated Fight Through Power (IFTP) system by fabricating hardware required to populate IPS baseline configuration and conducting testing. Modify test site design for IPS integrated fight through power testing at NSWCCD, Philadelphia PA. Evaluate emerging technologies for ship applications to determine future feasibility and development requirements. Emerging technologies include technologies such as fuel cells and power electronics. Conduct combat systems/survivability demonstration to show improved performance and potential to reduce combat system costs. Develop IPS configurations in support of all future surface ship programs. Develop/modify IPS ship configuration documentation including CONOPS, System Level Description/Requirements, and module performance specifications as necessary to support power system requirements for TAOE (X) and LHR (X) and MPF future. Develop ship power system Smart Product Model to support cost/performance tradeoffs of alternative IPS ship configurations and evaluation of emerging electric power system and component technologies.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	82.000	0.000	0.000
RDT&E Articles Quantity	0	0	0

Platform Specific Development: NOTE: FY 04 and FY 05 funds for IPS on DD(X) have been transferred to PE 0604300N/Project 4010. Award contract for DD(X) IPS land-based and at-sea Engineering Development Models (EDMs). In support of DD(X) IPS EDM land-based and at-sea testing: determine representative test hardware configurations; and develop test site designs; order Long Lead Material (LLM) and other material for large generators and prime movers. Perform DD(X) spiral development review studies. Conduct detailed design of DD(X) IPS system including design and fabrication of IPS EDMs. Perform studies of ship electric architectures and high power weapons system requirements.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2471/Integrated Power Systems

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	9.916	3.449	3.152
RDT&E Articles Quantity	0	0	0

R/V Triton At Sea Testing: Design, build, test IFTP hardware in an IPS configuration onboard the RV Triton. Perform detailed development and design of the RV Triton IPS configuration for at sea testing. Develop IPS control system modifications for use during at-sea testing. Conduct risk reduction efforts and ship modifications. Conduct modeling and simulation studies of system stability and interfaces. Conduct at sea testing onboard the RV Triton.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2471/Integrated Power Systems

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:(FY 04 Pres Controls)	97.559	5.005	4.157
Current BES/President's Budget: (FY 05 Pres Controls)	94.528	4.949	4.130
Total Adjustments	-3.031	-0.056	-0.027
Summary of Adjustments			
Congressional program reductions		-0.056	
SBIR/STTR Transfer	-2.782		
Miscellaneous Minor Adjustments	-0.249		-0.027
Subtotal	-3.031	-0.056	-0.027

Schedule:

Not Applicable

Technical:

Not Applicable

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2471/Integrated Power Systems

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
PE 0604300N/ DD(X) Total Ship Sys Engineerin	668.472	1052.273	1431.585	1701.238	1314.772	897.563	592.981	CONT.	CONT.
PE 211900 / SCN	0.000	0.000	0.000	99.418	3,594.003	3,320.500	4,695.647	CONT.	CONT.

E. (U)ACQUISITION STRATEGY:

(U) IPS is a candidate system for DD(X) and all other future surface ships.

F. (U)MAJOR PERFORMERS:

(U) IPS DD(X) Design Agent, Ingalls Shipbuilding Iinc. General Atomics and DRS Power and Controls Technologies Inc., IPS IFTP contractors.

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

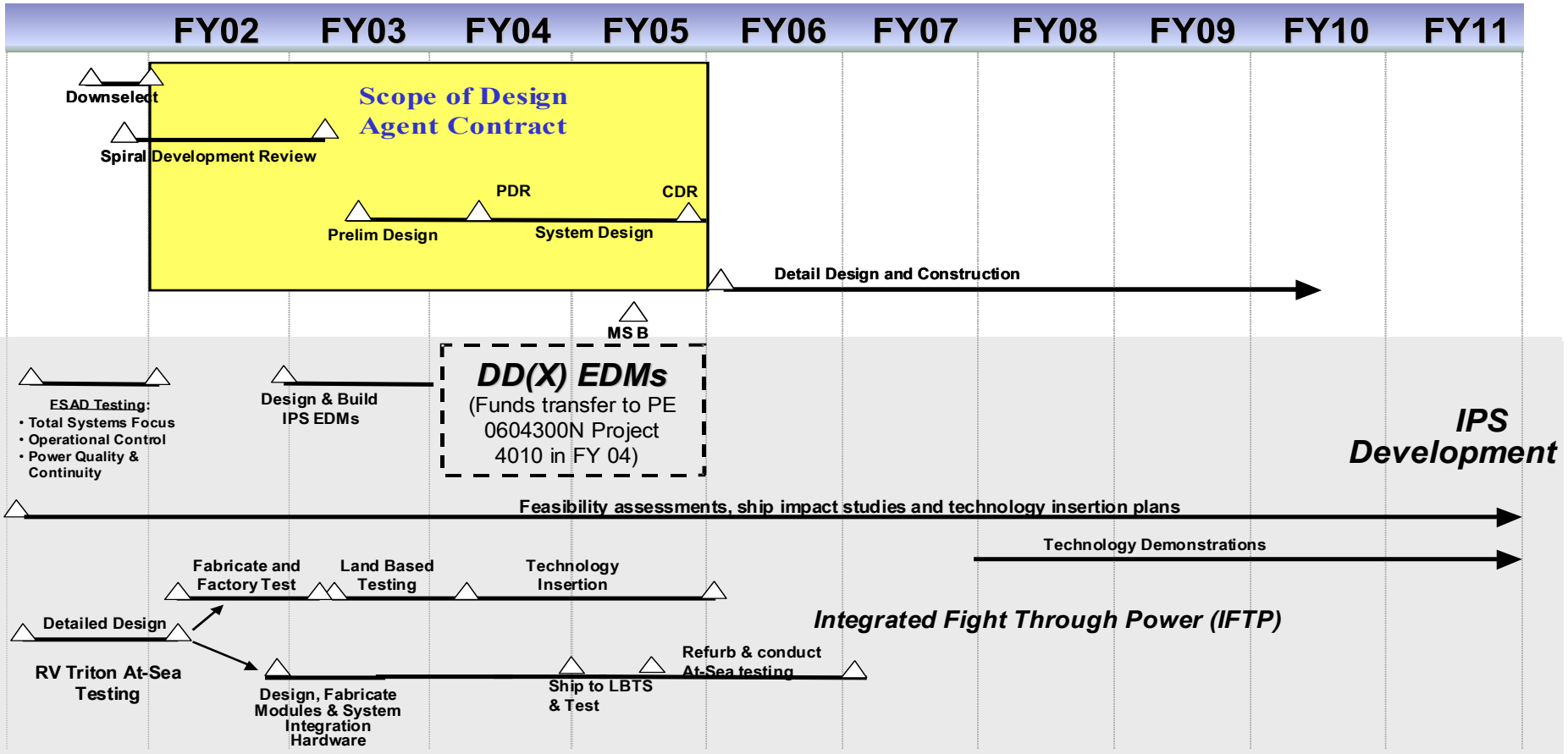
Exhibit R-3 Cost Analysis (page 1)								DATE: February 2004			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2471/Integrated Power Systems					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPAF	Lockheed M Syracuse, NY	23.572	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	Sec845/804	DD (X) Industry Teams	66.661	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	CPAF	DD (X) Design Agent	72.500	82.000	1QFY03	0.000	N/A	0.000	N/A	CONT	CONT	
	Sec845/804	IFTP Teams	39.885	9.828	10/02	3.474	10/03	3.157	10/04	CONT	CONT	
	US/UK MOU	DERA, UK	1.350	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	WX	NSWCCD Philadelphia, PA	23.005	1.150	10/02	0.550	10/03	0.278	10/04	CONT	CONT	
	WX	NSWCCD Dahlgren, Va.	2.806	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	Various	Other Contractors	9.500	0.450	12/02	0.400	12/03	0.175	12/04	CONT	CONT	
	Various	Other Govt Activities	1.895	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
Ancillary Hardware Development											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			241.174	93.428		4.424		3.610		CONT	CONT	
Remarks:												
Development Support											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2471/Integrated Power Systems						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NSWC CD Philadelphia, PA	16.576	1.050	10/02	0.500	10/03	0.500	10/04	CONT	CONT	
Operational Test & Evaluation												
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			16.576	1.050		0.500		0.500		CONT	CONT	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel	Various	Various	0.524	0.050	10/02	0.025	10/03	0.020	10/04	CONT	CONT	
Labor (Research Personnel)											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.524	0.050		0.025		0.020		CONT	CONT	
Remarks:												
Total Cost			258.274	94.528		4.949		4.130		CONT	CONT	
Remarks:												

CLASSIFICATION:

EXHIBIT R4, Schedule Profile		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development	PROJECT NUMBER AND NAME 2471/Integrated Power Systems



CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2471/Integrated Power Systems		
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
IPS DD(X) EDMs							
Design & Build	1Q-4Q						
IPS IFTP Land Based							
Fabrication & Factory Testing	1Q						
Land Based Testing	2Q-4Q	1Q-2Q					
Technology Insertion		2Q-4Q	1Q-4Q	1Q			
IPS IFTP At Sea RV Triton							
Design, Fabrication & Integration	1Q-4Q	1Q-4Q					
Ship/Land Based Testing		4Q	1Q-3Q				
Refurb/At sea testing			4Q	1Q-4Q	1Q		
IPS Technology Insertions							
Engineering Studies				1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Ship Concept Studies				3Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Test Site Support					4Q	1Q-4Q	1Q-4Q
Technology Development						1Q-4Q	1Q-4Q

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **FEBRUARY 2004**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**					R-1 ITEM NOMENCLATURE 0603542N/Radiological Controls			
COST ($ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost								
Project Unit 1830/RADIAC Development	**1.008**	**1.053**	**1.097**	**0.946**	**0.956**	**0.966**	**0.983**	**1.002**
RDT&E Articles Qty	**0**	**555**	**5**	**5**				

Defense Emergency Response Funds (DERF) Funds:

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Mission: The Radiation Detection, Indication and Computation (RADIAC) Program is responsible for providing radiation monitoring instruments that detect and measure radiation in accordance with the provisions of Title 10 of the Code of Federal Regulations (10CFR). These instruments are used on all vessels afloat and at every shore installation in order to ensure the safety of personnel and the environment. RADIACs are also required after an act of terrorism or war that involves nuclear material in order to enable continuing warfighting ability.

Justification: Many RADIAC instruments and dosimetry systems are decades old and approaching the end of their useful lives. In some cases the equipment and replacement parts are no longer manufactured, making the equipment logistically unsupportable. In other cases increasing failure rates due to age make replacements an economic efficiency improvement. In many cases a technology refresh will make both economic sense and provide increased operational capabilities.

Multi-Function RADIAC (MFR): This instrument replaces 16 families of obsolescent equipment to provide increased capability at what will be significantly lower operating costs once the MFR Control Unit and its entire complement of probes have been developed. The Control Unit and one probe are currently being fielded, but in order to achieve the full design functionality of the MFR, several probes that will detect various other types of radiation (alpha, gamma, beta, neutron) must yet be developed.

Naval Dosimetry System (NDS): The NDS, or personnel dosimetry system, is being developed to support routine operations and maintenance of Navy systems involving occupational exposure to radiation on nuclear ships, nuclear maintenance facilities, hospitals, weapons, and in other radiological environments. A new system is needed to replace the current CP-1112 and DT-526 system, which is approaching the end of its useful life due to increasing failure rates and the non-availablity of replacement parts. Despite ongoing restoration efforts to ensure availability of the current system, current projections are that the system will become unsupported by 2004.

A Casualty Dosimetry System (CDS) is needed to support continuing Fleet operations after an act of terrorism or war involving nuclear materials. The current CDS that consists of the CP-95 Reader and DT-60 Dosimeter is at the end of its useful life. The readers are no longer logistically supported and only cannibalization is available to restore non-operational units.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603542N/Radiological Controls	1830/RADIAC Development

B. Accomplishments/Planned Program

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.632	0.815	0.725
RDT&E Articles Quantity	0	5	5	5

Continue Multi-Function RADIAC (MFR) development and testing of prototype units for Frisker, Neutron, Radiography, Transuranic X-ray and Universal Probes, and for software development to enable multiple automated calibration of MFR components. Articles are prototypes for evaluation.

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.224	0.282	0.221
RDT&E Articles Quantity	0	50	0	0

Continue development of a personnel dosimetry system for the Naval Nuclear Propulsion Program. Articles are prototypes for evaluation.

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.197		
RDT&E Articles Quantity	0	500		

Continue development of a Casualty Dosimetry System. Articles are prototypes for evaluation.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603542N/Radiological Controls	1830/RADIAC Development **84FB**

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04 Pres Bud Controls)	1.052	1.109	0.944
Current BES/President's Budget: (FY05 Pres BudControls)	1.053	1.097	0.946
Total Adjustments	0.001	-0.012	0.002
Summary of Adjustments			
Issue 68041 Section 8094		-0.003	
Issue 68066 Section 8126		-0.009	
Issue 68849 FY 2003 Update	0.001		
Issue 69023 WCF - R&D - NSWC - PBD 430			0.001
Issue 69025 WCF - R&D - SPAWAR - PBD 430			-0.001
Issue 69043 PBD 426 Rates - NSWC			0.002
Issue 69043 PBD 426 Rates - SSC			0.003
Issue 69492 PBD 604 inflation			-0.002
Issue 69512 PBD 604 non-purchase inflation			-0.001
Subtotal	0.001	-0.012	0.002

Schedule:

Additional development is required on the Casualty Dosimetry System and the Multi-Function RADIACb(MFR) Frisker Probe based on the initial prototype evaluation. Resultant change shifts development efforts on other MFR probes out to FY 03 start.

Technical:

The scope of development of the Naval Dosimetry System has been expanded to include evaluation of a secondary personnel dosimetry system for shipboard use.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-4	0603542N/Radiological Controls	1830/RADIAC Development	**84FB**

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
OPN BLI 292000 RADIAC	8.173	8.525	9.087	8.639	9.376	9.456	9.104	CONT.	CONT.

E. ACQUISITION STRATEGY:

Development efforts are being focused on evaluation, modification (as required to meet operational requirements) and adaptation of commercial-off-the-shelf (COTS) technology in order to minimize total ownership costs. To the maximum extent possible new contracts are targeted for fixed price efforts to control development cost.

F. MAJOR PERFORMERS:

SPAWARSYSCEN Charleston. Technical Direction Agent and In-Service Engineering Assistance.
NSWC Carderock. Science & Technology Agent.
Science Applications International Corporation (SAIC). Multi-Function RADIAC Probe development. Award estimated May 2003.
JP Laboratories, Inc. Development of Casualty Dosimetry System. Award estimated April 2003.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **FEBRUARY 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603542N/Radiological Controls			PROJECT NUMBER AND NAME 1830/RADIAC Development			**84FB**			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/FP	Various	9.000	0.504	05/03	0.538	03/04	0.377	03/05		10.419	
Ancillary Hardware Development											0.000	
Component Development											0.000	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering	WX	SPAWARSYSCEN Chasn.	1.100								1.100	
Training Development											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			10.100	0.504		0.538		0.377		0.000	11.519	
Remarks:												
Development Support	WX	NSWC Carderock	1.120	0.280	04/03	0.285	10/03	0.290	10/04		1.975	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			1.120	0.280		0.285		0.290		0.000	1.975	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **FEBRUARY 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603542N/Radiological Controls			PROJECT NUMBER AND NAME 1830/RADIAC Development							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	SPAWARSYSCEN Chasn.	4.056	0.148	05/03	0.151	10/03	0.154	10/04		4.509	
Operational Test & Evaluation	WX	Various	0.329								0.329	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			4.385	0.148		0.151		0.154		0.000	4.838	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support	WX	SPAWARSYSCEN Chasn.	5.045								5.045	
Program Management Support	WX	SPAWARSYSCEN Chasn.	5.046	0.111	10/02	0.113	10/03	0.115	10/04		5.385	
Travel			0.305	0.010	10/02	0.010	10/03	0.010	10/04		0.335	
Labor (Research Personnel)											0.000	
SBIR Assessment											0.000	
Subtotal Management			10.396	0.121		0.123		0.125		0.000	10.765	
Remarks:												
Total Cost			26.001	1.053		1.097		0.946		0.000	29.097	
Remarks:												

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: FEBRUARY 2004	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA4**					R-1 ITEM NOMENCLATURE PE 0603553N Surface ASW/1704 ASW Advanced Development			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost		**3.108**	**4.456**	**17.633**	**17.701**	**3.308**	**3.375**	**3.439**
ASW Advanced Development/1704		**3.108**	**2.456**	**17.633**	**17.701**	**3.308**	**3.375**	**3.439**
ASW Rick Reduction/9352			**2.000**					

Defense Emergency Response Funds (DERF) Funds: N/A

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Anti Submarine Warfare (ASW) Advanced Development project provides advanced development demonstration and validation of technology for potential surface sonar and combat system applications. Efforts focus on resolution of technical issues associated with providing capability against the Year 2005 and beyond threat with emphasis on shallow water/littoral area Undersea Warfare (USW) and on demonstration and validation of USW concepts and technology. Key technology areas include active sonar transmissions, advanced signal and data processing, active sonar classification, towed and hull arrays and transducer technology, multi-static sonar, and multi-sensor data fusion including multi-platform data fusion and netcentric undersea warfare concepts. This Program Element, 0603553N, has been designated to support Multi-Static Active ASW (MAASW) efforts associated with the Distant Thunder program and other emerging multi-static technologies, and CNO's Task Force ASW initiative. The Task Force ASW initiative is a focused effort to identify the most promising ASW technologies through a process of discovery assessment and expermentation. TFASW will conduct studies, execute demonstrations and coordinate the development of technologies which move beyond incremental or marginal improvements in ASW effectiveness. The MAASW project conducts advanced development and testing of active multistatic acoustic concepts. The concept development is directed at providing surface ships combat groups with the capability of detection, classification, and localization of quiet threat submarines in difficult acoustic environments associated with Littoral waters. The project concentrates on the development of acoustic processor algorithms, alternative cost-effective active sources and information sharing technologies to develop a coordinated multi-static acoustic picture employing distributed sensors and active sources.

Project Unit 9352 is authorized by Congress to develop ASW Risk Reduction

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RD RDT&E N/BA4	PE 0603553N Surface ASW	1704 ASW Advanced Development	

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		3.108	2.456	17.633
RDT&E Articles Quantity				

FY98 Prototypes deployed to 7th fleet ships - participated in sea exercises with positive fleet users feedback - mitigated into Advanced Development (ADM) system with laptops since FY01. Integrate to Advanced Process Build (APB) initiates FY02/plan for SQQ-89 A(V) 15 migration FY05-FY07. The CNO established "Task Force ASW" to review and study option available for revamping the ASW mission by looking at the issue in a holistic approach. Funding supported the Task Force ASW team in recommending transformational technologies for ASW; taking advantage of emerging technologies, new processes, and collecting, analyzing, assessing, and reporting on the performance of Surface Ship ASW systems.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA4	PE 0603553N Surface ASW	1704 ASW Advanced Development

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
President's Budget: (FY 04 Pres Controls)	3.184	2.506	2.698
FY05 President's Controls	3.108	2.456	17.633
Total Adjustments	-0.076	-0.050	14.935
Summary of Adjustments			
Programmatic Adjustments			15.000
Rate Adjustements			-0.007
Reprogrammings	-0.076		
Congressional Adjustments		-0.050	
Economic Assumptions			-0.058
Subtotal	-0.076	-0.050	14.935

Schedule:

N/A

Technical:

N/A

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA4	PE 0603553N SurfaceASW	1704 ASW Advanced Development

D. OTHER PROGRAM FUNDING SUMMARY: N/A

E. ACQUISITION STRATEGY: *

Competitively awarded contracts from Broad Agency Announcement (BAA) solicitations.

F. MAJOR PERFORMERS: **

Naval Air Warfare Center /PAX River, MD – Build the two Air Multistatic Active ASW (MAASW(DT)) systems, lab test these systems, and gain NAVAIR authorization to install and fly this ADM system in P-3C TYCOM Aircraft.
Naval Undersea Warfare Center, Newport, RI – Provide management support in working with various administrative and operational organizations to develop and implement teams for MAASW Distant Thunder development and evaluation.

R-1 SHOPPING LIST - Item No. 44

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **FEBRUARY 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA4**		PROGRAM ELEMENT PE 0603553N Surface ASW				PROJECT NUMBER AND NAME 1704 ASW Advanced Development						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Multistatic Sonar Development	WR	NUWC Newport	3.339	0.750	12/02	0.500	12/03	0.600	12/04	Continuous	Continuous	
Multistatic Sonar Development	WR	BATH MIN	0.021								0.021	
Multistatic Sonar Development	WR	PASCAGOULA MS	0.017								0.017	
Multistatic Sonar Development	WR	NAWC/Key West	0.010								0.010	
Multistatic Sonar Development	WR	NAWC/Pax River	1.213	0.300	12/02	0.100	12/03	0.100	12/04	Continuous	Continuous	
Multistatic Sonar Development	CPFF	BBN	2.932	0.400	12/02	0.150	12/03	0.150	12/04	Continuous	Continuous	
Multistatic Sonar Development	CPFF	APL/JHU	0.350								0.350	
Multistatic Sonar Development	RCP	FLT. Industry SUP Center	0.010								0.010	
Multistatic Sonar Development	RCP	ONR	0.472								0.472	
Various	Various	Various	0.203	0.339	03/03	0.198	02/04	0.255	01/05	Continuous	Continuous	
Subtotal Product Development			8.567	1.789		0.948		1.105		Continuous	Continuous	
Remarks:												
At-Sea Test/Demonstration	C/CPFF	JHU/APL, MD	0.000					4.000	10/04	Continuous	Continuous	
At-Sea Test/Demonstration	WX	NAVSEA/NEWPORT, RI	0.000					8.000	10/04	Continuous	Continuous	
Enchanced Data Collection (SSEMP)	C/CPFF	JHU/APL, MD	0.000					2.000	10/04	Continuous	Continuous	
Enchanced Data Collection (SSEMP)	Various	Various	0.000					1.000	10/04	Continuous	Continuous	
Subtotal T&E			0.000	0.000		0.000		15.000		0.000	15.000	
Remarks:												

R-1 SHOPPING LIST - Item No. 44

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2) | DATE: **FEBRUARY 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA4** | PROGRAM ELEMENT: PE 0603553N Surface ASW | PROJECT NUMBER AND NAME: 1704 ASW Advanced Development

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NUWC/Npt	2.255	0.250	11/02	0.600	11/03	0.655	11/04	Continuous	Continuous	
Developmental Test & Evaluation	WR	NAWC/Pax River	0.916	0.170	11/02	0.170	11/03	0.170	11/04	Continuous	Continuous	
Developmental Test & Evaluation	CPFF	BBN	0.223	0.400	11/02	0.300	11/03	0.300	11/04	Continuous	Continuous	
Developmental Test & Evaluation	WR	SUPSHIP BATH MIN.	0.033								0.033	
Developmental Test & Evaluation	WR	NUWC/Keyport	0.933								0.933	
Developmental Test & Evaluation	WR	NSWC/Carderock, MD	0.695								0.695	
Developmental Test & Evaluation	WR	NSWC/Dahlgren, VA	0.040								0.040	
Developmental Test & Evaluation	CPFF	APL/JHU, MD	1.536								1.536	
Developmental Test & Evaluation	CPFF	ARL/UT		0.124	11/02	0.050	11/03	0.150	11/04	Continuous	Continuous	
Developmental Test & Evaluation	CPFF	Various		0.325	11/02	0.338	11/03	0.203	Various	Continuous	Continuous	
Developmental Test & Evaluation	CPFF	Progeny, Inc.	1.217									
Developmental Test & Evaluation	CPFF	IPD	0.055									
Developmental Test & Evaluation	MIPR	U.S. ARMY/MITRE	0.000									
Developmental Test & Evaluation	WR	SPAWAR Systems Center	0.558									
Subtotal T&E			8.461	1.269		1.458		1.478		Continuous	Continuous	

Remarks:

Contractor Engineering Support											0.000	
SBIR												
Government Engineering Support											0.000	
Program Management Support	CPFF	Stanley Assoc.	0.499	0.040	01/03	0.040	01/04	0.040	01/05	Continuous	Continuous	
Travel			0.050	0.010	11/02	0.010	11/03	0.010	11/04	Continuous	Continuous	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.549	0.050		0.050		0.050		Continuous	Continuous	

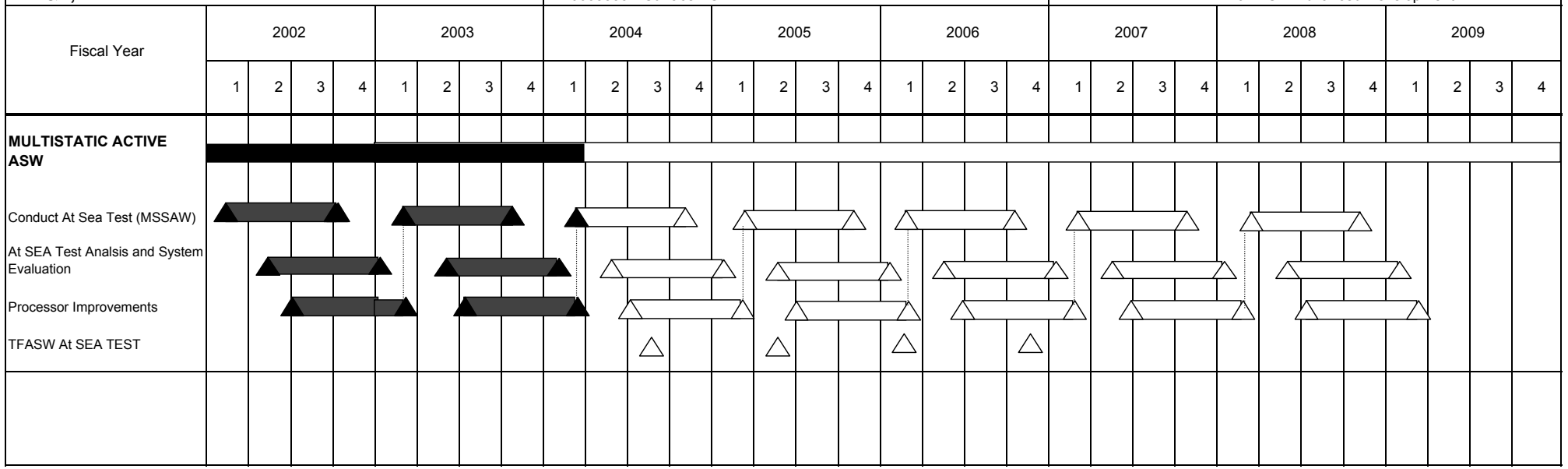
Remarks:

Total Cost			17.577	3.108		2.456		17.633		Continuous	Continuous	

Remarks:

CLASSIFICATION:

EXHIBIT R4, Schedule Profile			DATE: FEBRUARY 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA4**	PROGRAM ELEMENT NUMBER AND NAME PE 0603553N Surface ASW	PROJECT NUMBER AND NAME 1704 ASW Advanced Development	



R-1 SHOPPING LIST - Item No. 44

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: FEBRUARY 2004			
APPROPRIATION/BUDGET ACTIVITY **RDT&BA4**	PROGRAM ELEMENT PE 0603553N Surface ASW				PROJECT NUMBER AND NAME 1704 ASW Advanced Development			
Schedule Profile		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Conduct At Sea Test		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	
Sea Test Analysis and System Evaluation		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q
Processor Improvements		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q

EXHIBIT R-2, RDT&E Budget Item Justification						DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-4**				R-1 ITEM NOMENCLATURE PE 0603559N SSGN DESIGN			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost	**82.522**	**69.405**	**19.970**	**22.020**	**22.197**	**0.000**	**0.000**
SSGN Design/2413	**82.522**	**68.218**	**19.970**	**22.020**	**22.197**	**0.000**	**0.000**
Tactical Naval Fires Capabilities/9353	**0.000**	**1.187**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Covert striking power against targets ashore; the capability to establish covertly an expeditionary force on land. Working both independently and with a battle group/other ships, the OHIO Class SSGN will have the endurance and payload to prepare the battle space and to continue to project maritime power throughout a conflict.
Project 9353 supports integration of the Tactical Naval Fires Capabilities as part of the SSGN conversion. The primary focus of this effort is for the demonstration of a series of telemetered floating capsule release tests to confirm modeling and simulation. A supporting effort will provide a web-based collaboration tool for payload integration into the SSGN. A design effort will be conducted to look at the lowest cost and quickest path to getting encapsulated payloads onto the SSGN.

Project Unit 9353 Tactical Naval Fires Capabilities is congressional plus-up.

Defense Emergency Response Funds (DERF) Funds: Not Applicable

R-1 SHOPPING LIST - Item No. 45

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/BA-4**		PROJECT NUMBER AND NAME 2413 SSGN Design

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	5.323	7.468	0.404
RDT&E Articles Quantity			

U) FY02 - FY05 accomplishments and plans consist of conducting component and sub-system research and development activities, ship control algorithm development and Weapons Support Systems Land Based Evaluation Facility (WSSLBEF) modifications to support developmental testing.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	47.709	31.748	0.000
RDT&E Articles Quantity			

(U) FY02 accomplishments consisted of conducting underwater missile launch, Multiple-All-Up Round Canister (MAC) risk reduction demonstration/validation preparations including computer modeling and validation and Attack Weapon Control System (AWCS) systems engineering and integration. FY03 plans are to complete underwater missile launch and Multiple-All-Up Round Canister (MAC) risk reduction including computer modeling and demonstration/validation preparations, and commence Multiple All Up Round Canister system development and demonstration (SDD). FY04 plans will complete Multiple All Up Round Canister system development and demonstration (SDD) activities.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	21.441	24.160	17.758
RDT&E Articles Quantity			

(U) FY02 - FY 05 accomplishments and plans consist of program management, engineering management and support services, Live Fire Test and Evaluation, Test and Evaluation, safety program management, ship control system development, and hydrodynamic studies.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/BA-4**		PROJECT NUMBER AND NAME 2413 SSGN Design

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	8.049	4.842	1.808
RDT&E Articles Quantity			

(U) FY02 - FY05 accomplishments and plans consist of Non-Propulsion Electronics System (NPES) development and non-recurring system development including Data Processing System (DPS), Global Command and Control System (GCCS-M), Tactical Integrated Digital System (TIDS), AN/BQN-17, NPES/AWS Wide Area Network, Common Submarine Radio Room (CSRR) and Interior Communications/Data Transfer System (IC/DTS).

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E,N/BA-4	PE 0603559N SSGN	2413 SSGN Design

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04 Pres Controls)	89.743	68.988	19.499
Current President's Budget: (FY05 Pres Controls)	82.522	68.218	19.970
Total Adjustments	(7.221)	(0.770)	0.471
Summary of Adjustments			
66876 Rephase SSGN Test and Evaluation			0.600
66961 SPAWAR Service Cost Center Adjustment		(0.002)	
66544 FY03 Midyear Review Adjustment	(9.195)		
66556 SBIR	(1.791)		
66642 BSO Adjustments	(0.207)		
65943 FY03 Fed Tech Transfer	(0.027)		
65872 BTR to SSGN	3.999		
67769 NSWC Rates			(0.091)
67770 NUWC Rates			(0.007)
68041 Section 8094 Mgt. Improvements		(0.182)	
68066 Section 8126 Efficiencies/Revised Economic Assumptions		(0.586)	
69023 WCF - R&D- NUWC - PBD430			0.013
69024 WCF - R&D - NUWC - PBD430			(0.002)
69043 PBD 426 Rates - NSWC			0.021
69044 PBD 426 Rates - NUWC			0.001
69492 PBD 604 Inflation			(0.053)
69512 PBD604 non purchase inflation			(0.011)
Subtotal	(7.221)	(0.770)	0.471

Schedule:

Not applicable

Technical:

Not applicable

R-1 SHOPPING LIST - Item No. 45

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E,N/BA-4	PE 0603559N SSGN	2413 SSGN Design	

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
(U)BLI 201700 /SSGN CONVERSION SCN	353.717	995.741	1158.129	517.226	255.000	0.000	0.000	0.000	0	3,279.813

E. ACQUISITION STRATEGY:

(U) To refuel, overhaul, convert and deliver four (4) Trident Submarines into land attack strike and Special Operating Force platforms. The SSGN program will utilize a streamlined acquisition approach that was approved by USD (AT&L) January 2002. Due to the low technical risk of the SSGN program, the SSGN program proceeded directly to Milestone C which was approved on 5 December 2002.

F. MAJOR PERFORMERS:

Perot Systems Government Services, Alexandria, Virginia: Technical support and program management support.
Electric Boat, Groton, Connecticut: Conversion design studies.
NSWC Carderock, Bethesda, Maryland: Hydrodynamic studies, safety program management, ship control system development, T&E , Systems Integration Team (SIT) support, MAC design.
NUWC Newport, Newport, Rhode Island: Engineering support and NPES design
Northrup Grumman Marine Systems, Sunnyvale, CA.: MAC DEM/VAL
General Dynamics Advanced Information Systems, Pittsfield, MA: AWCS
Naval Warfare Assessment Station, Corona, CA.: MAC Launcher support

R-1 SHOPPING LIST - Item No. 45

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/BA-4**		PROGRAM ELEMENT PE 0603559N SSGN				PROJECT NUMBER AND NAME 2413 SSGN Design						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost **(1)**	FY 03 Cost **(1**	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Design Studies	SS/CPFF	Electric Boat, Groton, CT	37.560	5.323	May-03	7.468	Nov-03	0.404	Nov-04	0.050	50.805	50.805
Systems Engineering	WX	NSWC Carderock, MD	7.368	7.495	Oct-02	2.788	Oct-03	2.394	Oct-04	5.123	25.168	N/A
Systems Engineering	WX	NUWC, Newport, RI	8.708	6.833	Oct-02	4.214	Oct-03	3.071	Oct-04	4.705	27.531	N/A
MAC Launcher	PD	SSP/Various	28.847	37.184	Various	24.605	Various	0.000	N/A	0.000	90.636	N/A
Attack Weapon Control System	PD	SSP/Various	9.882	7.805	Various	2.100	Various	0.000	N/A	0.000	19.787	N/A
Facilities/SE&I/Training/Procedures &	PD	SSP/Various	10.391	1.262	Various	4.208	N/A	0.000	N/A	0.000	15.861	N/A
MAC Launcher/AWCS/SE&I/Facilities	C/CPFF	JHU/APL, Laural, MD.	5.435	1.458	Dec-02	0.835	Dec-03	0.000	N/A	0.000	7.728	7.728
Systems Engineering	Various	Various	5.760	7.405	Various	10.145	Various	4.295	Various	5.827	33.431	N/A
Misc.	Various	Various	0.228	0.286	Various	0.342	Various	0.298	Various	0.494	1.648	N/A
Subtotal Product Development			114.179	75.051		56.704		10.462		16.199	272.596	

Remarks:

R-1 SHOPPING LIST - Item No. 45

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2) | DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E,N/BA-4** | PROGRAM ELEMENT: PE 0603559N SSGN | PROJECT NUMBER AND NAME: 2413 SSGN Design

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost (1)	FY 03 Cost (1)	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NSWC, Carderock, MD	0.000	0.122	Oct-02	0.150	Oct-03	0.620	Oct-04	2.275	3.167	N/A
Developmental Test & Evaluation	WX	NUWC, Newport, RI	0.342	3.856	Oct-02	8.393	Oct-03	4.358	Oct-04	6.319	23.268	N/A
Live Fire Test & Evaluation	RC/WR	NAVAIR Patuxent River, MD.	0.000	0.000	N/A	0.080	Oct-03	1.300	Oct-04	9.550	10.930	N/A
Live Fire Test & Evaluation	WX	NSWC, Carderock, MD	0.400	0.919	Oct-02	0.685	Oct-03	0.600	Oct-04	1.840	4.444	N/A
Operational Test & Evaluation	WX	COMOPTEVFOR	0.060	0.122	Oct-02	0.153	Oct-03	0.217	Oct-04	3.665	4.217	N/A
Miscellaneous	Various	Various	0.048	0.057	Various	0.085	Various	0.100	Various	0.340	0.630	N/A
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.850	5.075		9.546		7.195		23.989	46.655	
Remarks:												
Contractor Engineering Support	C/MAC	Various	4.328	2.388	Nov-02	1.968	Feb-04	2.312	Nov-04	4.029	15.025	15.025
Government Engineering Support											0.000	
Program Management Support	Various	Various	1.192	0.008	N/A	0.000	N/A	0.000	N/A	0.000	1.200	1.200
Labor (Research Personnel)											0.000	
Overhead											0.000	
											0.000	
Subtotal Management			5.520	2.395		1.968		2.312		4.029	16.225	
Remarks:												
Total Cost			120.549	82.522		68.218		19.970		44.217	335.475	

Remarks:
(1) Total 2413 project cost for FY02 and FY03 is based on STARS authorized amounts vice 9 January NBTS controls which include DFAS 1002 Report obligation adjustments.

R-1 SHOPPING LIST - Item No. 45

EXHIBIT R-2a, RDT&E Project Justification	DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**	PROJECT NUMBER AND NAME **9353 Tactical Naval Fires Capability**

B. (U) Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Tactical Naval Fires Capability		0.0	1.2	0.0
RDT&E Articles Quantity				

(U) FY 2003 PLAN N/A

•

(U) FY 2004 PLAN

• (U) ($1.2) Initiate Tactical Naval Fires Capabilities. Full obligation is projected by the 3rd quarter of the 1st year.

FY 2004 efforts include:

(U) Provide integration support for capsules and flexible payload modules into experiments planned for Oct 2004 (Silent Hammer).

(U) Provide SSGN web-based collaboration tools, such that 3D models of the SSGN missile tube and examples of other payload integration efforts are available for other payload providers. This will reduce costs for future experiments and payload integrators.

(U) Conduct competitive design efforts for a low-cost, stackable capsule suitable for SSGN implementation.

(U) FY 2005 PLAN N/A

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification	DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**	PROJECT NUMBER AND NAME **9353 Tactical Naval Fires Capabilities**

C. (U) Other Program Funding Summary: (Dollars in Thousands)

FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Total Complete	Total Cost
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

D. (U) Acquisition Strategy:

Contracts will continue to be awarded to those sources who were engaged in the SSGN development and integration as well as collaborative tool efforts. Full and open competition will be conducted for the capsule design efforts.

E. (U) Major Performers:

SSGN Integration: BAE
SSGN Collaborative Tool: General Dynamics (Electric Boat)
SSGN Capsule Design: Competition - TBD

CLASSIFICATION:

Exhibit R-3 Cost Analysis			DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT **PE 0603559N SSGN Design**	PROJECT NUMBER AND NAME **9353 Tactical Naval Fires Capabilities**	

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Support & Management												
SSGN Integration	CPFF	BAE				0.3	03-04			0.3	0.3	0.3
SSGN Collaborative Tool	WR	General Dynamic (EB)				0.1	03-04			0.10	0.1	0.1
SSGN Capsule Design	TBD	TBD (2 awards @ 400K each)				0.8	06-04			0.8	0.8	0.8
Subtotal Product Development			0.0	0.0		1.2		0.0		1.2	1.2	1.2

Remarks:

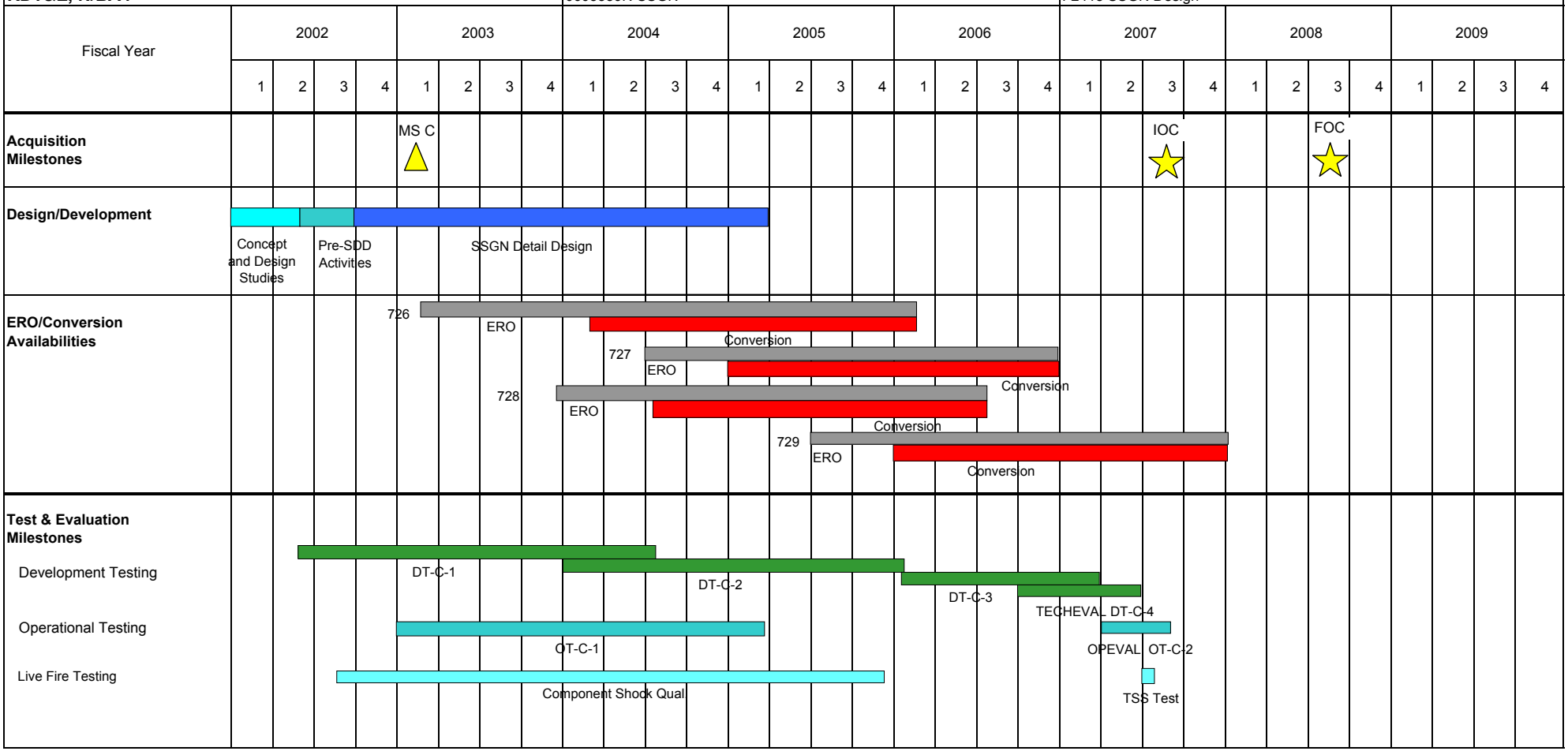
Total Cost			0.0	0.0		1.2		0.0		Cont.	Cont.	

Remarks:

CLASSIFICATION:

EXHIBIT R4, Schedule Profile | DATE: **February 2003**

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N/BA4	0603559N SSGN	F2413 SSGN Design



R-1 SHOPPING LIST - Item No. 45

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2003**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA4**	PROGRAM ELEMENT 0603559N SSGN				PROJECT NUMBER AND NAME F2413 SSGN Design			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Concept and Design Studies	1Q-2Q							
Pre-SDD Activities	2Q-3Q							
Milestone C (MS C)		1Q						
SSGN Detail Design	4Q	1Q-4Q	1Q-4Q	1Q				
Developmental Testing (DT-C-1)	2Q-4Q	1Q-4Q	1Q-3Q					
726 ERO		1Q-4Q	1Q-4Q	1Q-4Q	1Q			
726 Conversion			1Q-4Q	1Q-4Q	1Q			
Operational Evaluation (OT-C-1)		1Q-4Q	1Q-4Q	1Q				
Developmental Testing (DT-C-2)			1Q-4Q	1Q-4Q	1Q			
Developmental Testing (DT-C-3)					1Q-4Q	1Q		
Component Shock Qualification Testing	3Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q				
Technical Evaluation (DT-C-4) (TECHEVAL)					4Q	1Q-2Q		
Total Ship Survivability Test						3Q		
Operational Evaluation (OT-C-2) (OPEVAL)						2Q-3Q		
IOC						3Q		
727 ERO			3Q-4Q	1Q-4Q	1Q-4Q			
727 Conversion				1Q-4Q	1Q-4Q			
728 ERO		4Q	1Q-4Q	1Q-4Q	1Q-3Q			
728 Conversion			3Q-4Q	1Q-4Q	1Q-3Q			
729 ERO				3Q-4Q	1Q-4Q	1Q-4Q		
729 Conversion					1Q-4Q	1Q-4Q		
FOC							3Q	

R-1 SHOPPING LIST - Item No. 45

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-4**					R-1 ITEM NOMENCLATURE Advanced Submarine Systems Development/0603561N			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost		**126.891**	**92.539**	**81.160**	**117.311**	**116.065**	**138.838**	**136.507**
Adv. Sub. Systems Development/2033		**46.835**	**54.687**	**38.155**	**53.571**	**51.758**	**64.128**	**75.719**
Electromechanical Actuator Dev/9188		**0.951**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Rotary Electromagnetic Torpedo Launcher/9191		**0.951**	**0.988**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Adv. Sub. Combat Sys. Dev/0223		**69.490**	**26.877**	**43.005**	**63.740**	**64.307**	**74.710**	**60.788**
Fiber Optic Multi-Line Towed Array/9189		**2.380**	**5.834**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Universal Gravity Module/9190		**0.951**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
MK 48 ADCAP Torpedo Improve/9039		**5.333**	**4.153**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**

Defense Emergency Response Funds (DERF) Funds: N/A

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This program element supports innovative research and development in submarine hull and combat systems technologies and the subsequent evaluation, demonstration, and validation for submarine platforms. It will increase the submarine technology base and provide subsystem design options not currently feasible. The program element also supports programs transitioning from Future Naval Capabilities (FNC's).

Project Unit 2033: The Advanced Submarine Research and Development (R&D) program performs three functions: it is the fundamental transition point for Hull, Mechanical and Electrical (HM&E) technologies from Science and Technology (S&T) to platforms, it is the starting point for serious submarine platform design & naval architecture products, and it is the sponsor to operate unique R&D experimentation, modeling and simulation facilities. Focus is on the three warfighting pillars of SEA POWER 21 (SEA BASE, SEA SHIELD, SEA STRIKE) and SEA TRIAL, including capabilities to gain and sustain battle force access, develop and share knowledge, deter conflict, counter weapons of mass destruction and project power with surprise. It is a non-acquisition (non-ACAT) program. The program also supports two Information Exchange Programs with the United Kingdom, (one on submarine electromagnetic silencing and the second on submarine platform equipment, systems, and hull technology). The program transitions technologies developed by Navy technology bases, the private sector, and the Defense Advanced Research Projects Agency (DARPA). This program is structured to support near term VIRGINIA Class technology insertion and future submarine concepts and core technologies. Advanced systems developed under this program have potential for backfit into existing classes of submarines, supporting emerging requirements, and systems technology insertion into future submarine designs. This program sponsors advanced submarine design development and concepts that can radically transform the design architecture of future submarines. This program operates autonomous quarter scale submarines (Large Scale Vehicles) to provide test capability for propulsor, acoustic and non-acoustic signature reduction, remote vehicle R&D, and large scale hydrodynamic experimentation; operates the Hydrodynamic/Hydroacoustic Technology Center to enhance the Navy's ability to accurately, computationally predict hydrodynamic and hydroacoustic performance of submerged bodies; and operates and supports the Navy's Intermediate Scale Measurement System in Bayview Idaho. This program also supports submarine payloads and sensors demonstrations and execution of Sea Trial events and Sea Trial coordination/integration into a joint warfighting context with other services such as the U.S. Marine Corp, U.S. Army, and the U.S. Air Force. These Sea Trials will focus on warfighting capabilities in the areas of Anti-Submarine Warfare, Mine Countermeasure, Strike Warfare, and Counter Weapons of Mass Destruction. By conducting these Limited Object Experiments (LOEs), the warfighting capabilities are assessed sooner for potential entry in a spiral development. Congress has appropriated the following FY04 Congressional Plus-Up funding: $2.500M for Advanced Composite Sail Phase II, $7.400M for High Performance Metal Fiber Brushes, $10.000M for Submarine Payloads and Sensors, and $10.000M for Advanced Submarine Technology.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-4**	R-1 ITEM NOMENCLATURE Advanced Submarine Systems Development/0603561N

Project Unit 0223: The Advanced Submarine Combat Systems Development non-acquisition (Non-ACAT) program supports the Navy Submarine Acoustic Superiority and Technology Insertion Initiatives by the application of advanced development and testing of sonar and combat control systems improvements. This program element transitions technologies developed by Navy technology bases, the private sector, Office of Naval Research (ONR), Future Naval Capabilities and the Defense Advanced Research Projects Agency. The program addresses technology challenges to improve tactical control in littoral and open ocean environments for a variety of operational missions including peacetime engagement, surveillance, battlespace preparation, deterrence, regional sea denial, precision strike, task group support, and ground warfare support. Prototype hardware / software systems are developed to demonstrate technologically promising system concepts in laboratory and at-sea submarine environments. Specifically, the focus of the technology efforts will be Advanced Processing Build-Acoustic (APB-A) and Advanced Processing Build-Tactical (APB-T) tactical control. APB's develop and demonstrate improvements to current and future sonar/combat control systems. Program is funded under demonstration and validation because it develops and integrates hardware for experimental test related to specific platform applications.

Project Unit 9039 is authorized by Congress to develop MK48 ADCAP torpedo improvements.

Project Unit 9189 is authorized by Congress to develop Fiber Optic Mulit-Line Towed Array.

Project Unit 9191 is authorized by Congress to develop Rotary Electromagnetic Torpedo Launcher.

R-1 SHOPPING LIST - Item No. 46

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME PE0603561N Advanced Submarine Systems Development				PROJECT NUMBER AND NAME 2033/Advanced Submarine Systems Development			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**46.835**	**54.687**	**38.155**	**53.571**	**51.758**	**64.128**	**75.719**
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This program supports innovative research and development in submarine hull and combat systems technologies and the subsequent evaluation, demonstration, and validation for submarine platforms. It will increase the submarine technology base and provide subsystem design options not currently feasible. The program element also supports programs transitioning from Future Naval Capabilities (FNC's).

Project Unit 2033: The Advanced Submarine Research and Development (R&D) program performs three functions: it is the fundamental transition point for Hull, Mechanical and Electrical (HM&E) technologies from Science and Technology (S&T) to platforms, it is the starting point for serious submarine platform design & naval architecture products, and it is the sponsor to operate unique R&D experimentation, modeling and simulation facilities. Focus is on the three warfighting pillars of SEA POWER 21 (SEA BASE, SEA SHIELD, SEA STRIKE) and SEA TRIAL, including capabilities to gain and sustain battle force access, develop and share knowledge, deter conflict, counter weapons of mass destruction and project power with surprise. It is a non-acquisition (non-ACAT) program. The program also supports two Information Exchange Programs with the United Kingdom, (one on submarine electromagnetic silencing and the second on submarine platform equipment, systems, and hull technology). The program transitions technologies developed by Navy technology bases, the private sector, and the Defense Advanced Research Projects Agency (DARPA). This program is structured to support near term VIRGINIA Class technology insertion and future submarine concepts and core technologies. Advanced systems developed under this program have potential for backfit into existing classes of submarines, supporting emerging requirements, and systems technology insertion into future submarine designs. This program sponsors advanced submarine design development and concepts that can radically transform the design architecture of future submarines. This program operates autonomous quarter scale submarines (Large Scale Vehicles) to provide test capability for propulsor, acoustic and non-acoustic signature reduction, remote vehicle R&D, and large scale hydrodynamic experimentation; operates the Hydrodynamic/Hydroacoustic Technology Center to enhance the Navy's ability to accurately, computationally predict hydrodynamic and hydroacoustic performance of submerged bodies; and operates and supports the Navy's Intermediate Scale Measurement System in Bayview Idaho. This program also supports submarine payloads and sensors demonstrations and execution of Sea Trial events and Sea Trial coordination/integration into a joint warfighting context with other services such as the U.S. Marine Corp, U.S. Army, and the U.S. Air Force. These Sea Trials will focus on warfighting capabilities in the areas of Anti-Submarine Warfare, Mine Countermeasure, Strike Warfare, and Counter Weapons of Mass Destruction. By conducting these Limited Object Experiments (LOEs), the warfighting capabilities are assessed sooner for potential entry in a spiral development. Congress has appropriated the following FY04 Congressional Plus-Up funding: $2.500M for Advanced Composite Sail Phase II, $7.400M for High Performance Metal Fiber Brushes, $10.000M for Submarine Payloads and Sensors, and $10.000M for Advanced Submarine Technology.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603561N Advanced Submarine Systems Development	2033/Advanced Submarine Systems Development

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Payload Technologies/Subtotal Cost		7.259	6.762	6.703
RDT&E Articles Quantity				

Test and evaluate a minimum of two electric actuation prototype systems for three different representative hydraulic system applications. Determine if Science &Technology, R&D, or design changes are required for prototypes to meet established performance requirements. Retest modified actuation designs and select best design for full scale demonstration. Perform initial planning to implement a Temporary Alternation (TEMPALT) on a VIRGINIA Class submarine hull. Conduct Rapid Prototyping of Electromagnetic Launch Concept to drive MK 21 turbine pump with permanent magnet motor in lieu of air motor. Demonstrate full scale Electromagnetic Launch Prototype at the Naval Undersea Warfare Center using the launch test facility. Complete test and evaluation of composite advanced structures for Composite Advanced Sail (CAS). Target CAS insertion onto FY06 (may delay to FY08) authorized VIRGINIA ship, supports payload modularity. Deliver Validated Composite Materials Design Criteria and Requirements (DC&R) needed to design an Advanced Sail Shape for VIRGINIA Class and Advanced structures for other applications. FY 03 accomplishments include measurement of material parameters, development of test and measurement methods, and subscale item testing. Planned accomplishments for FY04-05 are to complete development of analytic modeling techniques for fatigue and shock loading, and validation of critical design elements. FY04 includes a Congressional Plus-Up for CAS of $2.500M which will allow procurement of full scale critical elements, and expanded shock modeling and validation.

		FY 03	FY 04	FY 05
Payloads and Sensors/Subtotal Cost		4.127	20.000	8.000
RDT&E Articles Quantity				

A series of demonstrations will be conducted with realistic payload, sensor and platform concepts adaptable enough to apply to a wide variety of future war-fighting needs. The concepts were selected to enable insertion of advanced technologies. Government and Industry consortia are executing four demonstrations involving the Broaching Universal Buoyant Launcher (BUBL), the Flexible Payload Module (FPM), the Stealthy Affordable Capsule System (SACS), and Intelligence, Surveillance, Reconnaissance, and Targeting Acquisition (ISR&TA) Processing. BUBL demonstration completion was deferred from FY03 to conduct the at-Sea SSGN GIANT SHADOW Limited Objective Experiment that was successfully completed in FY03. FY05 funding will be used to conduct the follow on experiment, Silent Hammer. These experiments demonstrate and test special operations forces, weapons, sensors, and communications deployment from an SSGN as part of a joint forces operation, including launch and control of Unmanned Underwater Vehicles and Unmanned Aerial Vehicles and networked with other joint assets to complete a mission. Future experiments will demonstrate and test integrated undersea technologies in joint force antisubmarine warfare (ASW) and mine countermeasure operations. The BUBL demo will be deferred to FY06. FY04 includes a Congressional Plus-Up of $10.000M for Advanced Submarine Technology (AST), and $10.000M for Payloads & Sensors. The AST funds will support the planning, and development and execution of Assured Access Equipments which will examine advanced concepts and technologies for the Sea Power 21 Vision and Pillars, and Acoustic Rapid COTS Insertion (ARCI). The Payloads & Sensors funds will allow continuation of design and development efforts of several Component Advanced Development (CAD) demonstrations, which focus on platform interface module and universal encapsulation technologies.

		FY 03	FY 04	FY 05
Distributed Propulsion/Subtotal Cost		12.025	5.872	4.656
RDT&E Articles Quantity				

Continue R&D to support submarine alternative propulsion and stern configurations with potential to reduce submarine cost and increase payload capacity. Demonstrate maneuvering, stealth and other critical performance parameters via Appropriate Scale Demonstrators in realistic environmental conditions. Complete R&D and large scale demonstration required to mature the Improved Advanced Hybrid Propulsor and associated technologies for the VIRGINIA Class. The Improved Advanced Hybrid Propulsor addresses a pressing Integrated Logistics Support (ILS) concern (reduction of propulsor changeout time from ~8 months to 2 months). Demonstrate Gap Control Technology at large scale vehicle (on LSV-2 Cutthroat) as culmination of technology transition from the Defense Advanced Research Projects Agency (DARPA). FY03/FY04 accomplishments include delivery of Distributed Pump and Jet Propulsion (DPJP) concept designs, completion of Main Seawater Pump pipe loop test, various concept studies, and gap actuation requirements and designs. The initial hydrodynamic design of the Improved Advanced Hybrid propulsor was also completed.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603561N Advanced Submarine Systems Developmen	Advanced Submarine Systems Development/2033

B. Accomplishments/Planned Program (Cont.)

		FY 03	FY 04	FY 05
Stealth/Subtotal Cost		14.870	11.830	17.412
RDT&E Articles Quantity				

Deliver an expanded Acoustic Piping Model for emerging fleet issues with warm water littoral missions. Validate the model on the Intermediate Scale Measurement System (ISMS) and leverage data from VIRGINIA (SSN-774) trial data. Provide acoustic/fluid characterization data and analysis for Distributed Propulsion Development. Validate advanced hull coating concept for Conformal Acoustic Velocity Sensor (CAVES) arrays and resolve ship design integration issues with the coating tiles for potential VIRGINIA Class insertion. Conduct full scale and model scale testing. Develop engineering and application concepts for future material technologies and design features to address future platform needs in Payload Interface Modules (PIMs) and Distributed Propulsion Systems. Identify submarine flow noise sources and mitigation concepts. Leverage from SEAWOLF Class Flow Noise Reduction research. Examine wake signatures against potential future threats. Conduct Large Scale Vehicle operations to evaluate advanced propulsor concepts, advanced sail concepts, and reduce radiated noise signature for SEAWOLF and VIRGINIA Class vessels, Evaluate vessel maneuvering performance. Evaluate the structural acoustic, and radiated signature implications of piping and overboard discharge designs. FY03/FY04 accomplishments include completion of overboard discard test on the Navy ISMS, 25 successful Large Scale Vehicle (LSV) acoustic trials at Lake Pend Orielle, Idaho, for the VIRGINIA Class Steel Sail construction and testing of second LSV, and testing of ONR sponsored Conformal Active Sonar System (CACTISS) on the ISMS.

		FY 03	FY 04	FY 05
Maneuvering & Control/Subtotal Cost		7.084	1.518	1.114
RDT&E Articles Quantity				

Design and build quarter scale Advanced Control Surface Actuation System (ACSAS) for demonstration on Large Scale Vehicle (LSV) 2 or other vehicle (proposed Distributed Propulsion Demonstrator) in out years. This system is a tab-assisted control surface utilizing Shape Memory Alloy (SMA) technology and electric power. The demonstration will show improved low-speed maneuvering performance potential at reduced design costs without using traditional steering and diving hardware and hydraulics. This technology leverages previous tab-assisted control concept development work under Defense Advanced Research Projects Agency and Office of Naval Research programs, follow-on NAVSEA water tunnel tests, and small-scale vehicle tests . Conduct Hydrodynamic and Hydroacoustic analysis for Distributed Propulsion Concepts. Predict both stealth and maneuvering performance for control surfaces, hull shapes, and propulsors in turns and steady state. FY03/FY04 accomplishments include development of an improved design and analysis software tool, functional design of the ACSAS/Flexible Tab Assisted Control (FlexTAC) for the Radio Control Model Experiment, completion of design practices manual for Submarine Maneuvering and LSV-2 Hydrodynamic and Hydroacoustic "Quick Look" Characteristic Trials.

		FY 03	FY 04	FY 05
Total Ownership/Affordability/Subtotal Cost		1.470	8.705	0.270
RDT&E Articles Quantity				

High Performance Brush Technology Program objective is to reduce fleet maintenance burden by providing Form, Fit and Function replacement for Carbon Brushes in Electric motors and motor generator sets. Major accomplishment in FY03 demonstrated at-sea performance of High performance brushes in AC end of 500 KW MG set on USS ALBUQUERQUE. Plans for FY04-05 include landbased and at-sea demonstration of High Performance Brushes on DC end of 500 KW MG Sets, develop lower cost alternatives for rotor protection, and train and certify a west coast shipyard capability to back-fit the 500 KW SHIPALT. FY04 includes a Congressional Plus-Up of $7.400M which will be used to expand application to other motors and generators. Efforts will also address scaling up prototype manufacturing processes to production rate processes.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603561N Advanced Submarine Systems Development	2033/Advanced Submarine Systems Development/0603561N

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
President's Budget: FY 2004 President's Controls	47.655	25.404	77.011
FY 2005 President's Controls	46.835	54.687	38.155
Total Adjustments	-0.820	29.283	-38.856
Summary of Adjustments			
ADV Sub Tech/SSN Tech Insert Adjustments			-50.000
Advanced Sub Tech-Sonar/Combat System Adjustment			12.000
Advanced Composite Sail Phase II		2.500	
Advanced Metal Fiber Brushes		7.400	
Advanced Submarine Technology		10.000	
Submarine Payloads and Sensors Program		10.000	
Business Process Reform		-0.146	
FY03 SBIR	-0.698		
BSO Adjustments	-0.122		
FFRDC Reduction		-0.001	
Manpower Reduction			-0.347
NWCF Rates			-0.386
PBD 604 Non Purchase Inflation			-0.123
Efficiencies/Revised Econ Assumptions		-0.470	
Subtotal	-0.820	29.283	-38.856

Schedule: not applicable.
Technical: not applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603561N Advanced Submarine Systems Developme	Advanced Submarine Systems Development/2033

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost

Not applicable.

E. ACQUISITION STRATEGY:

Competitively awarded contracts from Broad Agency Announcement (BAA) solicitations.

F. MAJOR PERFORMERS:

Newport News Shipbuild, Newport News, Va R&D Support	12/03	12/04	12/05
Electric Boat Corp., Groton, CT. R&D support	12/03	12/04	12/05
Noesis, Inc., Manassas, Va. Fiber Brush R&D	12/03	12/04	12/05
Naval Surf Warfare Ctr, Carderock, MD. R&D support	12/03	12/04	12/05
Naval Undersea Warfare Ctr, Newport, R.I. R&D support	12/03	12/04	12/05
Penn State University/AR Lab, State College, PA	12/03	12/04	12/05
John Hopkins/APL, Laurel, MD R&D support	12/03	12/04	12/05
Raytheon, Portsmouth, RI		12/04	12/05
Lockheed Martin, Manassas, VA		12/04	12/05

R-1 SHOPPING LIST - Item No. 46

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**		PROGRAM ELEMENT PE0603561N Advanced Submarine Systems Developmen				PROJECT NAME AND NUMBER Advanced Submarine Systems Development/2033						
Cost Categories (Tailor to WBS, or System Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Targ Value of Contract
Product Development	S/CPFF	NNS Newport News, VA	59.587	1.449	12/02	0.833	12/03	0.833	12/04	0.000	62.702	67.224
Product Development	S/CPIF	NNS Newport News, VA	23.032	1.187	12/02	0.504	12/03	0.245	12/04	17.216	42.184	43.665
Product Development	S/CPFF	EB Groton, CT	75.890	3.147	12/02	1.202	12/03	1.318	12/04	2.003	83.560	83.560
Product Development	WR	NSWC Bethesda, MD	210.477	25.416	10/02	18.193	10/03	21.231	10/04	CONT.	CONT.	
Product Development	S/CPFF	ARL/PSU, State College,PA	30.060	4.968	12/02	3.177	12/03	2.027	12/04	CONT.	CONT.	
Product Development	S/CPFF	Noesis	5.583	1.416	12/02	7.975	12/03				14.974	9.504
Product Development	Various	Various	95.681	1.787	Various	3.103	Various	1.973	Various			
Product Development	CPFF	BAE/SPA	2.097	0.975	12/02	0.876	12/03	1.078	12/04			
Product Development	S/CPFF	Raytheon		0.971	12/02	1.785		1.100	12/04			
Product Development	S/CPFF	Lockheed Martin		0.185	12/02	4.700		1.100	12/04			
Subtotal Product Development			502.407	41.502		42.348		30.905				

Remarks:

Development Support Equipment											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	

Remarks:

Exhibit R-3 Cost Analysis (page 2) | DATE: February 2004

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NAME AND NUMBER
RDT&E, N/BA-4	PE0603561N Advanced Submarine Systems Development	Advanced Submarine Systems Development/2033

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY05 Cost	FY05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	S/CPFF	Raytheon	7.670	1.890	12/02	1.800	12/03	2.400	12/04			
Developmental Test & Evaluation	S/CPFF	Lockheed Martin	0.000	0.400		4.700	12/03	2.400	12/04			
Developmental Test & Evaluation	Various	Various	0.000	0.640	10/02	4.015	12/03	0.950	10/04			
Subtotal T&E			7.670	2.930		10.515		5.750				

Remarks:

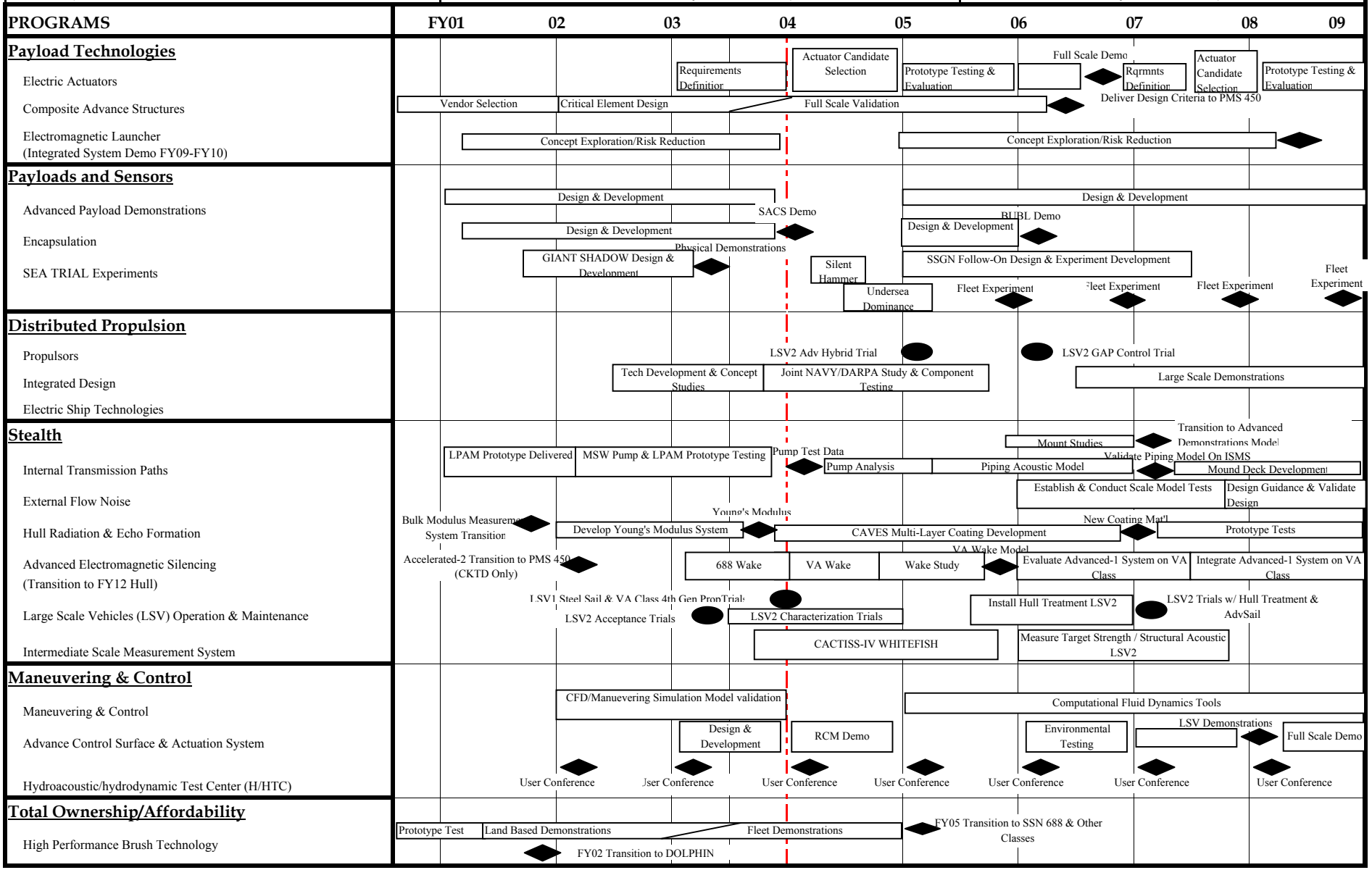
Contractor Engineering Support	CPFF	Various	2.497	0.771	12/02	0.859	12/03	0.990	12/04		CONT.	
Government Engineering Support	WR	Various	1.000	1.592	10/02	0.925	10/03	0.470	10/04		CONT.	
Travel			0.215	0.040	11/02	0.040	11/03	0.040	11/04		CONT.	
Subtotal Management			3.712	2.403		1.824		1.500				

Remarks:

Total Cost			513.789	46.835		54.687		38.155				

CLASSIFICATION:

EXHIBIT R4, Schedule Profile		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME PE0603561N Advanced Submarine Systems Development	PROJECT NUMBER AND NAME Advanced Submarine Systems Development/S2033



Legend ◆ Milestone/Major Event ● Trails | Point of Reference

R-1 SHOPPING LIST - Item No. 46

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&BA-4**	PROGRAM ELEMENT PE0603561N Advanced Submarine Systems Development				PROJECT NUMBER AND NAME Advanced Submarine Systems Development/S2033			
Schedule Profile		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Payload Technologies								
Select electric actuation system candidates		4Q						
Conduct prototype benchmark testing & evaluation				4Q				
Conduct full scale demonstration						1Q		
Establish follow-on electric actuator performance requirements						2Q		
Select second set of electric actuation system candidates							2Q	
Fabricate and demo full scale composite Adv. Sail prototype			1Q					
Comp.Adv. Structures complete design criteria and req. document					3Q			
Complete Comp. Adv. Sail development, transition to VA class					3Q			
Payloads & Sensors								
Advanced Payload Demonstrations Design & Development		4Q		1Q,2Q,3Q,4Q				4Q
Encapsulation Design & Development		4Q						
GIANT SHADOW Experiments Physical Demonstration		3Q						
Silent Hammer			3Q					
Undersea Dominance			4Q	1Q, 2Q				
BUBL Capsule Physical Demonstration					1Q			
SSGN Follow-on Design & Experiment					2Q	2Q	2Q	2Q
Distributed Propulsion								
Initiate propulsor advanced design developments		2Q						
Begin hardware manufacture for Improved Advanced Hybrid		4Q						
Complete manufacture of Improved Advanced Hybrid				2Q				
Improved Advanced Hybrid LSV II Trial				2Q, 3Q				
Transition propulsor component technology to VA class				2Q				
Complete HIREP Evaluation of Gap Control			1Q, 2Q					
Begin hardware manufacture for Gap Control LSV Evaluation			3Q					
Complete Gap Control LSV II Hardware					4Q			
Gap Control LSV II Trial						1Q		
Distributed Pump and Jet Submarine Concept Study		1Q, 2Q, 3Q, 4Q	1Q, 2Q, 3Q	2Q, 3Q, 4Q				
Perform Initial Distributed Propulsion Development		2Q, 3Q, 4Q	1Q	3Q, 4Q	1Q, 2Q, 3Q, 4Q			
Begin hardware manufacture for DPJP Demonstrator						1Q		
DPJP Demonstrator Evaluations							3Q, 4Q	

R-1 SHOPPING LIST - Item No. 46

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT& BA-4**	PROGRAM ELEMENT PE0603561N Advanced Submarine Systems Development				PROJECT NUMBER AND NAME Advanced Submarine Systems Development/2033			
Schedule Profile		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Stealth								
ITP MSW Pump & LPAM Prototype Testing		2Q,3Q,4Q						
ITP Piping Acoustic Model				2Q, 3Q, 4Q	1Q,2Q,3Q,4Q			
ITP Validate Piping Model on ISMS						1Q		
ITP Mound Deck Development						2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q
ITP Mount Studies				4Q	1Q,2Q,3Q,4Q			
ITP Transition to Advanced Demonstrations Model						1Q		
External Flow Noise 688 Wake		2Q, 3Q, 4Q						
External Flow Noise Wake Study				1Q, 2Q, 3Q				
External Flow Noise VA Wake Model				4Q				
External Flow Noise Establish & Conduct Scale Model Testing					1Q,2Q,3Q,4Q	1Q, 2Q, 3Q		
External Flow Noise Design Guidance & Validate Design						4Q	1Q, 2Q, 3Q,4Q	1Q
HR&EF Develop Young's Modulus System		1Q, 2Q, 3Q						
HR&EF Deliver Young's Modulus		4Q						
HR&EF CAVES Multi-Layer Development				1Q,2Q,3Q,4Q	1Q, 2Q, 3Q			
HR&EF New Coating Material					4Q			
HR&EF Prototype Tests						1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q
Adv EM Silencing Evaluate Advanced-1 System on VA Class					1Q,2Q,3Q,4Q	1Q, 2Q		
Adv EM Silencing Integrate Advacned-1 System on VA Class						3Q, 4Q	1Q,2Q,3Q,4Q	1Q
Troubleshoot SEAWOLF acoustic issues LSV 1		1Q,2Q,3Q,4Q						
Accept delivery of LSV 2 to Navy		1Q						
SEAWOLF steel sail trail, LSV 1		1Q, 2Q, 3Q, 4Q	1Q, 2Q					
LSV evaluation of propulsor component improvements			3Q					
LSV 2 hydrodynamic performance trial			2Q					
LSV 2 maneuvering characterization trial			3Q,4Q	3Q,4Q	3Q			
LSV 2 SSN 774 support				2Q				
LSV 2 RAV install hull treatment on pressure hull and sail					1Q,2Q			
Complete "no sail" trials, LSV 1		2Q						
Procure new LSV 2 battery		3Q				1Q		
Initiate VA advanced sea trials, LSV 2			3Q					
Complete VA advanced sail trials, LSV 2						3Q		
LSV 2 RAV install, new LSV 2 battery			4Q				4Q	
LSV 2 ODAS refresh				1Q,2Q				
Technology refresh of Intermediate Scale Meas. System						1Q,2Q		

R-1 SHOPPING LIST - Item No. 46

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&BA-4**	PROGRAM ELEMENT PE0603561N Advanced Submarine Systems Development				PROJECT NUMBER AND NAME Advanced Submarine Systems Development/2033			
Schedule Profile		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Maneuvering & Control								
Complete Maneuvering & Control Modeling Validation tools			1Q					
Complete Maneuvering & Control CFD tools								2Q
Complete design & development of ACSAS		4Q						
Conduct RCM demonstration			4Q					
Complete environmental testing					4Q			
Conduct LSV demonstration							1Q	
Conduct full scale demonstration								1Q
Demo Adv. Maneuvering & Control concepts on LSV 2			2Q					
Planned replacement of class/unclass comp. serv. @ HTC					4Q			
Total Ownership/Affordability								
Demo commutator operation for Adv. Brush - full scale			1Q					
Comp. Adv. Metal Brushes transition to PMS 392				3Q				

R-1 SHOPPING LIST - Item No. 46

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603561N/Advanced Submarine System Development				PROJECT NUMBER AND NAME 0223/Submarine Combat System Improv (Adv)			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**69.490**	**26.877**	**43.005**	**63.740**	**64.307**	**74.710**	**60.788**
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This program supports innovative research and development in submarine technologies and the subsequent evaluation, demonstration, and validation for submarine platforms. It will increase the submarine technology base and provide subsystem design options not currently available.

Project Unit 0223: The Advanced Submarine Combat Systems Development non-acquisition (Non-ACAT) program supports the Navy Submarine Acoustic Superiority and Technology Insertion Initiatives by the application of advanced development and testing of sonar and combat control systems improvements. This program element transitions technologies developed by Navy technology bases, the private sector, Office of Naval Research Future Naval Capabilities and Defense Advanced Research Projects Agency. The program addresses technology challenges to improve tactical control in littoral and open ocean environments for a variety of operational missions including peacetime engagement, surveillance, battlespace preparation, deterrence, regional sea denial, precision strike, task group support, and ground warfare support. Prototype hardware / software systems are developed to demonstrate technologically promising system concepts in Laboratory and at-sea submarine environments. Specifically, the focus of the technology efforts will be Advanced Processing Build-Acoustic (APB-A) and Advanced Processing Build-Tactical (APB-T). APB's develop and demonstrate improvements to current and future sonar/combat control systems. Program office supports international information exchange agreements. Program is funded under demonstration and validation because it develops and integrates hardware for experimental test related to platform applications.

R-1 SHOPPING LIST - Item No. 46

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603561N/Advanced Submarine System Development	0223/Submarine Combat System Improv (Adv)

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Advanced Sonar System Processing/Subtotal Cost		21.490	18.377	26.005
RDT&E Articles Quantity				

Advanced Processing Build-Acoustic (APB-A) has continued improvements in sonar detection and classification via improved algorithms and automation for the thin line towed arrays, is implementing the intial Precision Underwater Mapping functionality, improved sonar planning and environmental monitoring and initiated processing enhancements for the Hull and Sphere Arrays. Future efforts will focus on improved High Frequency Active capabilites, and enhanced processing capabilities for the Sphere, Hull and TB-16 Arrays as well as test equipment upgrades.

		FY 03	FY 04	FY 05
Advanced Tactical Control/Subtotal Cost		10.000	8.500	8.000
RDT&E Articles Quantity				

Advanced Processing Build-Tactical (APB-T) delivered the first automated Close Encounter Management tool-set for submarine combatants. Future efforts will focus on enhancing this functionality through refined all source data fusion algorithms and in improving the tactical commander's ability to manage close in and high density scenarios through advanced target motion analysis, contact management, tactical scene rendering, sensor performance prediction models, search planning, uncertainty management, acoustic and non-acoustic vulnerability management, close encounter decision management, automation. In FY 05 start advanced processing techniques in data fusion and state estimation leveraged from ONR/DARPA as well as test equipment upgrades.

		FY 03	FY 04	FY 05
Advanced Hull Arrays/Subtotal Cost		9.800	0.000	9.000
RDT&E Articles Quantity				

The Advanced Hull Arrays project is developing improved, larger aperture sonars in order to restore acoustic superiority over potential threat submarines. The end products will be large aperture sail, flank and bow array Advanced Development Models (ADMs). Efforts continue development and testing of a Conformal Acoustic Velocity Sonar (CAVES) Large Vertical Array (LVA) for ultimate transition to VIRGINIA Class. In FY 05, commence Second Low Cost Conformal Array (SLCCA) with active capability and start improvements to a Sail Window Conformal Array (SWCA) ADM both of which support collision avoidance and mine detection.

R-1 SHOPPING LIST - Item No. 46

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603561N/Advanced Submarine System Development	0223/Submarine Combat System Improv (Adv)

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
High Frequency Sonar Program/Subtotal Cost		2.800	0.000	0.000
RDT&E Articles Quantity				

The High Frequency Sonar Program develops products to support Battlespace Preparation and Anti-Submarine Warfare. These include advanced Computer Aided Detection (CAD) for Precision Underwater Mapping (PUMA), Computer Aided Classification (CAC) and Low Probability of Intercept and Adaptive Clutter Suppression capabilities for Advanced Submarine Warfare (ASW). Deliverables will be PUMA and ASW CAC source code for incorporation into APB. In FY 05.

		FY 03	FY 04	FY 05
Multi-Line Towed Array Test & Evaluation/Subtotal Cost		0.900	0.000	0.000
RDT&E Articles Quantity				

Evaluated single line array self noise at Lake Pend Oreille (LPO) test. Evaluated 3 different VIM configurations at lake test. Completed 3 line array design and fabrication. The Multi-Line Towed Array Test & Evaluation program conduct 3-line sea test on Research Vehicle and submarine, perform data analysis, and initiate transition to Engineering Development Model (EDM) development. In FY 05, start advanced develoment of next generation submarine towed array concepts leveraging innovative mechanical, fiber optic and other sensor technologies.

		FY 03	FY 04	FY 05
Payloads/Senors Program/Subtotal Cost		16.500	0.000	0.000
RDT&E Articles Quantity				

Payloads/Sensors Program - Two industry consortia (Team 2020 and the Forward Pass Consortium) are executing five demonstrations in the component development phase of this effort. Additionally the consortia will continue an industry technology incubator effort aimed at defining new start demonstrations to be selected in FY-03. The team 2020 demonstrations started late in FY-01 and complete by FY-04 are the Flexible Payload Module (FPM), Stealthy Affordable Capsule System (SACS), Processing, and Small UAV (SUAV). Team Forward Pass will execute the Broaching Universal Buoyant Launcher (BUBL) demonstration with the same schedule. For FY-03, interim testing will be conducted for all demonstrations started in FY-01. In FY 05, start up new technology demonstrations.

R-1 SHOPPING LIST - Item No. 46

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603561N/Advanced Submarine System Development	0223/Submarine Combat System Improv (Adv)

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Advanced Sonar System Processing/Subtotal Cost		0.000	0.000	0.000
RDT&E Articles Quantity				

Fiber Optic Technology Transition - Risk reduction to assure smooth transition of Fiber Optic Towed Array technology to the Fiber Optic TB-29 program.

		FY 03	FY 04	FY 05
Adv. Sub. Systems Dev./Subtotal Cost		8.000	0.000	0.000
RDT&E Articles Quantity				

BRUSH - metal fiber brush and brush holder design suitable for transition to a program to install them on fleet SSMG sets.

SAIL - Further development of damage prediction techniques for transient events by developing and validating models that predict damage development in thick section composites.

		FY 03	FY 04	FY 05
Subtotal Cost				
RDT&E Articles Quantity				

R-1 SHOPPING LIST - Item No. 46

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603561N Advanced Submarine Systems Development	0223/Advanced Submarine Systems Development/0603561N

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
President's Budget: FY 2004 President Controls	71.092	27.340	81.584
FY2005 President's Controls	69.490	26.877	43.005
Total Adjustments	-1.602	-0.463	-38.579
Summary of Adjustments			
Misc adjustments			-38.000
FY2003 SBIR (dtd 5-5-03)	-1.474		
BSO Adjustment	-0.147		
SPAWAR Service Cost Center Adjustment		-0.002	-0.003
Management Improvement		-0.072	
FFRDC Reduction		-0.157	
Efficiencies/Revis		-0.232	
NWCF Rates			-0.055
MANPOWER			-0.241
Manpower CAAS Spread			-0.151
PBD 426 Rates			0.011
PBD 604 Inflation			-0.115
PBD 604 Non Purchase Inflation			-0.025
Business Process Reform (Sec. 8100) Adjustment	0.006		
Economic Assumptions (Sec. 8135) Adjustment	0.010		
IT Cost Growth (Sec. 8109)	0.003		
Subtotal	-1.602	-0.463	-38.579

Schedule:

Not Applicable.

Technical:

Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603561N/Advanced Submarine System Development	PROJECT NUMBER AND NAME 0223/Submarine Combat System Improv (Adv)

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost

Not applicable.

E. ACQUISITION STRATEGY: * Plan to use competitively awarded contracts from Broad Agency Announcement (BAA) solicitations.

F. MAJOR PERFORMERS: **

Naval Undersea Warfare Center, Newport, R.I. R&D support. Naval Research Laboratory, Washington, DC. Naval Surface Warfare Center, Carderock, MD. R&D Support. John Hopkins University/Applied Physics Lab, Laurel, MD R&D support. Applied Research Lab., The University of Texas, Austin, TX. R&D Support. MITRE Corporation, McLean, VA R&D Support. Lincoln Lab, Cambridge, MA R&D Support. Digital Systems Resource, Fairfax, VA. R&D Support. Lockheed Martin, Manassas, VA R&D Support. Raytheon, Portsmouth, RI R&D Support. (All performers support APB (A) and APB(T).

R-1 SHOPPING LIST - Item No. 46

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1) | DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4**

PROGRAM ELEMENT: 0603561N/Advanced Submarine System Development

PROJECT NUMBER AND NAME: S0223/Submarine Combat System Improv (Adv)

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Product Development	WR	NUWC Newport, RI	52.017	16.244	10/02	7.175	10/03	10.135	10/04	CONT.	CONT.	
Product Development	RCP	NUWC Newport, RI	1.000								1.000	
Product Development	WR	NRL/Washington	3.900	0.800	10/02	0.339	10/03	0.656	10/04	CONT.	CONT.	
Product Development	RCP	NRL/Washington	0.490								0.490	
Product Development	WR	NSWC Carderock, MD	9.359	1.152	10/02					CONT.	CONT.	
Product Development	RCP	NSWC Carderock, MD	0.036								0.036	
Product Development	WR	NSWC Dahlgren	0.128	0.050	10/02	0.080	10/03	0.080	10/04	CONT.	CONT.	
Product Development	PD	ONI, Washington	1.885	0.900	12/02	0.900	12/03	0.900	12/04	CONT.	CONT.	
Product Development	C/CPFF	Lockheed-Martin,VA	9.621	9.757	12/02	0.798	12/03	0.800	12/04	CONT.	CONT.	
Product Development	C/CPFF	Sanders Assoc. (L-M),NH	2.652	0.750	12/02					CONT.	CONT.	
Product Development	RCP	NSMA	0.495	0.180	11/02	0.180	12/03	0.180	11/04	CONT.	CONT.	
Product Development	MIPR	U.S. Army/MITRE	5.240	1.300	12/02	1.200	12/03	1.800	12/04	CONT.	CONT.	
Product Development	MIPR	U.S. Air Force/MIT Lincoln Labs	4.120	1.500	12/02	1.200	12/03	1.000	12/04	CONT.	CONT.	
Product Development	RCP	ONR/MCCI	2.800								2.800	
Product Development	MIPR	METRON	1.050	0.600	12/02	0.500	12/03	1.000	12/04	CONT.	CONT.	
Product Development	C/CPFF	Progeny, VA	1.650	0.440	12/02					CONT.	CONT.	
Product Development	C/CPFF	BBN, VA	2.309	0.927	12/02					CONT.	CONT.	
Product Development	RCP	ONR/GTRI	2.050								2.050	
Product Development	SS/CPFF	APL/JHU, MD	22.901	7.200	01/03	7.200	01/04	7.200	12/04	CONT.	CONT.	
Product Development	SS/CPFF	APL/UW, WA	0.125	0.050	12/02	0.050	12/03	0.050	12/04	CONT.	CONT.	
Product Development	SS/CPFF	ARL/UT, TX	18.143	5.794	12/02	1.200	12/03	1.500	12/04	CONT.	CONT.	
Product Development	SS/CPFF	ARL/PSU, PA	1.525	0.350	12/02	0.000		0.350	12/04	CONT.	CONT.	
Product Development	MD	ARL/PSU, PA	0.692	0.150	01/03	0.150	01/04	0.150	01/05	CONT.	CONT.	
Product Development	WR	NAVAIR PAX/NSWC Indian H	0.110	0.030	10/02	0.030	10/03	0.030	10/04	CONT.	CONT.	
Product Development	WR	SPWAR, CA	0.500	0.140	10/02	0.140	10/03	0.140	10/04	CONT.	CONT.	
Product Development	PD	SPWAR, CA	0.738	0.250	10/02	0.200	10/03	0.400	10/04	CONT.	CONT.	
Product Development	C/CPFF	DSR, VA	13.300	3.750	12/02	2.516	12/03	4.120	10/04	CONT.	CONT.	
Product Development	WR	COMSUBLANT	0.195	0.100	10/02	0.100	10/03	0.100	10/04	CONT.	CONT.	
Product Development	C/CPFF	Electric Boat, CT	5.603								5.603	
Product Development	CPFF	ORINCON	0.000	1.250	12/02	1.000	12/03	1.000	12/04	CONT.	CONT.	
Product Development	MIPR	DARPA, VA	21.600								21.600	
Product Development	Various	Various	2.645	0.000		0.000		0.162	Various	CONT.	CONT.	
Product Development	C/CPFF	Northrop Grumman	0.000	1.100	02/03					CONT.	CONT.	
SBIRs / BAAs	C/CPFF	Various	5.625	0.875	Various	0.000		10.177	Various	CONT.	CONT.	
Advanced Towed Array BAA	C/CPFF	Lockheed Martin, NY	1.315								1.315	
Subtotal Product Development			195.819	55.639		24.958		41.930		CONT.	CONT.	

Remarks:

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4**		PROGRAM ELEMENT 0603561N/Advanced Submarine System Development				PROJECT NUMBER AND NAME 0223/Submarine Combat System Improv (Adv)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Test & Evaluation	S/CPFF	NOESIS		6.000	02/03	0.000		0.000			6.000	
Development Test & Evaluation	S/CPFF	EB Groton, CT		0.600	02/03	0.000		0.000			0.600	
Development Test & Evaluation	S/CPFF	NNS Norfolk, VA		0.700	02/03	0.000		0.000			0.700	
Development Test & Evaluation	S/CPFF	NSWC Bethesda, MD		0.700	07/03	0.000		0.000			0.700	
Subtotal Support			0.000	8.000		0.000		0.000		0.000	8.000	

Remarks:

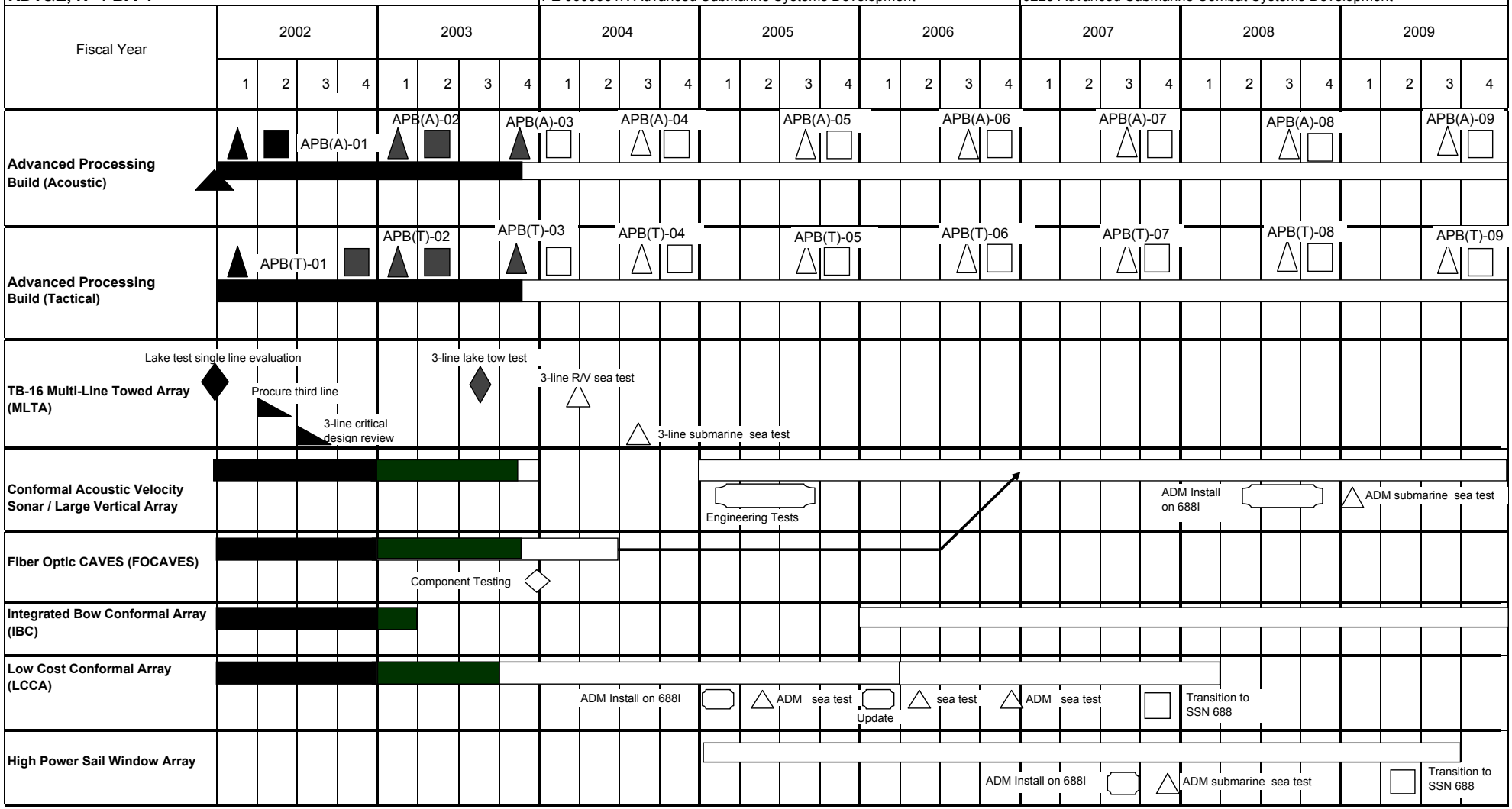
R-1 SHOPPING LIST - Item No. 46

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 3)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603561N/Advanced Submarine System Development			PROJECT NUMBER AND NAME 0223/Submarine Combat System Improv (Adv)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NUWC Newport, RI	0.750	1.943	10/02						2.693	
Developmental Test & Evaluation	C/CPFF	RAYTHEON	2.011	2.200	12/02						4.211	
Operational Test & Evaluation												
Live Fire Test & Evaluation												
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			2.761	4.143		0.000		0.000			6.904	
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support	C/CPFF	Integrated Product Dec, CT	0.450								0.450	
Program Management Support	C/CPFF	Stanley Associates, VA	2.999	1.389	12/02	1.000	12/03	1.000	12/04	CONT.	CONT.	
Program Management Support	C/CPFF	Various	0.200	0.244	12/02	0.844	12/03	0.000	12/04	CONT.	CONT.	
Program Management Support	C/CPFF	EG&G	1.787								1.787	
Program Management Support	C/CPFF	Anteon Corporation	0.198								0.198	
Travel			0.200	0.075		0.075		0.075		CONT.	CONT.	
Transportation												
SBIR Assessment												
Subtotal Management			5.834	1.708		1.919		1.075		CONT.	CONT.	
Remarks:												
Total Cost			204.414	69.490		26.877		43.005		CONT.	CONT.	
Remarks:												

EXHIBIT R4, Schedule Profile | DATE: February 2004

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603561N Advanced Submarine Systems Development	0223 Advanced Submarine Combat Systems Development



LEGEND:

* Not required for Budget Activities 1, 2, 3, and 6

△ Sea Test

□ Transition

R-1 SHOPPING LIST - Item No. 46

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E BA-4**	PROGRAM ELEMENT PE 0603561N Advanced Submarine Systems Developmer				PROJECT NUMBER AND NAME 0223 Advanced Submarine Combat Systems Development			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Advanced Processing Builds (Acoustic)								
APB(A)-01 Sea Test	1Q							
Transition APB-01 to ARCI	2Q							
APB(A)-02 Sea Test including HFSP		1Q						
Transition APB-02 to ARCI		2Q						
APB(A)-03 Sea Test		4Q						
Transition APB-03 to ARCI			1Q					
APB(A)-04 Sea Test			3Q					
Transition APB-04 to ARCI			4Q					
APB(A)-05 Sea Test				3Q				
Transition APB-05 to ARCI				4Q				
APB(A)-06 Sea Test					3Q			
Transition APB-06 to ARCI					4Q			
APB(A)-07 Sea Test						3Q		
Transition APB-07 to ARCI						4Q		
APB(A)-08 Sea Test							3Q	
Transition APB-08 to ARCI							4Q	
APB(A)-09 Sea Test								3Q
Transition APB-09 to ARCI								4Q
Advanced Processing Builds (Tactical)								
APB(T)-01: Sea Test.	1Q							
Transition to CCS	4Q							
APB(T)-02 Sea Test		1Q						
Transition to CCS		2Q						
APB(T)-03 Sea Test		4Q						
Transition to CCS			1Q					
APB(T)-04 Sea Test			3Q					
Transition to CCS			4Q					
APB(T)-05 Sea Test				3Q				
Transition to CCS				4Q				
APB(T)-06 Sea Test					3Q			
Transition to CCS					4Q			
APB(T)-07 Sea Test						3Q		
Transition to CCS						4Q		
APB(T)-08 Sea Test							3Q	
Transition to CCS							4Q	
APB(T)-09 Sea Test								3Q
Transition to CCS								4Q

R-1 SHOPPING LIST - Item No. 46

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E BA-4**	PROGRAM ELEMENT PE 0603561N Advanced Submarine Systems Developmer				PROJECT NUMBER AND NAME 0223 Advanced Submarine Combat Systems Development			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
TB-16 Multi-Line Towed Array (MLTA)								
Lake test single line evaluation	1Q							
Procure third line	2Q							
Three-line critical design review	3Q							
Three-line lake tow test		3Q						
Three-line R/V sea test			1Q					
Three-line submarine sea test			3Q					
Conformal Acoustic Velocity Sonar / Large Vertical Array (LVA)								
Engineering Tests				1Q-3Q				
ADM Install on 688I							2Q-4Q	
ADM Submarine Sea Test								1Q
Fiber Optic CAVES (FOCAVES)								
Component Testing		4Q						
Integrated Bow Conformal Array (IBC)		1Q			1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Low Cost Conformal Array (LCCA)	1Q-4Q							
ADM Install on 688I				1Q				
ADM Sea Test				2Q				
Update					1Q			
ADM Sea Test					2Q			
ADM Sea Test					4Q			
Transition to SSN 688I						4Q		
High Power Sail Window Array								
ADM Install on 688I						3Q		
ADM Sea Test						4Q		
Transition to SSN 688								2Q

R-1 SHOPPING LIST - Item No. 46

EXHIBIT R-2, RDT&E Budget Item Justification						DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUAT BA-4**				R-1 ITEM NOMENCLATURE 0603562N/Submarine Tactical Warfare Systems			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost	**12.502**	**6.948**	**5.957**	**6.650**	**9.889**	**9.993**	**6.049**
0770/Advanced Sub. Spt Equipment Program	**4.242**	**4.381**	**3.307**	**3.376**	**4.054**	**4.153**	**0.000**
9040/Multi-Line Towed Array	**1.712**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
1739/Sub. Artic Warfare Development	**6.548**	**2.567**	**2.650**	**3.274**	**5.835**	**5.840**	**6.049**
Quality of RDT&E Articles							

Defense Emergency Response Funds (DERF) Funds: NOT APPLICABLE

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Submarine Tactical Warfare Systems program element is comprised of the Advanced Submarine Support Equipment Program (ASSEP) and the Submarine Special Operations Support Program. The objective is to improve submarine operational effectiveness through the development and implementation of advanced Research and Development (R&D). Areas of improved operational effectiveness for Electronic Warfare Support (ES) and Imaging technologies include Threat Warning/Self Protection; Situational Awareness; and Intelligence, Surveillance, and Reconnaissance. A continuing need exists to improve these capabilities in the increasingly dense and sophisticated electromagnetic environment caused by the proliferation of complex radar, communications, and navigation equipment of potential adversaries. The Submarine Arctic Warfare Development program responds to the increased threat of Naval activity in the Littorals and the continuing threat of submarine and surface ship activity in regions of the world through the development of advanced submarine R&D technology to provide improved operational capability in shallow water regions. Particular emphasis is placed in the areas of sonar operability and maintainability, Littoral operations, mine warfare, tactical surveillance, weapon utility and other submarine support missions. Efforts include assessment of combat system effectiveness, development of Arctic shallow water specific improvements for existing sonars and weapons, development of class specific Arctic operational guidelines and the testing of ice capable submarine support structures. This program also provides the framework for various R&D programs to conduct Test and Evaluation in shallow water and Arctic regions.

Project 9040 is authorized by Congress to develop Fiber Optics Multi-Line Towed Array.

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**				PROJECT NUMBER AND NAME 0770/Advanced Submarine Support Equipment Program (ASSEP)			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**4.242**	**4.381**	**3.307**	**3.376**	**4.054**	**4.153**	**4.234**
RDT&E Articles Qty							

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: A continuing need exists to improve submarine capabilities to improve safety of ship, survivability, and operational effectiveness in the increasingly dense and sophisticated electromagnetic environment caused by the proliferation of complex radar, communications, and navigation equipment of potential adversaries. Improvements are necessary for submarine ES and imaging to be operationally effective in the following mission areas: Joint Littoral Warfare, Joint Surveillance, Space and Electronic Warfare, Intelligence Collection, Maritime Protection and Joint Strike. The program is divided into three project categories: Threat Warning/Self Protection, Situational Awareness, and Intelligence, Surveillance and Reconnaissance. The Threat Warning/Self Protection project evaluates the vulnerability of submarine masts, periscopes and sensors to visual, radar, and infrared detection and evaluates the state of the art technology to implement periscope/mast engineering improvements to reduce counter detection threats. Both Situational Awareness and Intelligence, Surveillance, and Reconnaissance projects develop submarine unique improvements to mast, periscope, and ES electromagnetic and electro-optic sensors based on emerging technologies available from DOD Exploratory Development Programs, industry Independent Research and Development, and other sources. Feasibility demonstration models (FDMs) are developed, evaluated, and validated in the lab and through at-sea testing.

Threat Warning/Self Protection sub-projects include: Mast Signature Reduction (Radarcross Section and Electro-Optical/Infrared), Low Probability of Intercept (LPI) Receiver, and ES Frequency Extension.

Situational Awareness sub-projects include: Automated Rangefinder (Phase B), Imaging Technologies (virtual periscope), Automatic Identification System (AIS), Situational Awareness Bouy (SAB), Photonics Camera Technology, Communications Acquisition Direction Finding (CADF) multi-function antenna, and Low Band Radar DF.

Intelligence, Surveillance and Reconnaissance sub-projects include: Submarine Offboard Sensors (UAV/UUV payload), Advanced EW Tuners, Modular Sensor System (Imaging/SIGINT modules), Imaging Enhancements (fusion), Improved Periscope Interfaces, and R.F. Imaging.

All programs funded in this project are non-acquisition category programs described by Non-Acquisition Program Definition Document (NAPDD) # 556-872-872E1 which is currently under revision. The test articles identified consist of critical components that will be fully developed during engineering development into Engineering Development Models (EDM's).

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4**		PROJECT NUMBER AND NAME 0770/Advanced Submarine Support Equipment Program (ASSEP)

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.764		
RDT&E Articles Quantity			

Completed Mast Signature Reduction (MSR) electro-optic/infrared (EO/IR) mast signature characterization.
Completed MSR Radar Cross Section (RCS) reduction over-water testing.
Completed the initial MSR wake reduction testing.
Completed side by side testing of two LPI receivers, one developed by NRL and the other develped by Technology Service Corporation (TSC) to assess the differences in capability.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.098	
RDT&E Articles Quantity			

Test and select coating and application processes to reduce RCS and EO/IR Signature of masts.
Complete the testing and integration of the optimum LPI receiver and transfer to F0775 for integration into the tactical ES system (BLQ-10).

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			0.259
RDT&E Articles Quantity			

Fabricate improved EDM mast for signature testing and integration planning
Design an Ultra Wide Chirp enhancement for the LPI Receiver.

R-1 SHOPPING LIST - Item No. 47

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /**		PROJECT NUMBER AND NAME 0770/Advanced Submarine Support Equipment Program (ASSEP)

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.815		
RDT&E Articles Quantity			

Completed at-sea testing of Patriot Phase A EDM.
Completed concept design of the Patriot Phase B (Stealth radar and data link).
Completed concept definition for an improved CADF antenna design from Applied EM Corp.
Completed prototype and testing of algorithms for 360 degree mosaic (SCIS).
Completed the concept design of the Automatic ID System (AIS).

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		3.832	
RDT&E Articles Quantity			

Complete the fabrication of the sub-components to the Patriot Phase B (radar and data link) and correction/enhancement of Patriot Phase A items that are common to Patriot Phase B.
Complete a conceptual design of modular imaging and EW sensors for insertion into the Retrievable Teathered Optical Fiber (RTOF) bouy.
Fabricate the Automatic ID System (AIS) EDM and commence demonstation test.
Develop at-sea test requirements and TEMPALT for the Virtual Periscope.
Complete fabrication of the enhanced CADF multifunction antenna prototype.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			2.579
RDT&E Articles Quantity			

Complete fabrication and testing of the Patriot Phase B EDM.
Complete the at-sea testing of the Virtual Periscope.
Complete the testing and post modification of the enhance CADF antenna.
Complete at-sea test of AIS.
Complete fabrication of prototype imaging and EW sensor packages for use in the Situational awareness Bouy.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /**		PROJECT NUMBER AND NAME 0770/Advanced Submarine Support Equipment Program (ASSEP)

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.663		
RDT&E Articles Quantity			

Completed at-sea test and evaluation of the Passive Surveillance Radar (PSR) and ES Vulnerability Server (EVS) EDM including post test modification.
Completed prototype algorithms for imaging enhancements and initial testing (super resolution, multispectral fusion).
Completed concept definition for submarine offboard sensors (UAV/UUV payload).
Completed concept definition of the mission reconfigurable mast (modular sensers).
Completed fabrication of a prototype fiber optic data transmission sytem for a periscope

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.451	
RDT&E Articles Quantity			

Complete concept design of the mission reconfigurable mast (modular sensors).
Complete software problem reports and make the EVS system ready for at-sea testing.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			0.469
RDT&E Articles Quantity			

Commence the sub component design of the mission reconfigurable mast.
Complete at-sea testing of EVS system

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603562N/Submarine Tactical Warfare Systems	0770/Advanced Submarine Support Equipment Program (ASSEP)

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04/05 Pres Budget Controls)	4.253	3.431	3.692
Current BES/Current FMB: (FY05 Pres Budget Controls)	4.242	4.381	3.307
Total Adjustments	-0.011	0.950	-0.385
Summary of Adjustments			
BSO Adjustments	-0.011	0.000	0.000
Sea Enterprise (LOE II)	0.000	0.000	-0.369
NWCF Rates - NUWC Rates	0.000	0.000	-0.004
Patriot Periscope Radar System	0.000	1.000	0.000
Section 8094: Management Improvements	0.000	-0.012	0.000
Section 8126: Efficiencies/ Revisions	0.000	-0.038	0.000
WCF - R&D - NUWC	0.000	0.000	-0.001
Inflation	0.000	0.000	-0.009
Non purchase inflation	0.000	0.000	-0.002
Subtotal	-0.011	0.95	-0.385

Schedule:

Not Applicable.

Technical:

Not Applicable.

R-1 SHOPPING LIST - Item No. 47

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603562N/Submarine Tactical Warfare Systems	0770/Advanced Submarine Support Equipment Program (ASSEP)

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost

(U) Other Program Funding Summary: Not applicable.

E. ACQUISITION STRATEGY:

This project optimizes technology insertion using a build-test-build approach to support ES and imaging operational needs. Operational needs have been based on the tactical requirements identified in CNO letter, Serial N77/1U651534, dated 30 Oct 01, COMSUBLANT/COMSUBPAC Command Capability Issues (CCIs), Virginia Class SSN Operational Requirements Document objectives, a review, assessment and prioritization of Sensor and Processor efforts and SSN force level projections for SSN688/688I, SSN21, and SSN 774 classes through FY2015. Project efforts develop submarine unique improvements to mast, periscope, and ES electromagnetic and electro-optic sensors based on emerging technologies that are available from DOD Exploratory Development Programs, industry Independent Research and Development, and other sources. Feasibility Demonstration Models (FDMs) will be developed to provide a realistic method of evaluating the improvements, including deployment on submarines for testing.

F. MAJOR PERFORMERS:

NAWC, China Lake, CA
NUWC, Newport, RI
Applied EM
Lockheed Martin

R-1 SHOPPING LIST - Item No. 47

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603562N/Submarine Tactical Warfare Systems			PROJECT NUMBER AND NAME 0770/Advanced Submarine Support Equipment Program (ASSEP)							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Primary Hardware Development	SS/CPIF	NRL/KEO/ARETE/AEM/LM/JHU/TSC	0.000	1.229	10/02	1.139	10/03	0.758	10/04	TBD	TBD	TBD	
Ancillary Hardware Development											0.000		
Component Development											0.000		
Ship Integration											0.000		
Ship Suitability											0.000		
Systems Engineering	WR	NUWC Newport, RI	10.563	1.359	10/02	0.803	10/03	1.337	10/04	CONT	CONT	N/A	
	WR/RC	NAWC China Lake	11.887	1.276	10/02	1.945	10/03	0.726	10/04	CONT	CONT	N/A	
Licenses											0.000		
GFE	N/A	N/A									0.000		
Miscellaneous	Various	Various	10.665	0.088	Various					CONT	CONT	N/A	
Award Fees											0.000		
Subtotal Product Development			33.115	3.952		3.887		2.821		CONT	CONT		
Remarks:													
Development Support											0.000		
Software Development											0.000		
Training Development											0.000		
Integrated Logistics Support											0.000		
Configuration Management											0.000		
Engineering Technical Services	C/CPFF	AT&T GSI, Vienna,VA	9.363	0.180	11/02	0.200	11/03	0.200	11/04	CONT	CONT	N//A	
GFE											0.000		
Award Fees											0.000		
Subtotal Support			9.363	0.180		0.200		0.200		CONT	CONT		
Remarks:													

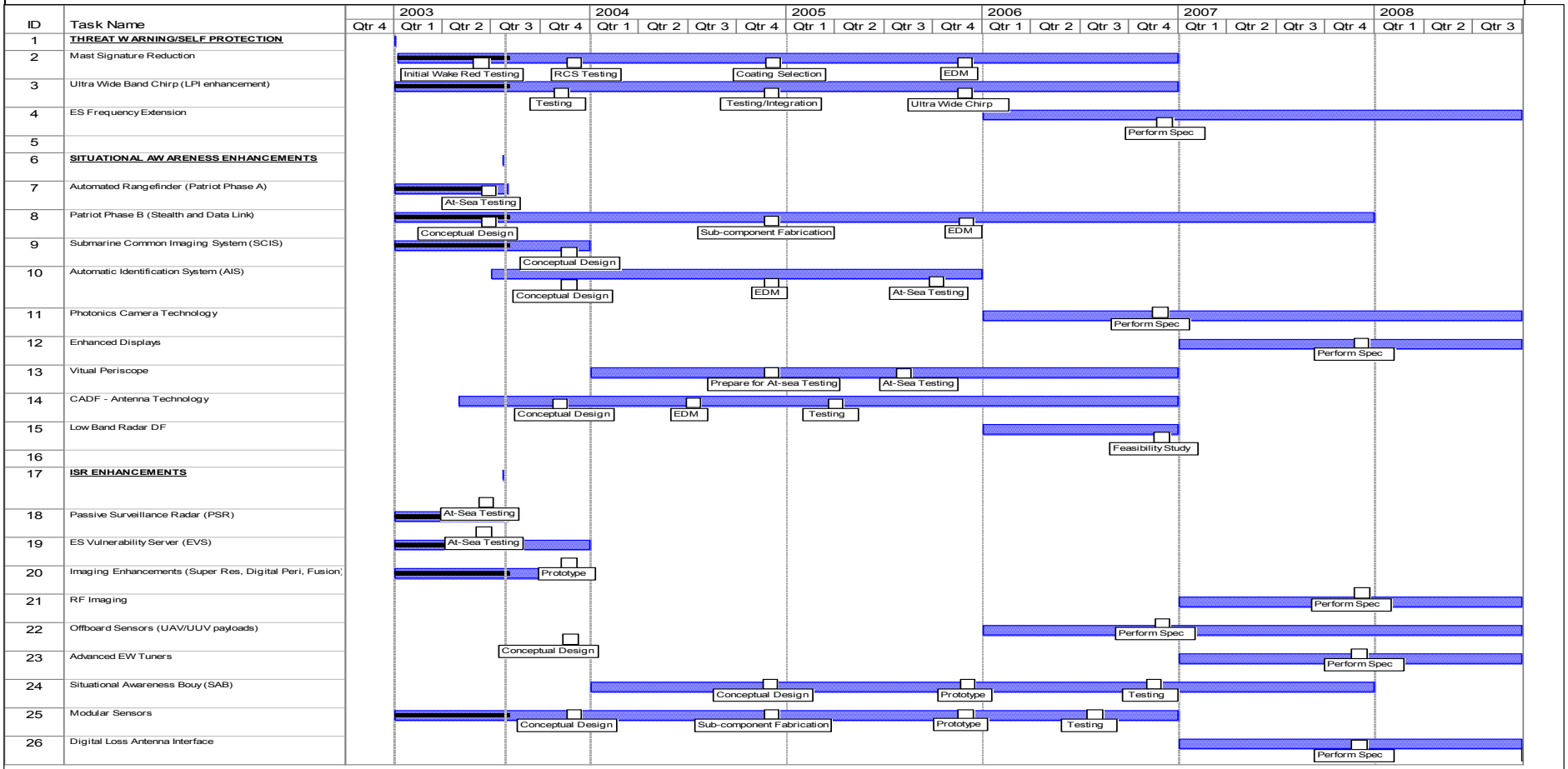
R-1 SHOPPING LIST - Item No. 47

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603562N/Submarine Tactical Warfare Systems				PROJECT NUMBER AND NAME 0770/Advanced Submarine Support Equipment Program (ASSEP)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation		3.261									0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Management Support Survices	C/CPFF	Various	1.484							CONT	CONT	N/A
Travel	TOs	Various	0.166	0.033		0.020		0.020		0.000	0.239	
Labor (Research Personnel)											0.000	
SBIR Assessment				0.077		0.274		0.266		CONT	CONT	
Subtotal Management			1.650	0.110		0.294		0.286		0.000	CONT	
Remarks:												
Total Cost			44.128	4.242		4.381		3.307		CONT	CONT	
Remarks:												

R-1 SHOPPING LIST - Item No. 47

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E, N/BA-4	**0603562N/Submarine Tactical Warfare System**	0770/Advanced Submarine Support Equipment Program (ASSEP)



CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-04**	PROGRAM ELEMENT 0603562N/Submarine Tactical Warfare Systems				PROJECT NUMBER AND NAME 0770/Advanced Submarine Support Equip Prog (ASSEP)			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Threat Warning / Self Protection								
Initial Wake Reduction Testing		Q2						
RCS Mast Testing		Q4						
Coating Selection			Q4					
EDM Coated Mast			3:261	Q4				
LPI Testing (side by side)		Q4						
LPI Testing and Integration			Q4					
LPI Ultra Wide Chirp Design				Q4				
Frequency Extension Performance Spec					Q4			
Frequency Extension EDM							Q4	
Situational Awareness Enhancements								
Automated Rangefinder At-sea Testing Patriot Phase A		Q2						
Patriot Phase B Conceptual Design		Q2						
Patriot Phase B Sub-component Fabrication			Q4					
Patriot Phase B EDM				Q4				
Submarine Common Imaging System Conceptual Design		Q3						
Automatic ID System Conceptual Design		Q4						
Automatic ID System EDM			Q4					
Automatic ID System At-sea Testing				Q3				
Photonics Camera Technology Perfomance Spec					Q4			
Photonics Camera Technology EDM							Q4	
Enhanced Displays Performance Spec						Q4		
Enhanced Displays EDM							Q4	
Virtual Periscope Prep for At-sea Testing			Q4					
Virtual Periscope At-sea Testing				Q3				
CADF Multi-function Conceptual Design		Q3						
CADF Multi-function EDM			Q3					
CADF Multi-function Testing				Q1				
Low band DF Feasibility Study				Q4				
Intelligence, Surveillance, Reconnaissance Enhancements								
PSR EDM At-sea Testing		Q2						
ES Vulnerability Server (EVS) Testing		Q2						
Imaging Enhancements Prototypes		Q4						
RF Imaging Performance Spec						Q4		
RF Imaging EDM								Q2
Offboard Sensors Concept Design		Q4						
Offboard Sensors Performance Spec					Q4			
Offboard Sensors EDM							Q4	
Advanced EW Tuners Performance Spec						Q4		
Advanced EW Tuners EDM							Q4	
Situational Awareness Bouy Conceptual Design			Q4					
Situational Awareness Bouy Prototype				Q4				
Situational Awareness Bouy Testing					Q4			
Modular Sensors Conceptual Design		Q4						
Modular Sensors Sub-component fabrication			Q4					
Modular Sensors Prototype				Q4				
Modular Sensors Testing					Q4			
Digital Loss Antenna Interface Performance Spec						Q4		
Digital Loss Antenna Interface Prototype							Q4	
Digital Loss Antenna Testing								Q4

R-1 SHOPPING LIST - Item No. 47

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME PE 0603562N Submarine Tactical Warfare System				PROJECT NUMBER AND NAME 1739 Submarine Special Operations Support			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**6.548**	**2.567**	**2.650**	**3.274**	**5.835**	**5.840**	**6.049**
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Artic project responds to the increased threat of Naval activity in the Littoral and continuing threat of submarine and surface ship activity in all regions of the world through the development of advanced submarine concepts. It places particular emphasis on submarine operability and mission support in unique environments. Efforts include assessment of combat system effectiveness, weapons testing, use of high frequency sonars in Arctic regions, testing of ice-capable submarine structures, and development of class specific Arctic shallow water operational guidelines. This program also provides the framework for various Research and Development (R&D) programs to conduct Test and Evaluation in the shallow water and Arctic regions.

Project S9040 is authorized by Congress to develop Fiber Optics Multi-Line Towed Array.

R-1 SHOPPING LIST - Item No. 47

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA4	PE 0603562N Submarine Tactical Warfare System	1739 Submarine Special Operations Support

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		6.548	2.567	2.650
RDT&E Articles Quantity				

Conducted and Supported Ice Exercise and ICEOPS operations. Prep for FY03 Ice Camp. Developed database of Arctic operations surfacing data. Initiated Structural Analysis of VIRGINIA Class Sail.
FY 2003 - 2005 Plans
Provide planning, logistics, construction support for Ice Camp Operations (ICEX 1-03) and conduct training to improve Arctic divers proficiency (CEX 1-03). Conduct support FY05 ICEX and ICEOPS operations.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				

R-1 SHOPPING LIST - Item No. 47

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA4	PE 063562N Submarine Tactical Warfare System	1739 Submarine Special Operations Support

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
President's Budget: (FY 04 Pres Controls)	7.251	2.596	2.658
FY05 President's Controls	6.548	2.567	2.650
Total Adjustments	-0.703	-0.029	-0.008
Summary of Adjustments			
Business Process Reform	-0.029		
Economic Assumptions (Sec. 813	-0.041		
IT Cost Growth (Sec. 8109)	-0.013		
Inflation Savings	-0.077		
FY03 SBIR 5-May-03	-0.079		
BSO ADJUSTMENTS	-0.018		
SPAWAR Service Cost Center Adj.			-0.001
MANPOWER			-0.009
NWCF Rates - SPAWAR SSC Rates			-0.001
NWCF Rates - NAWC Rates			-0.010
Management Impr		-0.007	
Sec. 8126: Efficiencies/Revis		-0.022	
FY 2003 Update	-0.446		
WCF - R&D - NAWC - PBD 430			0.010
Rates - NAWC			0.010
Rates - SSC			0.001
Inflation			-0.007
Non purchase inflation			-0.001
Subtotal	-0.703	-0.029	-0.008

Schedule:

N/A

Technical:

N/A

R-1 SHOPPING LIST - Item No. 47

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA4	PE 063562N Submarine Tactical Warfare System	1739 Submarine Special Operations Support

D. OTHER PROGRAM FUNDING SUMMARY: N/A

E. ACQUISITION STRATEGY:

NON-ACAT Progam

F. MAJOR PERFORMERS:

Command Submarine ForceUS PacificFleet (COMSUBPAC) - Develop and definitize an Arctic-Deploying side Scan Sonar replacement plan, which will deliver a significant improved qualitative view of the underside of the ICE Canopy Sighting and tracking surfaceable features of current submarines, and the future VA Class submarine.
Applied Physics Laboratory /University of Washington (APL/UW) - Conduct Ice Camp planning

R-1 SHOPPING LIST - Item No. 47

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA4**		PROGRAM ELEMENT PE 063562N Submarine Tactical Warfare System			PROJECT NUMBER AND NAME 1739 Submarine Special Operations Support							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Systems Engineering	WR	NSWC Carderock	0.200	0.200	11/02	0.200	11/02	0.200	11/02		0.800	
Systems Engineering		EB Corp	0.025								0.025	
Systems Engineering	WR	NSWC INDIAN HEAD	0.051								0.051	
Systems Engineering	WR	SPAWAR	0.070	0.050	11/02	0.050	11/01	0.050	11/01		0.220	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Subtotal Product Development			0.346	0.250		0.250		0.250		0.000	1.096	
Remarks:												
Development Support											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

R-1 SHOPPING LIST - Item No. 47

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA**			PROGRAM ELEMENT PE 063562N Submarine Tactical Warfare System			PROJECT NUMBER AND NAME 1739 Submarine Special Operations Support						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	SUBDEVRON Five	4.768	3.067	11/02	2.057	11/03	2.140	11/04		12.032	
Developmental Test & Evaluation	WR		0.015								0.015	
Developmental Test & Evaluation	WR	CMDR,3rd NAVCON BRIGA	0.200								0.200	
Developmental Test & Evaluation	WR	CMDR,2nd NAVCON BRIGA	0.100	0.150	11/02	0.150	11/03	0.150	11/04		0.550	
Developmental Test & Evaluation	SS/CPFF	APL/University of Washingto	0.294	3.000	11/02						3.294	
Tooling											0.000	
GFE											0.000	
Subtotal T&E			5.377	6.217		2.207		2.290		0.000	16.091	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support			0.308	0.071	11/02	0.100	11/03	0.100	11/04		0.579	
Travel			0.030	0.010	11/02	0.010	11/03	0.010	11/04		0.060	
Labor (Research Personnel)											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.338	0.081		0.110		0.110		0.000	0.639	
Remarks:												
Total Cost			6.061	6.548		2.567		2.650		0.000	17.826	
Remarks:												

R-1 SHOPPING LIST - Item No. 47

CLASSIFICATION:

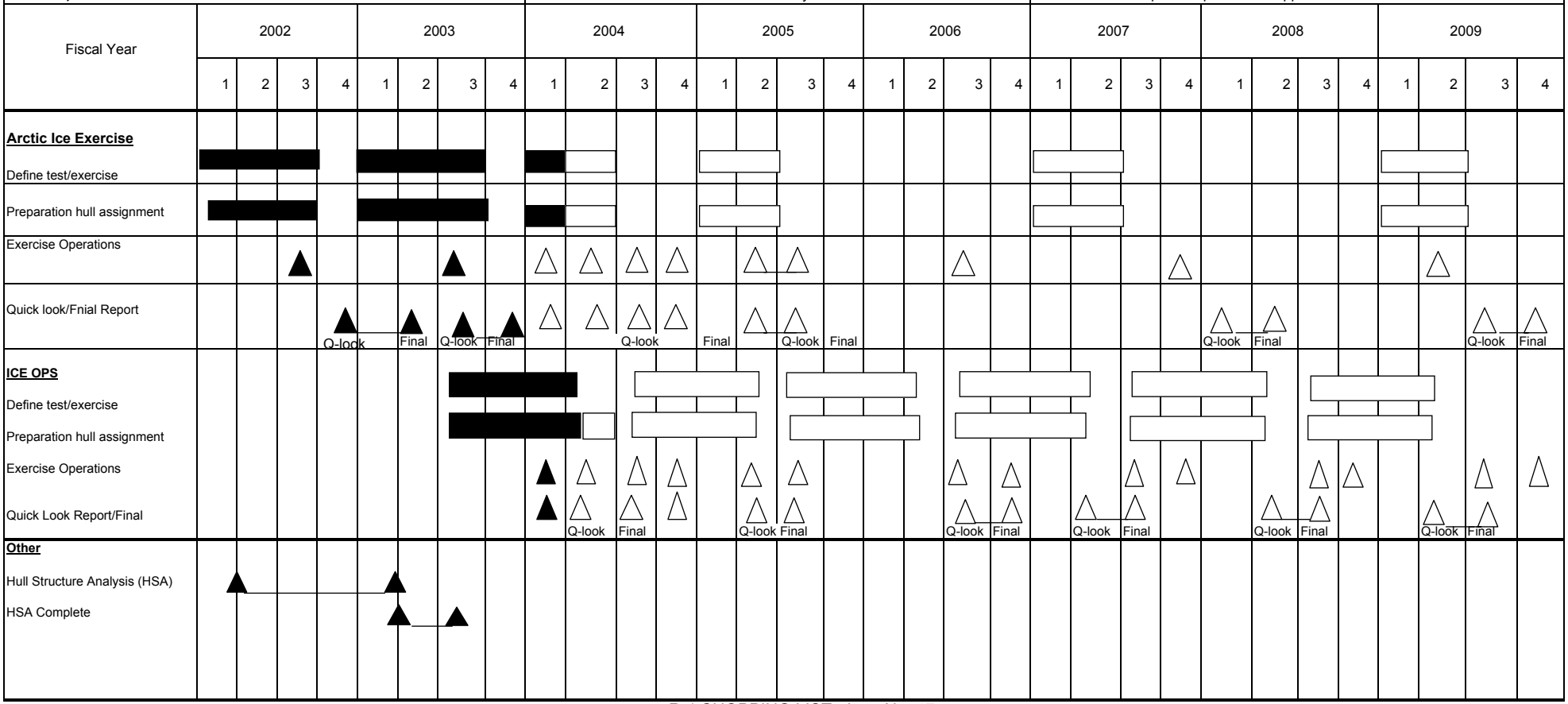
EXHIBIT R4, Schedule Profile

DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA4**

PROGRAM ELEMENT NUMBER AND NAME: PE 063562N Submarine Tactical Warfare System

PROJECT NUMBER AND NAME: 1739 Submarine Special Operations Support



R-1 SHOPPING LIST - Item No. 47

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E BA4**	PROGRAM ELEMENT PE 063562N Submarine Tactical Warfare System				PROJECT NUMBER AND NAME 1739 Submarine Special Operations Support			
Schedule Profile -	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Artic Ice Exercise								
Define test/exercise, objectives and experiments	1Q-3Q	1Q-2Q	1Q-2Q			12Q		1Q-2Q
Preparations hull assignments	1Q-3Q	1Q-3Q	1Q-3Q	1Q-3Q		1Q-3Q		1Q-3Q
Exercise Operations	3Q	3Q	3Q	3Q	3Q	4Q		2Q
Quick look final report	4Q	2Q-4Q	3Q-4Q	3Q-4Q			1Q-2Q	3Q-4Q
ICE OPS								
Define test/exercise, objectives and experiments		4Q	1Q-2Q,4Q	1Q-2Q	3Q-4Q	3Q-4Q	3Q-4Q	1Q-2Q
Preparations hull assignments		4Q	1Q-2Q,4Q	1Q-2Q	3Q-4Q	3Q-4Q	3Q-4Q	1Q-2Q
Exercise Operations			12Q-4Q	12Q-4Q	1Q,3Q-4Q	1Q, 3Q-4Q	1Q, 3Q-4Q	1Q, 3Q-4Q
Quick look final report			2Q-4Q	2Q-4Q	2Q-4Q	2Q-4Q	2Q-4Q	2Q-4Q
Other			1Q					
Hull Structure Analysis VA	2Q-4Q	1Q-2Q						
Hull Structure Analysis VA complete		2Q-3Q						

R-1 SHOPPING LIST - Item No. 47

EXHIBIT R-2, RDT&E Budget Item Justification						DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATI(BA-4**				R-1 ITEM NOMENCLATURE 0603563N/Ship Concept Advanced Design			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost	**24.685**	**20.846**	**3.723**	**1.721**	**21.646**	**1.692**	**1.714**
2196/Design Tools, Plans & Concepts	**5.586**	**7.594**	**3.723**	**1.721**	**21.646**	**1.692**	**1.714**
9041/Small Combatant Craft	**7.720**	**8.900**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9042/Sealion Tech Demo	**0.959**	**0.988**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9043/Metallic Materials Adv Dev & Certification	**3.265**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9044/DocumentAutomation Of ICAS Maint	**2.450**	**1.682**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9192/Autonomous Maritime Navigation	**1.448**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9193/Total Fleet Support	**0.000**	**1.682**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9194/Adv Integ Low-Profile Antenna (HF,VHF,UHF)	**2.298**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9195/Advanced Stealth Ship Radars	**0.959**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**

Defense Emergency Response Funds (DERF) Funds: Not Applicable.

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

A. (U) Mission Description and Budget Item Justification:

The mission of the PE is to explore alternative surface ship force structures, the advanced surface ship & unmanned surface vehicles concepts, and the potential technologies for these force structures and the advanced concepts in support pre-acquisition mission needs analysis, mission area analysis, SCN and R&D planning. The objective is more affordable mission capable surface ship force including ships with reduced manning, increased producibility, reduced operating and support costs, and greater utilization of the latest technology. The program directly supports the Navy Shipbuilding Plan with state-of-the-art design tools and methods for surface ship force structure alternative studies, ship & unmanned vehicle concept studies, and the actual conduct of surface ship force structure alternative studies and advanced design concept studies for the ships that may become part of the SCN plan.

(U) Project 2196 - This project funds concept develop engineering, mission effectiveness analysis, and other analysis for formulation of future surface ship force structure along with development of the tools to accomplish these efforts. Advanced ship concept studies, ship and ship systems technology assessments, and the development and upgrade of ship concept design and engineering tools, methods, and criteria are also funded in this project.

(U) Project 9041 - Congressional add. This project funds only acquisition, test and evaluation of a high speed variable freeboard planning craft and related special warfare high speed support craft and equipment. This was a Congressional add project in FY 2000 and FY 2001 in a different PE.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY BA-4**	R-1 ITEM NOMENCLATURE 0603563N/Ship Concept Advanced Design

(U) Project 9042 - Congressional add. This project funds Situation Awareness Module, related to the Sealion Craft (project S9041).

(U) Project 9043 - Congressional add. This project funds the Metallic Material Advanced Development and Certification Program.

(U) Project 9044 - Congressional add. This project funds Documentation Automation of Integrated Condition Assessment System (ICAS) Maintenance and other Navy procedures in XML format.

(U) Project 9192 - Congressional add. This project funds development of autonomous operation technologies in maritime vehicles and their payloads.

(U) Project 9193 - Congressional add. This project funds development and analysis of fleet support technologies.

(U) Project 9194 - Congressional add. This project funds design and test construction of conformal antennas related to SEALION craft (project S0941).

(U) Project 9195 - Congressional add. This project funds adaptive design and test construction of low probability of intercept (LP1) radar, related to SEALION craft (project S0941).

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603563N/ship Concept Advanced Design				PROJECT NUMBER AND NAME 2196/Design Tools, Plans, and Concepts			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	
Project Cost	**5.586**	**7.594**	**3.723**	**1.721**	**21.646**	**1.692**	**1.714**	
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: A. (U) Mission Description and Budget Item Justification: This project develops and explores alternative surface ship force structures, the advanced surface ship & unmanned surface vehicles concepts, and the potential technologies for these force structures and the advanced concepts in support pre-acquisition mission needs analysis, mission area analysis, SCN and R&D planning. The objective is more affordable mission capable surface ship force including ships with reduced manning, increased producibility, reduced operating and support costs, and greater utilization of the latest technology. The program directly supports the Navy Shipbuilding Plan with state-of-the-art design tools and methods for surface ship force structure alternative studies, ship & unmanned vehicle concept studies, and the actual conduct of surface ship force structure alternative studies and advanced design concept studies for the ships that may become part of the SCN plan.

(U) This project provides the foundation for affordable and mission capable surface ship force. It also supports the next step in the development of a transformed naval force by accomplishing the pre-milestone A (especially pre-concept decision) efforts for all potential surface ships and craft. These efforts are the required first step in the integration of total ship systems, including combat systems and hull, mechanical and electrical (HM&E) systems. Inadequate early planning and ship concept formulation can result in down-stream design/construction and operational problems. A more subtle and severely negative impact of neglecting this early effort is that the "best" concepts and technologies may never even be considered and our greatest potential ship design advances never realized. Designs and technologies must meet the threat. This project supports this requirement.

(U) This project funds concept develop engineering, mission effectiveness analysis, and other analysis for formulation of future surface ship force structure along with development of the tools to accomplish these efforts. Advanced ship concept studies, ship and ship systems technology assessments, and the development and upgrade of ship concept design and engineering tools, methods, and criteria are also funded in this project.

(U) This project accomplishes the following: (1) Develops alternative surface ship force structure concepts including the ships and unmanned vehicles; (2) Evaluates the mission capability effectiveness and costs for these alternatives surface fleet architectures; (3) Performs fleet warfighting / mission effectiveness assessment studies; (4) identifies future surface ship requirements and characteristics necessary to meet future threats and support mission needs; (5) investigates new affordable ship concepts and evaluates technologies necessary to support these concepts; (6) provides design methods and automated design tools to develop and evaluate ship concepts; and (7) supports development of Mission Need Statements (MNS) for future ships. These efforts are done to support mission analysis, mission needs development and technology assessment in support of future fleet concepts and potential ship acquisition programs. These efforts are foundational to the Navy's formulation of the future fleet.

(U) Efforts under Project S2196 transition directly to early stage ship design in PE 0603564N, Ship Preliminary Design and Feasibility Studies. While these efforts support concept exploration and mission needs assessment for potential future ship acquisition programs, they are not direct efforts for specific authorized shipbuilding programs. This project is the only R&D effort (Government or commercial) that supports and maintains this country's naval ship design and engineering capabilities in the area of very early stage (Concept Design) design tools, criteria, and methods.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603563N/Ship Concept Advanced Design	2196/Design Tools, Plans, and Concepts

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	1.255	2.005	0.700	
RDT&E Articles Quantity				

(U) Ship Concepts and Mission Need Analysis: Develop ship concepts and perform mission area analysis (MAA) for potential ships 5-10 years out in the SCN plan, including ship size, configuration, capabilities and rough order of magnitude (ROM) ship costs. Conduct pre-Milestone A ship concept studies for potential ship concepts / configurations in support of SCN planning. Assess the future ship concepts as part of potential future fleet architecture concepts.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	0.550	0.754	0.550	
RDT&E Articles Quantity				

(U) Total Ship Technology Assessment: Analyzed the benefits and impacts of new ship and hull, mechanical & electrical (HM&E) concepts and technologies. Identified characterize and assess new and emergent technologies. Developed methodologies for assessment of benefits and impacts of technologies in total ship concepts. Supported development of total ship and HM&E technology roadmaps.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	1.046	0.965	0.945	
RDT&E Articles Quantity				

(U) Ship Concept Design and Engineering Tools, Methods, and Criteria. Improve capability for rapid and accurate ship performance/cost/risk assessments and tradeoff studies. Improve the US Navy's Advanced Surface Ship Evaluation Tool (ASSET) surface ship synthesis/assessment models in the following areas: improve performance assessment capabilities, update and enhance capabilities to handle new ship configurations, hull form alternatives, signature reduction features, characterize advanced machinery technologies, address optimal required shipboard manning, reduced total ownership cost , and increased capabilities to determine ship size impacts of new technologies including warfare systems. Improve interoperability of Navy and shipbuilder design systems.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603563N/Ship Concept Advanced Design	2196/Design Tools, Plans, and Concepts

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	1.550	2.050	0.428	
RDT&E Articles Quantity				

(U) Future Force Formulation (Core): Continue development of methodology for force architecture alternatives and analysis. Conduct analysis of force architecture concepts that can illuminate the high level interfaces between surface ship warfare communities and other force elements such as aviation and submarines. Examine the distribution of functions between various existing and postulated ship classes, the interface between diverse force elements such as platform configuration and mission, network connectivity, force level logistics and concept of operations, with a particular focus on total force level cost, performance and risk.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	0.550	0.655	1.000	
RDT&E Articles Quantity				

(U) Future Force Formulation (Demo): Conduct first Future Force Formulation case study, selecting a limited case of force architecture for practical execution and feedback into the process development. Selection of a family of ships within a community will be made and the developing methodology of Future Force Formulation exercised in a one year study with deliverables and for presentation before decision authority for a pre-MS A project.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	0.635	1.165	0.100	
RDT&E Articles Quantity				

(U) This task funds requirement development for ship and technologies to counter such threats as part of a netted distributed family of ships that will project power forward and enable naval and joint task force commander to dominate the littoral battlespace. The transformation of the surface combatant fleet starts with highly capable, multi-mission destroyers, advanced cruisers and a new breed of focused mission ships designed to defeat enemy littoral defenses including mines, small boats, and submarines, ultimately ensuring maritime access in any environment. This study focuses on requirements for a ship with the newest generation hull form and tailored, modularized combat systems package designs to accommodate: small boats, Littoral mine countermeasures and Littoral ASW.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603563N/Ship Concept Advanced Design	2196/Design Tools, Plans, and Concepts

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 04 Pres Controls):	5.691	7.679	7.545
President's Budget: (FY05 Pres Controls)	5.586	7.594	3.723
Total Adjustments	-0.105	-0.085	-3.822
Summary of Adjustments			
Programmatic Adjustment	0.000	0.000	-3.770
Minor adjustments	-0.105	-0.085	-0.053
Subtotal	-0.105	-0.085	-3.823

Schedule:

Not Applicable.

Technical:

Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603563N/Ship Concept Advanced Design	2196/Design Tools, Plans, and Concepts

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost

(U) Related RDT&E
(U) PE 0603512N (Carrier Systems Development)
(U) PE 0603513N (Shipboard Systems Component Development)
(U) PE 0603564N (Ship Preliminary Design and Feasibility Studies)
(U) PE 0604300N (SC21 Total Ship Systems Engineering)
(U) PE 0604567N (Ship Contract Design/Live Fire T&E)

E. ACQUISITION STRATEGY: *

This is a non acquisition program that develops, evaluates, and validates early stages of total ship concepts and technologies in support of SCN planning and potential future ship acquisition programs. This program also supports development, demonstration, evaluation, and validation of engineering tools, methods, and criteria for those concept designs and assessments.

F. MAJOR PERFORMERS: **

List major contractors, universities, colleges, government facilities, federally funded research and development centers, laboratories, center, or other organizations contributing to this effort through BY2 (FY 2005). Only list those who were primary recipients of funds (e.g., received 15% or over $10 million, whichever is less). Include name or titles, locations and brief description of work performed. Include actual or projected award date (month/year).

*** Not required for Budget Activities 1,2,3, and 6**
**** Required for DON and OSD submit only.**

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603563N/Ship Concept Advanced Design				PROJECT NUMBER AND NAME 2196/Design Tools, Plans, and Concepts						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Systems Engineering	various	Other Various Contractors	55.097	0.935	various	2.312	various	1.171	various		59.515	
Engineering Developemnt	WR	NAVSEA, Dahlgren Div,		1.497	various	1.908	various	0.937	various		4.342	
		Dahlgren, VA									0.000	
											0.000	
Demonstration & Evaluation	WR	NAVSEA, Carderock Div,	29.958	2.338	various	1.908	various	0.983	various		35.187	
		West Bethesda, MD									0.000	
Licenses											0.000	
Tooling	WR & RC	Other Govt. Activities	8.828	0.801	various	1.446	various	0.612	various		11.687	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			93.883	5.571		7.574		3.703		0.000	110.731	
Remarks:												
Development Support											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603563N/Ship Concept Advanced Design			PROJECT NUMBER AND NAME 2196/Design Tools, Plans, and Concepts						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel				0.015		0.020		0.020			0.055	
Labor (Research Personnel)											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.000	0.015		0.020		0.020		0.000	0.055	
Remarks:												
Total Cost			93.883	5.586		7.594		3.723		0.000	110.786	
Remarks:												

CLASSIFICATION:

EXHIBIT R4, Schedule Profile | DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4**

PROGRAM ELEMENT NUMBER AND NAME: 0603563N/Ship Concept Advanced Design

PROJECT NUMBER AND NAME: 2196/Design Tools, Plans, and Concepts

Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Engineering Milestones																																
Pre-MS A Ship Concept Studies					■	■	■	■	■	■	■	■	■	■	■	■																
Ship Synthesis Modeling Tool																																
Extension to Small & Alt Hull								■																								
Modular Framwork & Interface												■																				
Interface to Performance																■																
Commencement of Early Stage Multi Discipline Eval Model								■																								
Initial Trial & Dev of Milti-disciplinary Evaluation Model												■																				
Capability to Assess Alt & Adv Hull Forms																■																
Commence Force Architecture Methodology								■																								
Force Architecture Including Futures & Force Structure Alt												■				■																
Initial Open Systems Architecture & other Technology Assessments																■																
Assessment of Technology Benefits												■																				
Technology Management & Cost Assessment Methods																■																

R-1 SHOPPING LIST - Item No. 48 - 10 of 48 - 11

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&BA-4**	PROGRAM ELEMENT 0603563N/Ship Concept Advanced Design				PROJECT NUMBER AND NAME 2196/Design Tools, Plans, and Concepts			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**					R-1 ITEM NOMENCLATURE 0603564N/Ship Preliminary Design and Feasibility Studies			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost		**2.180**	**0.000**	**0.000**	**0.000**	**0.000**	**99.909**	**75.043**
0408/Ship Development (Adv)		**2.180**	**0.000**	**0.000**	**0.000**	**0.000**	**99.909**	**75.043**

Defense Emergency Response Funds (DERF) Funds: None

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

A. (U) Mission Description and Budget Item Justification. Ship concepts, identified in PE 0603563N (Ship Concept Advanced Design) are transitioned to and further developed by this project after an approved Mission Needs Statement (MNS) and usually after an approved Milestone A (MS A) decision. This project performs the Ship Feasibility Studies required to address a specific Mission Needs Statement (MNS) and supports the Analysis of Alternatives (AOA) for new surface ships in the Navy Shipbuilding Plan. Under Acquisition Reform for new ships, traditional distinct phasing of the design process has been replaced with a continuous concurrent engineering process. This project performs impact studies of warfare, hull, mechanical and electrical subsystems on advanced ship designs; enhances ship/ship system design methodologies that support feasibility studies; develops and upgrades the engineering tools, especially ship synthesis models, used to support AOA studies and other engineering efforts accomplished during the feasibility study phase; evaluates advanced and alternative technologies and develops total ship concepts with these technologies to assess their suitability; develops the initial documentation and design methodology required by the government for the design of surface ships in the Shipbuilding Program in accordance with the requirements of the new DoD 5000.2 Instruction; supports the development of the Operational Requirements Document (ORD) and other documentation required at Program Initiation and accomplishes other efforts for future ship acquisitions in support of a Program Initiation. Ship Feasibility Study products include a description of the alternative ships' principal characteristics and mission critical subsystems, weight estimates, general arrangement sketches, technical risk assessments, and Life Cycle Cost estimate (LCCE) The objective of this project is to provide the decision makers with feasible, affordable alternatives to be selected for further development during the Contract Design phase under PE0604567N.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**					R-1 ITEM NOMENCLATURE 0603573N/ADVANCED SURFACE MACHINERY			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost		**2.807**	**6.534**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
1314/Advanced Surface Machinery Programs		**2.807**	**1.452**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9043/Material Advanced Metalic Material Adv Dev		**0.000**	**3.400**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9355/Dockside Abrasive Waterjet Cutting		**0.000**	**1.682**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**

Defense Emergency Response Funds (DERF) Funds: Not Applicable.

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) Advanced Surface Machinery Programs develop affordable advanced machinery and subsystems for surface ship propulsion, electric and auxiliary requirements. The ICR Gas Turbine Engine is a marine propulsion gas turbine. ICR will reduce life cycle fuel cost and provide an alternate prime mover candidate. A contract for ICR Advanced Development (AD) with an option for Full Scale Development was awarded to Westinghouse Electric Corporation in December 1991. The ICR is derived from the Rolls-Royce RB211 aircraft engine and through the introduction of an intercooler, recuperator, and variable area nozzles achieves approximately a 25% to 27% propulsion annual fuel savings when compared to the LM2500 on a mechanical drive ship.

(U) ICR full scale system development testing began in July 1994 and completed at Pyestock, U.K. on 30 April 1999. An additional 457 hours of testing at NAVSSES Philadelphia which completed 16 December 1999, confirmed readiness for qualification testing. Recuperator recovery efforts continued following the failure in January 1995 of the initial recuperator. An Engineering Development Model (EDM) recuperator, which is the exhaust heat recovery unit that provides most of the fuel efficiency gains, was delivered to the test site in January 1999. Testing on this EDM has met expectations. System testing to date has completed over 2400 hours of successful testing including over 1150 hours with the second generation recuperator and 1250 hours with the EDM recuperator. The engine system failed the endurance qualification testing in FY02.

(U) A Cooperative Agreement between the United Kingdom (U.K.) and United States governments was signed by USD(A&T) on 21 June 1994 and revised in March 1997 and again in November 2000 for in-kind and cash contributions to the ICR program. A Cooperative Agreement between the French and United States governments was signed by ASN(RD&A) on 30 August 1995 and revised in October 2000 for in-kind and cash contributions to the ICR program. Under the terms of the MoU, the U.K. is proceeding with the shock testing which is currently planned for FY04.

(U) Project 9043 - Congressional Add. This project funds the Metallic Material Advanced Development and Certification Program.

(U) Project 9355 - Congressional Add. This project funds the Dockside Abrasive Waterjet Cutting.

R-1 SHOPPING LIST - Item No. 51

EXHIBIT R-2, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA 4	0603573N/ADVANCED SURFACE MACHINERY SYS	1314 / 9043 / 9355 ADVANCED SURFACE MACHINERY PROGRAMS

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	0.000	0.000
RDT&E Articles Quantity				

The Royal and French navies continued execution of the 3000 hour endurance qualification test. Engine sustained a failure which resulted in rhe requirement for a complete hot section rebuild and the termination of the endurance qualification test. U.S. Navy responsibilities included participation in the Steering Committee, technical review, monitoring tests and accepting test results for compliance to U.S. Navy requirements. Continued ICR technology application studies. The Royal and French navies initiated the shock test with a planned completion in FY04.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		2.807	0.000	0.000
RDT&E Articles Quantity				

The Royal and French navies will complete the design modifications required to correct the deficiencies identified in the testing program, perform acceptance tests to verify the efficacy of the design changes and proceed with the preparation for the shock test.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	1.452	0.000
RDT&E Articles Quantity				

The Royal and French navies will complete the shock test and post qualification test inspections.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	5.082	0.000
RDT&E Articles Quantity				

The goal of project 9043 (Congressional Add) funds the Metallic Material Advanced Development and Certification Program.
The goal of project 9355 (Congressional Add) is to develop and demonstrate the ability to perform abrasive water jet cutting at the dockside or in a dry-dock setting. While this process is capable of cutting through thick substrate, such as that found in ship hulls, currently existing equipment is designed solely for use on the shop floors of manufacturing facilities. The prototype piece of equipment will demonstrate the ability to cut an access panel into a ship or submarine hull at dockside without producing noxious fume, to controlling and collecting the working fluid and to completing this task without the threat of a fire.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603573N/ADVANCED SURFACE MACHINERY SYSTEMS	1314/ADVANCED SURFACE MACHINERY PROGRAMS

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 04 Pres Controls):	2.867	1.468	0.000
Current BES/President's Budget: (FY05 President Controls)	2.807	1.452	0.000
Total Adjustments	-0.060	-0.016	0.000
Summary of Adjustments			
Congressional Adjustments	0.000	0.000	0.000
Inflation Adjustments	0.000	0.000	0.000
Reprogrammings	0.000	0.000	0.000
Minor adjustments	-0.060	-0.016	0.000
Subtotal	-0.060	-0.016	0.000

Schedule:

Not Applicable

Technical:

Not Applicable

R-1 SHOPPING LIST - Item No. 51

CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603573N/ADVANCED SURFACE MACHINERY SYS	1314/ADVANCED SURFACE MACHINERY PROGRAMS

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
None										

E. ACQUISITION STRATEGY:

Shock testing will occur in FY 2004. Program ends in FY 2004.

F. MAJOR PERFORMERS:

Northrop Grumman Marine Systems, Sunnyvale California, Prime contractor award date December 1991
David Taylor Research and Development Center/Carderock Division/ Philadelphia Detachment. Testing Support, annual

R-1 SHOPPING LIST - Item No. 51

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)					DATE: **February 2004**							
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603573N/ADVANCED SURFACE MACHINERY SYS			PROJECT NUMBER AND NAME 1314/ADVANCED SURFACE MACHINERY PROGRAMS						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPAF	NG, Sunnyvale, Ca	339.561	0.587	10/02						340.148	
Ancillary Hardware Development											0.000	
Component Development											0.000	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering	C/CPAF	NG, Sunnyvale, Ca	1.548	0.960	various	0.674	various				3.182	
Training Development											0.000	
Licenses											0.000	
Tooling											0.000	
Cost Improvements			7.000								7.000	
Award Fees	C/CPAF	NG, Sunnyvale, Ca	8.823								8.823	
Subtotal Product Development			356.932	1.547		0.674		0.000		0.000	359.153	
Remarks:												
Development Support											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

R-1 SHOPPING LIST - Item No. 51

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603573N/ADVANCED SURFACE MACHINERY SYS			PROJECT NUMBER AND NAME 1314/ADVANCED SURFACE MACHINERY PROGRAMS						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC Philadelphia PA	16.169	1.210	10/02	0.728	10/03				18.107	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			16.169	1.210		0.728		0.000		0.000	18.107	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel			0.050	0.050	various	0.050	various				0.150	
Labor (Research Personnel)											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.050	0.050		0.050		0.000		0.000	0.150	
Remarks:												
Total Cost			373.151	2.807		1.452		0.000		0.000	377.410	
Remarks:												

R-1 SHOPPING LIST - Item No. 51

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																													DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-04**									PROGRAM ELEMENT NUMBER AND NAME 0603573N/ADVANCED SURFACE MACHINERY SYS												PROJECT NUMBER AND NAME 1314/ADVANCED SURFACE MACHINERY PROGRAMS											
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones	Not Applicable																															
Test & Evaluation	Endurance testing Ends △										Shock Test △																					

R-1 SHOPPING LIST - Item No. 51

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&BA-04**	PROGRAM ELEMENT 0603573N/ADVANCED SURFACE MACHINERY SYS				PROJECT NUMBER AND NAME 1314/ADVANCED SURFACE MACHINERY PROGRAMS			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Endurance Test	1C							
Validation Tests		1C						
Shock Test			3C					

R-1 SHOPPING LIST - Item No. 51

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification						DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**				R-1 ITEM NOMENCLATURE 0603581N - Littoral Combat Ship (LCS)			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost	**35.322**	**166.180**	**352.089**	**502.948**	**392.928**	**130.504**	**207.472**
3096-LCS Development	**35.322**	**166.180**	**244.411**	**288.442**	**285.934**	**130.504**	**207.472**
4018- Littoral Combat Ship Construction	**0.000**	**0.000**	**107.678**	**214.506**	**106.994**	**0.000**	**0.000**

Defense Emergency Response Funds (DERF) Funds: N/A

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This Program Element (PE) provides funds for development integration and testing of the Littoral Combat Ship (LCS). Also included in the PE is detail design and construction for two ships of Flight 0, and procurement of mission packages for these Flight 0 ships. The LCS is to be a fast, agile, and stealthy surface combatant capable of operating in support of anti-access missions against asymmetric threats in the littorals. Primary access-focused missions include prosecution of small boats, mine counter-measures, littoral anti-submarine warfare (ASW). Inherent capabilities include: intelligence, surveillance and reconnaissance, homeland defense, Special Operating Forces (SOF) support and logistic support for movement of personnel and supplies.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603581N - Littoral Combat Ship (LCS)				PROJECT NUMBER AND NAME 3096 - Littoral Combat Ship Development			
COST ($ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**0.000**	**35.322**	**166.180**	**244.411**	**288.442**	**285.934**	**130.504**	**207.472**
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The LCS is to be a fast, agile, and stealthy surface combatant capable of operating in support of anti-access missions against asymmetric threats in the littorals. Primary access-focused missions include: procescution of small boats, mine counter-measures, littoral anti-submarine warfare (ASW). Inherent capabilities include intelligence, surveillance and reconnaissance, homeland defense, SOF support and logistic support for movement of personnel and supplies. This project provides funds for the total ship system engineering, integration, program execution, platform development, and mission systems development. Mission systems development includes architectures, interfaces and development of mission systems. Mission systems development also includes the procurement of the mission packages to be used on two of the Flight 0 ships. Platform development includes platform experimentation and platform and ship system design and integration.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603581N - Littoral Combat Ship (LCS)	3096 - Littoral Combat Ship Development

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	27.000	117.285	163.702
RDT&E Articles Quantity			

Began LCS System Development which included a top level LCS concept, a Performance Specification, integrated master schedule, preliminary interface specification, software development plan and mission system interface data. This includes technology development and demonstration activities to prove maturity of new system and subsystems concepts for application on LCS platform. Begin and continue mission system zone and module development and integration. Funds Navy participation in Joint Advanced Concept Technology Demonstration (ACTD) (SPARTAN) mission module package. Awarded three Industry contracts for Preliminary system design, which continue into FY04. This will lead to selection of up to two Final system design Industry contracts in FY04 and continuing into FY05, and then construction of first LCS ships.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	4.123	36.824	52.600
RDT&E Articles Quantity			

Implemented the LCS Technical Team responsible for the participation, oversight and monitoring of the industry concepts, and Preliminary System Design. This team will continue their work into the next phase, Final Design, in FY04 and FY05. The team consists of Government warfare centers, laboratories, universities and selected technical support contractors. This team is providing the engineering expertise to evaluate/support the industry-developed concepts and technology demonstrations of new system concepts and mission systems in order to reduce risk on components and subsystems. This also supports the continued development of test and evaluation master plan (TEMP).

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	4.199	12.071	10.109
RDT&E Articles Quantity			

Conduct Analysis of Multiple Concepts (AMC) and tailored AoA. Develop operational context in which LCS will operate. This will include development of Interim Requirements Document (IRD), Concept of Operations (CONOPS), Initial Concepts Document (ICD), Capabilities Development document (CDD).

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603581N - Littoral Combat Ship (LCS)	3096 - Littoral Combat Ship Development

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	18.000
RDT&E Articles Quantity			

Commence planning for competition and award for the LCS Flight 1 ships, addressing the ship and the mission system integration.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000
RDT&E Articles Quantity			

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000
RDT&E Articles Quantity			

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603581N - Littoral Combat Ship	3096 - LCS Development

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04 Pres Controls)	33.099	158.071	72.909
President's Budget (FY05 Pres Controls)	35.322	166.180	244.411
Total Adjustments	2.223	-8.109	171.502

(U) Summary of Adjustments			
Congressional Add: Mission Module Dev		10.000	
Programmatic Adjustment: align Mission Mod Dev & Seaframe Delivery			124.300
Final Ship Design for 2nd Flight 0 FY06 Ship			49.652
Miscellaneous Adjustments		-1.891	-2.450
SBIR	-0.777		
Reprogramming-BTR	3.000		
Total	2.223	8.109	171.502

Schedule:

See Individual Projects

Technical:

TBD

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603581N- Littoral Combat Ship (LCS)	3096 - LCS Development

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
BLI 160000 (OPN)	0.000	0.000	0.000	0.000	180.000	180.000	351.258	1,171.301	CONT	CONT
BLI 212700 (SCN)	0.000	0.000	0.000	0.000	219.708	220.000	625.694	1,303.629		

E. ACQUISITION STRATEGY:

(U) The LCS acquisition strategy encompasses multiple phases: Phases I and II are Concept Refinement and Technology Development, consisting of Preliminary Design, Final Design and Detail Design and Construction for Flight 0 ships. A parallel 3 Phase approach is planned for Flight 1 ships. Phase I Concept Refinement and Technology Development, Phase II - Preliminary Design and Phase III Final Design and Detail Design and Construction.

F. MAJOR PERFORMERS:

TBD.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)									DATE: **February 2004**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT PE 0603581N - Littoral Combat Ship			PROJECT NUMBER AND NAME 3096 - LCS Development								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Preliminary and Final Design (Flight 0)	Compet	TBD	0.000	24.000	4QFY03	56.285	3QFY04	56.000	1QFY05			CONT	CONT	
Mission Sys Dev & Platform Exp	Various	Various	0.000	3.000	N/A	61.000	Various	107.702	Various			CONT	CONT	
Initial System Design (Flight 1)	Compet	TBD	0.000	0.000	N/A	0.000	N/A	18.000	3QFY05			CONT	CONT	
Preliminary and Final Design (Flight 1)	Compet											CONT	CONT	
Ship Integration													0.000	
Ship Suitability													0.000	
Systems Engineering													0.000	
Training Development													0.000	
Licenses													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Product Development			0.000	27.000		117.285		181.702				CONT	CONT	
Remarks:														
Development Support													0.000	
Software Development													0.000	
Training Development													0.000	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
Technical Data													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Support			0.000	0.000		0.000		0.000				0.000	0.000	
Remarks:														

R-1 SHOPPING LIST - Item No. 53

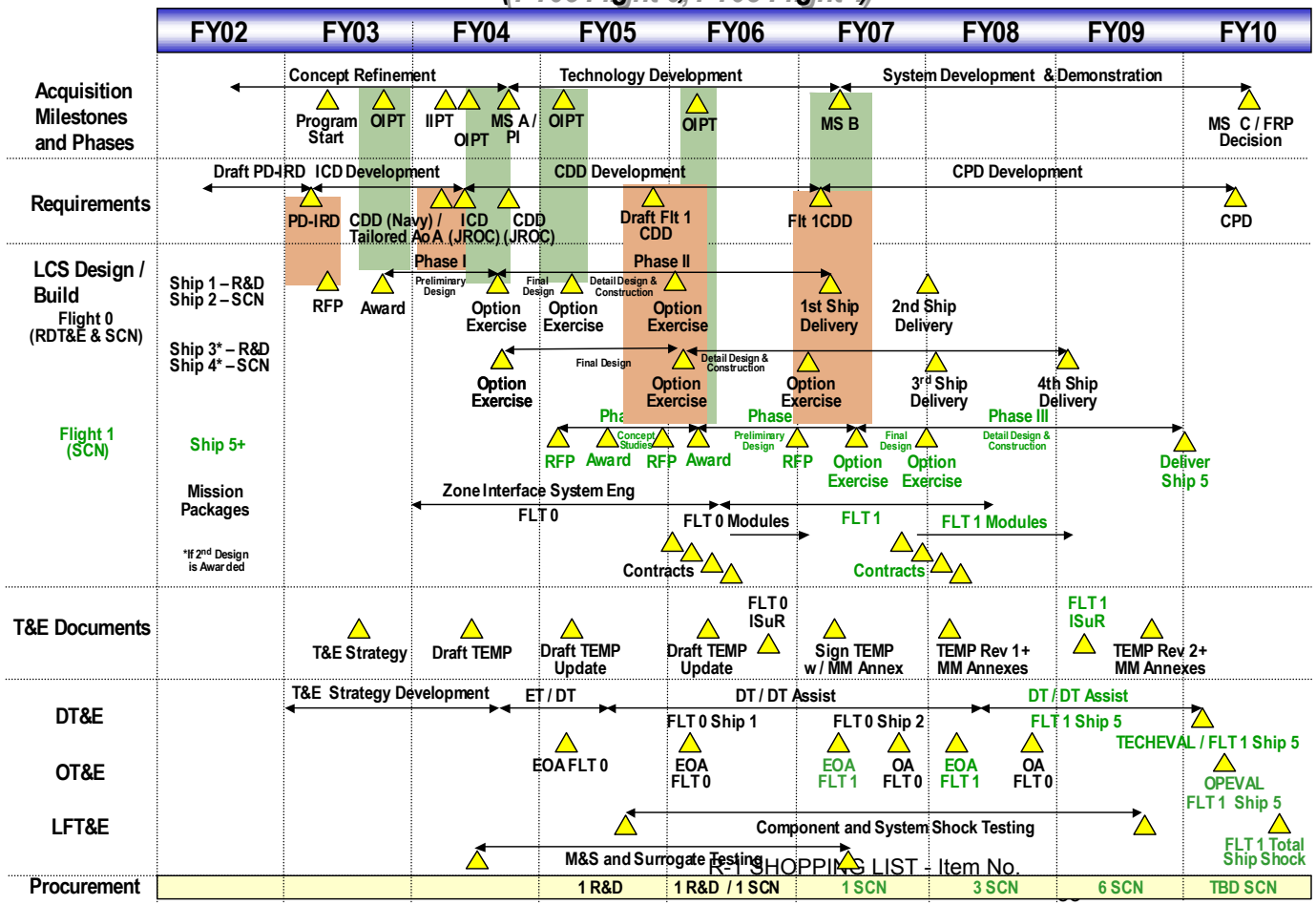
Exhibit R-3 Cost Analysis (page 2)								DATE: February 2004				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT PE 0603581N - Littoral Combat Ship			PROJECT NUMBER AND NAME 3096 - LCS Development							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NSWC/CD Bethesda, MD	0.000	0.000	2QFY03	3.000	1QFY04	2.000	1QFY05	CONT	CONT	
Developmental Test & Evaluation	WX	NSWC/DD, Dahlgren, VA	0.000	0.000	2QFY03	2.000	1QFY04	2.000	1QFY05	CONT	CONT	
Developmental Test & Evaluation	Various	Various	0.000	0.000	N/A	3.000	1QFY04	5.000	1QFY05	CONT	CONT	
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			0.000	0.000		8.000		9.000		0.000	CONT	
Remarks:												
Contractor Engineering Support	GSA	ANTEON, Arlington, VA	0.000	1.350	2QFY03	4.189	1QFY04	3.600	1QFY05	CONT	CONT	
	GSA	Various	0.000	0.777	N/A	3.000	1QFY04	3.500	1QFY05	CONT	CONT	
Government Engineering Support	WX	NSWC/CD, Bethesda, MD	0.000	0.700	2QFY03	9.400	1QFY04	10.000	1QFY05	CONT	CONT	
	WX	NSWC/DD, Dahlgren, VA	0.000	2.700	2QFY03	6.940	1QFY04	10.000	1QFY05	CONT	CONT	
	WX	NSWC/PC, Panama City, FL	0.000	0.170	N/A	4.400	1QFY04	6.000	1QFY05	CONT	CONT	
	Various	Government Activities	0.000	1.300	2QFY03	1.500	1QFY04	7.100	1QFY05	CONT	CONT	
	WX	NUWC, Newport, RI	0.000	0.000	2QFY03	2.100	1QFY04	4.200	1QFY05	CONT	CONT	
	WX	SPAWAR, San Diego, CA	0.000	0.200	2QFY03	3.500	1QFY04	4.000	1QFY05	CONT	CONT	
	WX	NSWC Div Crane				0.225	1QFY04					
	WX	NAWC AD, Pax River				2.000	1QFY04					
Program Management Support	Various	Various	0.000	0.875	2QFY03	3.391	1QFY04	5.000	1QFY05	CONT	CONT	
Labor (Research Personnel)	CPFF	APL/JHU Laurel MD	0.000	0.250	2Q	0.250	1QFY04	0.309	1QFY05	CONT	CONT	
Subtotal Management			0.000	8.322		40.895		53.709		CONT	CONT	
Remarks:												
Total Cost			0.000	35.322		166.180		244.411		0.000	CONT	
Remarks:												

CLASSIFICATION:

EXHIBIT R4, Schedule Profile		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME PE 0603581N - Littoral Combat Ship (LCS)	PROJECT NUMBER AND NAME 3096 - LCS Development

LCS Integrated Schedule – PresBud Submit (Budget Exhibit)

(FY05 Flight 0, FY08 Flight 1)



R-1 SHOPPING LIST - Item No.

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&BA-4**	PROGRAM ELEMENT PE 0603581N - Littoral Combat Ship				PROJECT NUMBER AND NAME 3096 - LCS Development			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Preliminary Design (Flight 0)		3Q-4Q	1Q					
Final Design (Flight 0)			4Q	1Q				
Detail Design and Construction (Flight 0)				2Q-4Q	1Q-4Q	1Q-2Q		
Mission System Development & Platform Exp			1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q		
Concept Studies (Flight 1)				3Q-4Q				
Preliminary Design (Flight 1)					2Q-4Q			
Final Design (Flight 1)						3Q-4Q		
Detail Design and Construction (Flight 1)							1Q-4Q	1Q-4Q
Milestone A			3Q					
Milestone B						2Q		
First Ship Delivery (Flight 0)						2Q		
Ship 2 Delivery (Flight 0)							1Q	
Ship 3 Delivery (Flight 0)							1Q	
Ship 4 Delivery (Flight 0)								1Q
Lead Ship Delivery (Flight 1)								4Q
NOTE:								
Developmental Testing			4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	
Operational Testing				2Q	2Q	2Q-4Q	2Q-4Q	
Engineering Events - TBD								

R-1 SHOPPING LIST - Item No. 53

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME PE 0603581N - Littoral Combat Ship				PROJECT NUMBER AND NAME 4018 - Littoral Combat Ship Construction			
COST ($ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**0.000**	**0.000**	**0.000**	**107.678**	**214.506**	**106.994**	**0.000**	**0.000**
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project funds the detail design and construction of two of the LCS Flight 0 ships. FY05 Lead Ship Cost Estimate: 215.482 .

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA 4	PE 0603581N - Littoral Combat Ship (LCS)	4018 - Littoral Combat Ship Construction

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	107.678
RDT&E Articles Quantity			

Begin first ship detail design and construction, to continue into FY06. Begin detailed production planning for LCS to include: development of purchase specifications/drawings for all the significant equipment, begin initial competition and selection of components, issue contracts and begin production of components. Fund procurement of long lead items in advance of contract award. Begin logistics support analysis and develop crew training. Design fixtures and jigs to facilitate construction. Begin production design for early work packages to include work instructions, schedules, work locations, material list, tooling, facilities and manpower requirements.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			
RDT&E Articles Quantity			

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			
RDT&E Articles Quantity			

R-1 SHOPPING LIST - Item No. 53

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603581N - Littoral Combat Ship (LCS)	4018 - Littoral Combat Ship Construction

C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04 Pres Controls)	0.000	0.000	107.678
FY05 President's Budget	0.000	0.000	107.678
Total Adjustments	0.000	0.000	0.000

Schedule:

Not Applicable

Technical:

Not Applicable

R-1 SHOPPING LIST - Item No. 53

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603581N - Littoral Combat Ship (LCS)	4018 - Littoral Combat Ship Construction

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
BLI 160000 (OPN)	0.000	0.000	0.000	0.000	180.000	180.000	351.258	1,171.301	CONT	CONT
BLI 212700 (SCN)	0.000	0.000	0.000	0.000	219.708	220.000	625.694	1,303.629	CONT	CONT

E. ACQUISITION STRATEGY:

(U) The LCS acquisition strategy encompasses multiple phases: Phases I and II are Concept Refinement and Technology Development, consisting of Preliminary Design, Final Design and Detail Design and Construction for Flight 0 ships. A parallel 3 Phase approach is planned for Flight 1 ships. Phase I Concept Refinement and Technology Development, Phase II - Preliminary Design and Phase III Final Design and Detail Design and Construction.

F. MAJOR PERFORMERS:

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT PE 0603581N - Littoral Combat Ship (LCS)			PROJECT NUMBER AND NAME 4018 - Littoral Combat Ship Construction						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	Competitiv	TBD	0.000	0.000	N/A	0.000	N/A	107.678	2QFY05	Continuing	Continuing	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering											0.000	
Training Development											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			0.000	0.000		0.000		107.678		0.000	107.678	
Remarks:												
Development Support											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

R-1 SHOPPING LIST - Item No. 53

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT PE 0603581N - Littoral Combat Ship (LCS)			PROJECT NUMBER AND NAME 4018 - Littoral Combat Ship Construction						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation												
Subtotal T&E												
Remarks:												
Government Engineering Support												
Government Engineering Support												
Program Management Support												
Travel												
Labor (Research Personnel)												
SBIR Assessment												
Subtotal Management												
Remarks:												
Total Cost			0.000	0.000		0.000		107.678		Continuing	Continuing	
Remarks:												

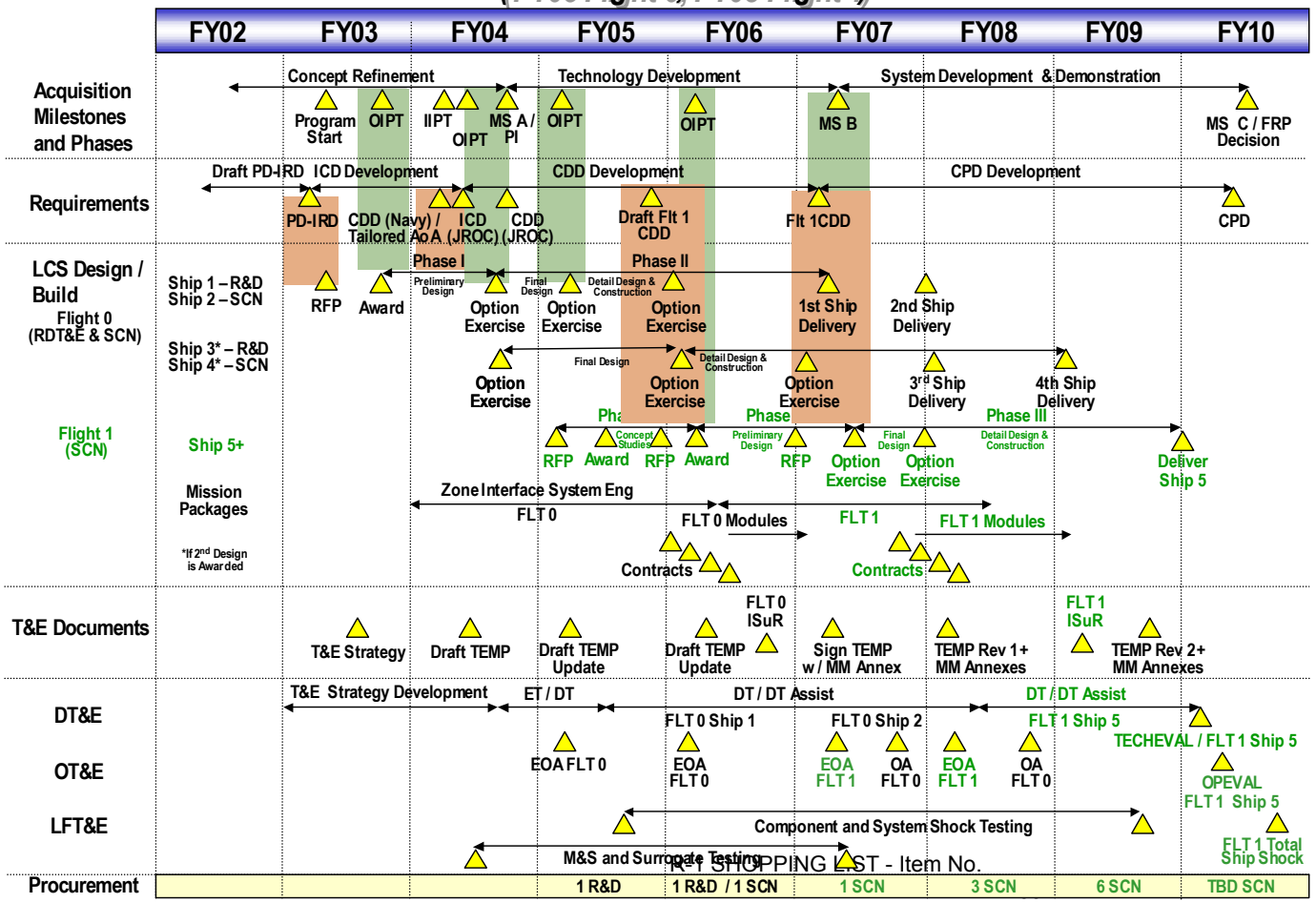
R-1 SHOPPING LIST - Item No. 53

CLASSIFICATION:

EXHIBIT R4, Schedule Profile		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME PE 0603581N - Littoral Combat Ship (LCS)	PROJECT NUMBER AND NAME 4018 - Littoral Combat Ship Construction

LCS Integrated Schedule – PresBud Submit (Budget Exhibit)

(FY05 Flight 0, FY08 Flight 1)



R-1 SHOPPING LIST - Item No.

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&BA-4**	PROGRAM ELEMENT PE 0603581N - Littoral Combat Ship				PROJECT NUMBER AND NAME 4018 - Littoral Combat Ship Construction			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Preliminary Design (Flight 0)		3Q-4Q	1Q					
Final Design (Flight 0)			4Q	1Q				
Detail Design and Construction (Flight 0)				2Q-4Q	1Q-4Q	1Q-2Q		
Mission System Development & Platform Exp			1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q		
Concept Studies (Flight 1)				3Q-4Q				
Preliminary Design (Flight 1)					2Q-4Q			
Final Design (Flight 1)						3Q-4Q		
Detail Design and Construction (Flight 1)							1Q-4Q	1Q-4Q
Milestone A			3Q					
Milestone B						2Q		
First Ship Delivery (Flight 0)						2Q		
Ship 2 Delivery (Flight 0)							1Q	
Ship 3 Delivery (Flight 0)							1Q	
Ship 4 Delivery (Flight 0)								1Q
Lead Ship Delivery (Flight 1)								4Q
NOTE:								
Developmental Testing			4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	
Operational Testing				2Q	2Q	2Q-4Q	2Q-4Q	
Engineering Events - TBD								

R-1 SHOPPING LIST - Item No. 53

EXHIBIT R-2, RDT&E Budget Item Justification						DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**				R-1 ITEM NOMENCLATURE Combat Systems Integration/Battle Force Interoperability			**0603582N**
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost	**57.957**	**97.969**	**80.840**	**40.396**	**37.330**	**33.099**	**33.465**
Combat Systems Integ 0164/9356/9357	**57.957**	**97.969**	**80.840**	**40.396**	**37.330**	**33.099**	**33.465**

Defense Emergency Response Funds (DERF) Funds: Not Applicable.

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Project 0164/9356/9357: Combat Systems Integration/Battle Force Interoperability:
COMNAVSEASYSCOM (SEA 06) was assigned central responsibility for interoperability by CNO MSG DTG 021648Z May 1998 to develop policy and architecture for Strike Force warfare systems engineering, implement a common warfare systems engineering process and provide top level direction for fielding and support of balanced combat systems for ships and submarines. SEA 06 has responded with processes and tools to include: establishment of a force-level warfare systems engineering process, stewardship of the Fleet Response Plan configuration management and certification process per CINCLANTFLT/CINCPACFLT Inst. 4720.3A, and force-level interoperability assessment efforts using the Distributed Engineering Plant (DEP) land-based testing tool. This project funds the core elements needed to execute CINC direction.

This project funds: Strike Force (SF) requirements engineering and analysis. SF configuration management through the Fleet Response Plan (FRP), shore based testing and Combat System Integration Testing (CSIT) certification of operational computer systems in a test environment similar to their ultimate shipboard operational environment, and Strike Force interoperability testing (SFIT) which is a prerequisite for operational Certification of the Sstrike Force configuration prior to deployment. SFIT Certification of deploying Strike Force configurations is accomplished through the utilization of the Navy's Distributed Engineering Plant (DEP), which provides operational configurations for all combat system configurations located at multiple Navy land-based sites located across the country and connected via ATM networking technology. The DEP provides the only opportunity for comprehensive interoperability testing of combat system and C4I configuration items prior to shipboard delivery for operational use in surface combatant platforms and battle group units. It is a CINC requirement that all Battle Forces undergo Strike Force Interoperability Testing (SFIT) in the DEP prior to deployment.

Through the implementation of CINCLANTFLT/CINPACFLT Instruction 4720.3A, the Navy has made considerable improvements in Battle Force Interoperability. A key milestone in the Fleet Response Plan (FRP) is the Strike Force Interoperability Testing (SFIT) that occurs 10-12 months prior to deployment. By utilizing the Distributed Engineering Plant, SEA 06 has been able to identify recurring interoperability problems, which have then been prioritized into 21 main categories by Strike Group Commanders and their staffs. SEA 06 has prioritized possible interoperability fixes and coordinated with combat system managers to identify the fix path to resolve the interoperability problems. DEPSECDEF Guidance issued in October 2001 directs the Services to resolve interoperability problems in legacy combat systems by FY08 and develop metrics to evaluate operational improvements associated to those corrections.

Additionally, this project funds Navy's implementation of improvements to specific combat systems as required to correct interoperability problems as necessary to achieve a Single Integrated Air Picture (SIAP). The Joint community has established guideliness for problem corrections, to be addressed in incremental Blocks designed to improve the SIAP. A SIAP is the product of fused, near-real-time and real-time data from multiple sensors to allow development of common, continuous, and unambiguous tracks of all airborne objects in the surveillance area.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N/BA-4	0603582N CSI/BFI	0164/9356/9357 CSI/BFI

B. Accomplishments/Planned Program

FRP		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		6.696	7.391	7.159
RDT&E Articles Quantity		N/A	N/A	N/A

Continue execution of the FRP for all Strike Groups in the deployment cycle, including: SFAO efforts, SG Change Control Process, SG Capabilities and Limitations Report and Engineering assessments. Continue configuration management for all strike groups. Continue development of AMPS and Electronic Configuration Control Board (ECCB). In any given year, 12+ Strike Forces are being evaluated in some phase of the Fleet Response Plan (FRP), 27 Capabilties and Limitations Documents are delivered, and 6000 configuration change requests are processed.

CSIT		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		11.028	11.285	10.885
RDT&E Articles Quantity		N/A	N/A	N/A

Conducted Combat System Integration Testing (CSIT) of Advanced Combat Direction System (ACDS) Block-0, level 10.24.X, ACDS Block-1 2.1.8, Combat Direction System (CDS) level 12.X/13.X in CV/CVN, LSD, and LHD ship classes, SSDS MK-2, Mod 0, and Command and Control Processor (C2P) upgrade. Continued planning for out-year Combat System Integration Testing (CSIT). Conduct Combat System Integration Testing (CSIT) of Ship Self Defense System (SSDS) MK-2 Mods 1-2 combat systems and associated elements for CV/LHD/LHA/LPD ship classes and Test Bed Validation. Continue planning for out-year Combat System Integration Testing (CSIT).

JDEP		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		5.100	4.697	5.331
RDT&E Articles Quantity		N/A	N/A	N/A

Funds Navy participation in Joint Distributed Engineering Plant (JDEP) and related land-based test events. The Defense Planning Guidance (DPG) updated for FY 2002-2007 states: the JDEP program was established as a DoD-wide effort to link existing service and joint combat system engineering and test sites. The JDEP is the lead infrastructure used for the evaluation of coordinated, joint engineering events, which include the validation of next-generation algorithms implementing the Single Integrated Air Picture (SIAP). Funds support Navy participation in JDEP approved test events and test bed improvements needed to conduct testing. In FY2004-2005, modelling and simulation improvements are also planned events include Integrated Fire Control, Defense of Korea, and SIAP Combined events.

SFIT/DEP		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		12.281	18.008	16.814
RDT&E Articles Quantity		N/A	N/A	N/A

Provided Distributed Engineering Plant (DEP) Testbed to support land based testing of complex computer program configurations for the Strike Force. Conduct Strike Group Interoperability Testing (SGIT) for ABRAHAM LINCOLN, GEORGE WASHINGTON, KITTY HAWK, HARRY S. TRUMAN, NIMITZ, and CONSTELLATION Strike Groups. Conducted Interoperability Systems Engineering Tests (ISETs) for root cause determination of key interoperability trouble report observation. Funded Navy participation in Joint Distributed Engineering Plant (JDEP). Provide Distributed Engineering Plant (DEP) testbed to support land-based testing of complex computer program configurations for the Strike Force. Conduct Strike Force Interoperability Testing (SFIT) in FY03 for ENTERPRISE, CARL VINSON, GEORGE WASHINGTON, HARRY S. TRUMAN, JOHN F. KENNEDY and THEODORE ROOSEVELT Strike Groups; in FY04 for JOHN C. STENNIS, ABRAHAM LINCOLN, HARRY S. TRUMAN, and RONALD REAGAN Strike Groups; in FY05 NIMITZ, THEODORE ROOSEVELT, and ENTERPRISE, DWIGHT EISENHOWER and JOHN F. KENNEDY Strike Groups.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E,N/BA-4	0603582N CSI/BFI	0164/9356/9357 CSI/BFI

B. Accomplishments/Planned Program (Cont.)

SF Requirements Engineering and Analysis		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		3.892	4.188	3.856
RDT&E Articles Quantity		N/A	N/A	N/A

Continued to develop Design Reference Mission (DRM) to communicate requirements in their operational context. Continue to evolve Strike Force Interoperabililty Requirements (SFIR) to ensure the ability of the Strike Force to evaluate progressive levels of operational performance and system interoperability. Continue to test and evaluate interoperability of deploying Battle Forces to assess performance improvements. Develop data sets that can be used to apply quantifiable and measurable Strike Force Interoperability Requirements to an Over-Arching Requirements Document or Capstone Requirements Document (CRD) for use by combat system and C4I acquisition programs.

Interoperability Fixes		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	13.841	1.795
RDT&E Articles Quantity		N/A	N/A	N/A

There are currently 558 unresolved unique interoperability problems identified through SFIT and SGSIT testing and prioritized by the Fleet into 21 categories. Funding is dedicated to develop and implement interoperability fixes to AEGIS and ACDS combat systems, and to validate and certify completed ACDS and AEGIS fixes at the platform and Stike Force level through land-based testing. In accordance with DEPSECDEF Guidance of Oct 2001, interoperability problem corrections are evaluated according to their ability to improve the operational performance of deploying Strike Forces. In FY04 the HARRY S. TRUMAN, NIMITZ, and ENTERPRISE Strike Groups will receive fixes addressing approximately 130 of the Fleet's top issues. Systems impacted include C2P, CEC 2.1, ACDS Block 0, FFG CDS, Auto ID, and AWS 6.3.

Navy SIAP Improvements		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	1.698	0.000
RDT&E Articles Quantity		N/A	N/A	N/A

Navy implementation of combat system corrections as needed to affect a Single Integrated Air Picture (SIAP). Combat systems includes AEGIS.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E,N/BA-4	0603582N CSI/BFI	0164/9356/9357

B. Accomplishments/Planned Program (Cont.)

CNI		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		15.230	24.742	35.000
RDT&E Articles Quantity		N/A	N/A	N/A

Funds are for SBIR Phase III efforts to develop Common Network Interface Capabilities for theater and air missile defense. In FY 2005 additional funds of $10M provided for Advanced Processor Build.

WOMBAT		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	0.000	0.000
RDT&E Articles Quantity		N/A	N/A	N/A

Funded development of Wideband Optically Multiplexed Beamformer.

Marine Corp		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.489	0.000	0.000
		N/A	N/A	N/A

Congressional Plus-up provided for USMC Institute.

HIGH ENERGY LASER (HEL)		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		3.241	12.119	0.000
RDT&E Articles Quantity		N/A	N/A	N/A

These funds were provided by Congressional Plus Up. In FY04 this Program funds:
ALDA (Advanced Laser Diode Arrays): Proj #9356 ($2101K) The goal of the ALDA effort is the development of 100% Duty Cycle Diode packaging with advanced cooling, and its transition to automated assembly. Previous efforts addressed the cooling of pulsed large area laser diode pump arrays using conventional bulk flowing liquid technology. 100% Duty Cycle Diode arrays are required for all DoD DPSS HEL systems in the near (3-5 year) future. **LIPC** (Laser Induced Plasma Channeling)**:** Proj #9357 ($3,362K) Funds will be used for engineering and demonstration of miniature lasers to determine the maximum extended range and resultant effects associated with this laser guided energy. **MDTEC** (Maritime Directed Energy Test)**:** Proj #0164($6,656K) Funds will be used for accomplishment of the Environmental Impact Survey (EIS), electrical power analysis, and conceptual operation/design of MDTEC.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E,N/BA-4	0603582N CSI/BFI	0164/9356/9357 CSI/BFI

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04 Pres Controls)	57.048	86.836	48.439
Current BES/President's Budget: (FY05 President's Controls)	57.957	97.969	80.840
Total Adjustments	0.909	11.133	32.401
Summary of Adjustments			
Economic Rescission			
Programmatic Adjustements			33.235
Congressional Action		11.133	
Reprogrammings	-0.909		
Rate Changes			-0.687
Inflation Adjustments			-0.147
Subtotal	-0.909	11.133	32.401

Schedule:

See R4/R4A Schedule.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E,N/BA-4	0603582N CSI/BFI	0164/9356/9357 CSI/BFI

D. OTHER PROGRAM FUNDING SUMMARY: Not Applicable

Related RDT&E: Computer programs developed under these programs are tested in their integrated configuration.

PE 0204571N (Consolidated Training Systems Development)
PE 0205620N (Surface ASW Combat System Technology)
PE 0603382N (Advanced Combat System Technology)
PE 0603755N (Ship Self Defense Dem/Val)
PE 0603658N (Cooperative Engagement Capability)
PE 0604307N (AEGIS Combat Systems Engineering)
PE 0604755N (Ship Self Defense - EMD)
PE 0604518N (CIC Conversion/Common Command and Decision)
PE 0603879N (Single Integrated Air Picture)
PE 0605853N (CHENG)

E. ACQUISITION STRATEGY: Not Applicable

F. MAJOR PERFORMERS:

Naval Surface Warfare Center, Port Hueneme, CA - Combat System Integration Testing/Strike Force Interoperability effort.

Naval Surface Warfare Center, Dahlgren Division, VA - Distributed Engineering Plant (DEP), Strike Force Interoperability Requirements (SFIR), and Strike Force Interoperability Operational Advisory Group (SFI OAG) efforts.

Digital Systems Resources, Inc. (DSR), Fair Lakes, VA- Prime contractor for Common Command and Decision (CC&D)

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)

DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E,N/BA-4**

PROJECT NUMBER AND NAME: 0164/9356/9357 CSI/BFI

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Combat Sys Integ Testing/SQI	WR/RC	NSWC PHD	7.250	6.909	10/02	8.600	10/03	7.930	10/04	CONT.	CONT.	
Combat Sys Integ Testing/SQI	WR/RC	NSWC DD								CONT.	CONT.	
Combat Sys Integ Testing/SQI	WR/RC	VARIOUS	1.778	1.741	10/02	1.914	10/03	1.930	10/04	CONT.	CONT.	
FRP	WR/RC	NSWC PHD	4.390	2.520	10/02	5.654	10/03	5.281	10/04	CONT.	CONT.	
FRP	WR/RC	NSWC DD								CONT.	CONT.	
FRP	WR/RC/PD	VARIOUS	1.308	1.380	10/02	1.737	10/03	1.666	10/04	CONT.	CONT.	
JDEP	WR/RC	NSWC DD		4.400	10/02	3.250	10/03	3.331	10/04	CONT.	CONT.	
JDEP	WR/RC	VARIOUS		0.700	10/02	1.447	10/03	2.000	10/04	CONT.	CONT.	
DEP/BGIT Cert	WR/RC	NSWC DD	20.331	10.325	10/02	15.302	10/03	11.447	10/04	CONT.	CONT.	
DEP/BGIT Cert	WR/RC/PD	VARIOUS	2.204	1.395	10/02	2.390	10/03	1.890	10/04	CONT.	CONT.	
WOMBAT	WR/RC	NSWC CRANE	1.948	0.000		0.000		0.000		CONT.	CONT.	
SFI Requirements	WR/RC	NSWC DD	1.052	1.686	10/02	2.446	10/03	1.949	10/04	CONT.	CONT.	
SFI Requirements	WR/RC/PD	VARIOUS	1.616	1.513	10/02	1.742	10/03	1.653	10/04	CONT.	CONT.	
Combat System Fixes	WR/RC	NSWC DD	N/A	N/A		7.273	10/03	0.795	10/04	CONT.	CONT.	
Combat System Fixes	WR/RC	VARIOUS	N/A	N/A		0.000		0.000		CONT.	CONT.	
Combat System Fixes	WR/RC	NSWC DD-CDSA DI	N/A	N/A		1.000	10/03	0.500	10/04	CONT.	CONT.	
Combat System Fixes	WR/RC	VARIOUS	N/A	N/A		0.000		0.000		CONT.	CONT.	
Fix Validation Testing	WR/RC	NSWC DD	N/A	N/A		1.500	10/03	0.500	10/04	CONT.	CONT.	
CNI	WR/RC	NSWC DD	0.000	0.000		0.000		4.000		CONT.	CONT.	
CNI Contract	VARIOUS	VARIOUS	16.320	15.230	11/02	24.742	11/03	31.000	11/04	CONT.	CONT.	
Contract Engineering Support	VARIOUS	VARIOUS	4.157	5.119	11/02	3.738	11/03	3.618	11/04	CONT.	CONT.	
Contract Program Mgt Support	VARIOUS	VARIOUS	1.450	1.109	11/02	1.167	11/03	1.100	11/04	CONT.	CONT.	
Single Integrated Air Picture	VARIOUS	VARIOUS	0.000	0.000		1.698	12/03	0.000		CONT.	CONT.	
HEL Activities	VARIOUS	VARIOUS	0.000	1.567	02/03	4.405	03/04	0.000		CONT.	CONT.	
HEL Contracts	VARIOUS	VARIOUS	0.000	1.674	02/03	7.714	03/04	0.000		CONT.	CONT.	
USMC	VARIOUS	VARIOUS	0.000	0.489		0.000		0.000		CONT.	CONT.	
Travel		NAVSEA TRAVEL	0.100	0.200	09/03	0.250	09/04	0.250	09/05	CONT.	CONT.	
										CONT.	CONT.	
Subtotal Product Development			63.904	57.957		97.969		80.840		CONT.	CONT.	

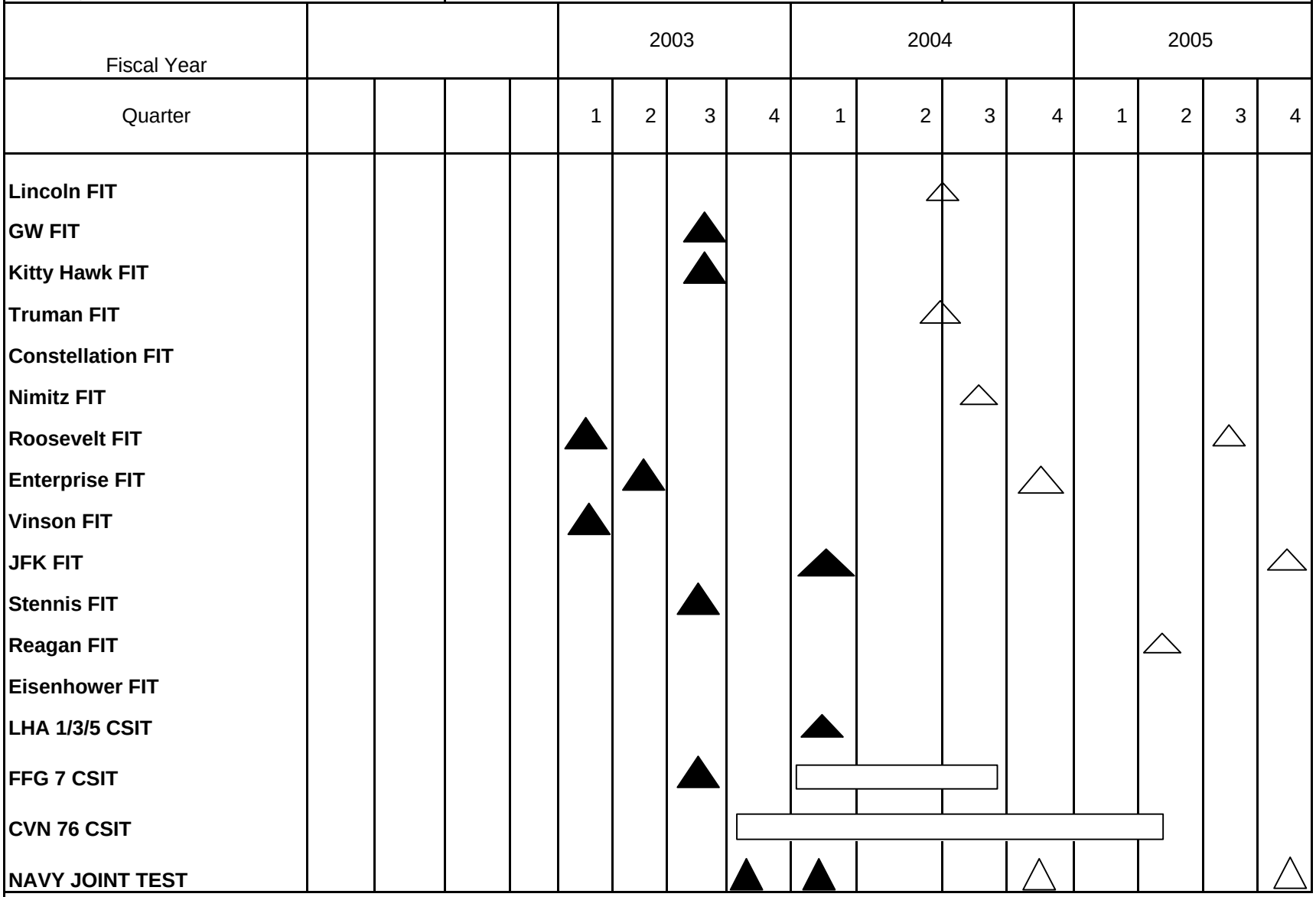
Remarks:

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/BA-4**	PROGRAM ELEMENT 0603582N CSI/BFI			PROJECT NUMBER AND NAME S0164/S2865/S2763 CSI/BFI			
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
ABRAHAM LINCOLN FIT		2/3Q					
GEORGE WASHINGTON FIT	3Q						
KITTY HAWK FIT	3Q						
HARRY S. TRUMAN FIT		2/3Q					
NIMITZ FIT		3Q					
CONSTELLATION FIT							
THEODORE ROOSEVELT FIT	1Q		3Q				
ENTERPRISE FIT	2Q	4Q					
CARL VINSON FIT	1Q						
JOHN F. KENNEDY FIT		1Q	4Q				
JOHN C. STENNIS FIT	3Q						
RONALD REAGAN FIT			2Q				
DWIGHT EISENHOWER FIT							
LHA 1/5 CSIT		1Q					
FFG 7 CSIT	2Q/3Q						
CVN 76 CSIT	4Q	1/2/3/4Q	1Q/2Q				
LSD 41/49 CSIT		2Q	3Q/4Q				
LPD 17 CSIT		3Q/4Q	1Q/2Q				
FFG 7 LEVEL 13 CSIT		1Q/2Q					
CVN 72 CSIT	4Q	2Q					
FFG 7 LEVEL 12 CSIT		2Q/3Q					
LHD 4/5 CSIT		2Q/3Q					
SSDS MK2 MOD1 CSIT(CVN 68)		3Q					
LHA 2/4 CSIT			2Q/3Q				
CVN 74 CSIT			1Q				
CV67 CSIT			2Q				
CV63, CVN 65/71/73 CSIT		3Q/4Q					
CV 63/CVN 72			3Q				
SSDS MK2 MOD 1 CSIT (CVN 69)			1Q				
LHD 7 CSIT		1Q					
LHD 2/3/6 CSIT			2Q/3Q				
CVN 75 SSDS MK2 MOD 1A CSIT			4Q	1Q			
LHD 1/5 CSIT				1Q			
LPD 17/18/19/20 CSIT				2Q/3Q			
LHD 8 CSIT				3Q/4Q	4Q	1Q/2Q	
NAVY JOINT TEST	4Q	1Q/4Q	4Q				

EXHIBIT R4, Schedule Profile																DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/BA-4**					PROGRAM ELEMENT NUMBER AND NAME 0603582N CSI/BFI											PROJECT NUMBER AND NAME S0164/S2865/S2763 CSI/BFI
Fiscal Year					2003				2004				2005			
Quarter					1	2	3	4	1	2	3	4	1	2	3	4
LSD 41/49 CSIT										▲					▭	
LPD 17 CSIT											▭	▭	▭			
FFG 7 LEVEL 13 CSIT									▭	▭						
CVN 72 CSIT								▲		△						
FFG 7 LEVEL 12 CSIT										▭	▭					
LHD 4/5 CSIT										▭	▭					
SSDS MK2 MOD1 CSIT(CVN 68)											△					
LHA 2/4 CSIT														▭	▭	
CV 63 - CVN 65/71/73											▭	▭				
CVN 74 CSIT													△			
CV63/CVN72 CSIT															△	
SSDS MK2 MOD 1 CSIT (CVN 69)													△			
CV 67 CSIT														△		
LHD 7 CSIT									▲							
LHD 2/3/6 CSIT														▭	▭	
CVN 75 SSDS MK2 MOD 1A CSIT						▭	▭									▭

EXHIBIT R4, Schedule Profile			DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603582N CSI/BFI		PROJECT NUMBER AND NAME S0164/S2865/S2763 CSI/BFI



CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**					R-1 ITEM NOMENCLATURE 0603609N/Conventional Munitions			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost		**17.613**	**42.063**	**34.151**	**34.190**	**22.817**	**23.077**	**23.419**
1821/Conventional Fuzed Warhead Package		**13.059**	**13.558**	**8.661**	**9.050**	**12.592**	**12.897**	**13.241**
2299/Non-Nuclear Expendable Ordnance		**0.914**	**25.486**	**25.490**	**25.140**	**10.225**	**10.180**	**10.178**
0363/Insensitive Munitions Advanced Development		**3.640**	**3.019**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**

Defense Emergency Response Funds (DERF) Funds: Not Applicable

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Conventional Fuzed Warhead Package (Project 1821): The Navy requires improved lethality of air and surface launched ordnance to defeat advanced threats. This is the only Navy 6.3B RDT&E program that addresses improvements in warhead and fuze technology to meet this requirement. This program is a significant vehicle for orderly planning, and timely and effective transition of Navy 6.2 and 6.3A investments to Engineering and Manufacturing Development (E&MD) phase missile/weapon systems. This program addresses increased lethality against current and emerging threats, and is responsive to all mission areas -- anti-air, strike, defense suppression, theater defense and ship defense -- and supports development of complete ordnance sections. The current on-going projects address significant technology advancements for missile systems by developing mature physical concepts to enhance anti-air kill probability, advanced ordnance with augmented overland cruise missile defense and theater ballistic missile defense capabilities, and advanced seeker technology. The program supports the full spectrum of missile advanced development and technology improvements and in future years will continue to provide the vehicle to address emergent requirements by transitioning mature development efforts into weapon systems with minimal technical and financial risk.

B. PROGRAM ACCOMPLISHMENTS AND PLANS:

The Guidance Integrated Fuze (GIF) program is the major constituent of the NNEO budget line, representing $25M annually in FY04-FY06, and $10M annually from FY07-FY09. Other NNEO programs include the Multi-Function Fuze (MFF) P3I and the Extended Range Propulsion Charge.

1. FY2004 PLANS:

($25M) GIF: Award two contracts for developing the GIF baseline design for high rate, low cost production. Evaluate 10 fuzes from each contractor in laboratory and simulated gun launch conditions to assess guidance, navigation and control features, conventional fuzing functions and shock survivability. Formally document all design and test data and provide to both contractors.

2. FY2005 PLANS:

($25M) GIF: Complete two additional design-build-test cycles, resulting in each contractor providing 25 (Jan 05) and 100 (Aug 05) fuzes for government evaluation. Peform the full spectrum of laboratory, simulation and gun launch tests to determine the best design. Award 1,250 fuze option to one contractor (Sep 05).

3. FY2006 PLANS:

($25M) GIF: 1,250 GIFs delivered (Apr 06): 150 for acceptance testing and 100 for operational assessment. The remaining 1,000 GIFs will be production representative hardware suitable for Field Training and Follow-on Test and Evaluation, as necessary.

R-1 SHOPPING LIST - Item No. 55

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**	R-1 ITEM NOMENCLATURE 0603609N/Conventional Munitions

Non-Nuclear Expendable Ordnance (NNEO) (Project 2299): This item addresses improvements to Navy surface launched (2T) NNEO. It supports transition of the Multi-Function Fuze (MMF) from E&MD to production.
Insensitive Munitions Advanced Development (IMAD) (Project 0363): Most Navy munitions react violently when exposed to unplanned stimuli such as fire, shock and bullet impact, thus presenting a great hazard to ships, aircraft, and personnel. This IMAD program will provide, validate, and transition technology for explosives, propellants, and ordnance to enable production of munitions insensitive to unplanned stimuli with no reduction to combat performance.

R-1 SHOPPING LIST - Item No. 55

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603609N/Conventional Munitions			PROJECT NUMBER AND NAME 1821/Conventional Fuzed Warhead Package				
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**13.059**	**13.558**	**8.661**	**9.050**	**12.592**	**12.897**	**13.241**
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This program provides for orderly planning, timely maturation, and effective transition of Navy 6.2 and 6.3A investments in ordnance technology to missile/weapon systems end item System Development and Demonstration (SD&D) phase development. It is the only Navy 6.3B RDT&E program that addresses improvements in warhead and fuze technology. It focuses on increasing effectiveness against current and emerging threats and is responsive to all mission areas -- anti-air, strike, defense suppression, theater defense, and ship defense. On-going projects make advanced fuze and warhead technology available to and reduce the time and risk for specific system development programs by performing three important functions: (1) identify technology advances with the most potential to improve generic warhead and fuze safety, reliability, and effectiveness; (2) mature the most promising technologies with a goal of achieving Technology Readiness Level 6, or preferably TRL 7, and (3) transition mature technology to specific cruise missile, surface-to-air missile, and land attack weapons system development programs. The program supports the full spectrum of missile advanced development and technology improvements and in future years will continue to provide the vehicle to address emergent requirements by transitioning mature development efforts into weapon systems with minimal technical and financial risk.

CLASSIFICATION: Unclassified

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROJECT NUMBER AND NAME 1821/Conventional Fuzed Warhead Package

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	7.825		
RDT&E Articles Quantity			

SM-2 Block llIB MK 45 MOD 14 TDD: FY 03: Completed advanced development

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.400	1.250	
RDT&E Articles Quantity			

Details held at a higher classification. For further information contact Ms. Melinda Busansky at 703-692-9433.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	2.593		
RDT&E Articles Quantity			

Advanced Warhead Technology Selection: FY 03: Incorporated results of Reactive Materials Enhanced Warhead FNC and continued warhead effectiveness analysis, end-game analysis, and multi-point initiator improvement

CLASSIFICATION: Unclassified

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROJECT NUMBER AND NAME 1821/Conventional Fuzed Warhead Package

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.000		
RDT&E Articles Quantity			

Micro-Electro-Mechanical System Safe and Arm Device: FY 03: Continued preliminary design risk reduction

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.241	0.821	0.433
RDT&E Articles Quantity			

Future Standard Missile Systems (FSMS) Studies: FY 03: Continued system engineering studies to support mid and far term strategic planning for warhead and fuze develpoment.
FY 04: Continue system engineering studies to support mid and far term strategic planning for warhead and fuze develpoment.
FY 05: Continue system engineering studies to support mid and far term strategic planning

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		11.487	8.228
RDT&E Articles Quantity			

Advanced Fuze Technology Development:
FY 04: Perform preliminary concept design review of Guidance Integrated Fuzing and MEMS Safe and Arm Device (SAD) technologies.
FY 05: Risk reduction, and other preparations for transitioning advance fuze technologies to System Development and Demonstration.

CLASSIFICATION: Unclassified

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603609N/Conventional Munitions	1821/Conventional Fuzed Warhead Package

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04 Pres Controls)	13.390	13.713	14.580
Current BES/President's Budget: (FY05 Pres Controls)	13.059	13.558	8.661
Total Adjustments	-0.331	-0.155	-5.919
Summary of Adjustments			
Issue 21506 Conventional Munitions			-5.000
BTR	-0.133		
SBIR/STTR Transfer	-0.154		
BSO Adj.	-0.044		
Economic Assumptions		-0.155	
MANPOWER			-0.865
Inflation Savings			-0.028
NWCF Rates			-0.026
Subtotal	-0.331	-0.155	-5.919

Schedule: Not Applicable

Technical: Not Applicable

R-1 SHOPPING LIST - Item No. 55

CLASSIFICATION: Unclassified

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603609N/Conventional Munitions	1821/Conventional Fuzed Warhead Package

D. OTHER PROGRAM FUNDING SUMMARY: Not Applicable

E. ACQUISITION STRATEGY: Not Applicable

F. MAJOR PERFORMERS:

Raytheon Company, Tucson, AZ; SM-2 Block IIIB MK 45 MOD 14 TDD development
NSWC Dahlgren, Dahlgren, VA; Advanced Warhead Technology Analysis;
NAWC China Lake

R-1 SHOPPING LIST - Item No. 55

CLASSIFICATION: Unclassified

Exhibit R-3 Cost Analysis (page 1)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603609N/Conventional Munitions				PROJECT NUMBER AND NAME 1821/Conventional Fuzed Warhead Package						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Design and Analysis	WR	NSWC Dahlgren	31.561	0.060	10/02	0.500	11/03	0.200	11/04	Continuing	Continuing	
	WR	NAWC China Lake	61.616	2.085	10/02	2.993	11/03	2.000	11/04	Continuing	Continuing	
	CPAF	Raytheon	14.053	4.952	10/02	1.700	11/03	2.944	11/04	Continuing	Continuing	
	PR	JHU/APL	1.889	1.128	10/02	3.945	11/03	1.500	11/04	Continuing	Continuing	
	RC	ONR	0.052	0.015						0.000	0.067	
	MIPR	MIT/LL	0.400							0.000	0.400	
	WR	SPAWAR	0.520							0.000	0.520	
	WR	NSWC Port Hueneme	0.147							0.000	0.147	
	WR	NSWC Indian Head	0.800			0.500	11/03	0.223	11/04	Continuing	Continuing	
	PD	Office of Special Projects	8.994	1.400	10/02	1.250	11/03			0.000	11.644	
Hardware Fabrication	WR	NSWC Dahlgren	6.257							0.000	6.257	
	WR	NAWC China Lake	8.683							0.000	8.683	
	CPAF	Raytheon	8.516							0.000	8.516	
	PD	Office of Special Projects	41.549							0.000	41.549	
Subtotal Product Development			185.037	9.640		10.888		6.867		Continuing	Continuing	

Remarks:

R-1 SHOPPING LIST - Item No. 55

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603609N/Conventional Munitions			PROJECT NUMBER AND NAME 1821/Conventional Fuzed Warhead Package						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC Dahlgren	12.987							0.000	12.987	
	WR	NAWC China Lake	15.582							0.000	15.582	
	WR	WSMR								0.000	0.000	
	CPAF	Raytheon								0.000	0.000	
	WR	NSWC Port Hueneme		0.762	10/02					0.000	0.762	
Subtotal T&E			28.569	0.762		0.000		0.000				
Remarks:												
Program Management Support	WR	NSWC Dahlgren	2.074							0.000	2.074	
	WR	NAWC China Lake	3.360							0.000	3.360	
	C/FPI	Various	3.092	2.632	11/02	2.645	11/03	1.769	11/04	Continuing	Continuing	
	RC	NSWC Indian Head	0.160							0.000	0.160	
Travel	PD	NAVSEA Travel	0.350	0.025		0.025		0.025		Continuing	Continuing	
Subtotal Management			9.036	2.657		2.670		1.794				
Remarks:												
Total Cost			222.642	13.059		13.558		8.661		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item 55

CLASSIFICATION: **Unclassified**

EXHIBIT R4, Schedule Profile: **NOT APPLICABLE**																																
																									DATE: **February 2004**							
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**									PROGRAM ELEMENT NUMBER AND NAME 0603609N/Conventional Munitions												PROJECT NUMBER AND NAME 1821/Conventional Fuzed Warhead Package											
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																																
Prototype Phase																																
Radar System Development																																
EDM Radar Delivery																																
Software 1XXSW Delivery 2XXSW Delivery																																
Test & Evaluation Milestones Development Test Operational Test																																
Production Milestones LRIP I FY 05 LRIPII FY 06 FRP FY 07																																
Deliveries																																

R-1 SHOPPING LIST - Item No. 55

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail: **NOT APPLICABLE**					DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603609N/Conventional Munitions				PROJECT NUMBER AND NAME 1821/Conventional Fuzed Warhead Package			
Schedule Profile		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Prototype Phase								
System Design Review (SDR)								
Milestone II (MSII)								
Contract Preparation								
Software Specification Review (SSR)								
Preliminary Design Review (PDR)								
System Development								
Critical Design Review (CDR)								
Quality Design and Build								
Test Readiness Review (TRR)								
Developmental Testing (DT-IIA)								
Eng Dev Model (EDM) Radar Delivery - Lab								
Software Delivery 1XXSW								
Preproduction Readiness Review (PRR)								
EDM Radar Delivery - Flt Related								
Milestone C (MS C)								
Operational Testing (OT-IIA)								
Start Low-Rate Initial Production I (LRIP I)								
Software Delivery 2XXSW								
Developmental Testing (DT-IIB1)								
Developmental Testing (DT-IIB2)								
Start Low-Rate Initial Production II								
Operational Testing (OT-IIB)								
Developmental Testing (DT-IIC)								
Functional Configuration Audit (FCA)								
Low-Rate Initial Production I Delivery								
Technical Evaluation (TECHEVAL)								
Physical Configuration Audit								
Operational Evaluation (OT-IIC) (OPEVAL)								
Low-Rate Initail Production II Delivery								
IOC								
Full Rate Production (FRP) Decision								
Full Rate Production Start								
First Deployment								

R-1 SHOPPING LIST - Item No. 55

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA - 4**	PROGRAM ELEMENT NUMBER AND NAME 0603609N Conventional Munitions			PROJECT NUMBER AND NAME 2299 Non-Nuclear Expendable Ordnance (NNEO)				
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**0.914**	**25.486**	**25.490**	**25.140**	**10.225**	**10.180**	**10.178**
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This budget item addresses improvements to Navy surface launched (2T) Non-Nuclear Expendable Ordnance (NNEO) outside existing operational capabilities. The commodities comprising 2T NNEO are : Major and medium caliber gun ammunition, small arms ammunition, other ship gun ammunition, pyrotechnics, and demolition items. There are no other RDT&E budget items supporting the 2T NNEO program. This project currently supports the Guidance Integrated Fuze (GIF) demonstration and incremental development program, Multi-Function Fuze (MFF) and Extended Range Propelling Charge. These items will be used with 5" caliber gun ammunition. GIF is a "smart fuze", conforming to DoD and NATO interface requirements, that can be retrofitted on all 105mm, 5" and 155mm projectiles. While retaining all necessary conventional fuzing functions, GIF will provide GPS accuracy to the entire inventory of conventional projectiles. Multi-Function Fuze program is nearing completion, and provides performance, safety and logisitcs enhancements to the existing inventory of Navy Conventional Fuzes. Extended Range Propelling Charge program will incorporate new technology into the production of an extended range propelling charge, increasing the range of 5" conventional ammunition in the 5"/62 caliber gun to 20 nautical miles.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA - 4	0603609N Conventional Munitions	2299 Non-Nuclear Expendable Ordnance (NNEO)

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.914	0.328	0.000
RDT&E Articles Quantity				

Completed failure analysis of MFF first article and made minor design changes. OPEVAL planned for completion 4th quarter FY 04.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	0.436	0.769
RDT&E Articles Quantity				

This program will incorporate new technology into production of an extended range propelling charge (20 nautical miles), improving producibility and performance.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	24.722	24.721
RDT&E Articles Quantity				

This project currently supports the Guidance Integrated Fuze (GIF) demonstration and incremental development program. GIF is a "smart fuze", conforming to DoD and NATO interface requirements, that can be retrofitted on all 105mm, 5" and 155mm projectiles. While retaining all necessary conventional fuzing functions, GIF will provide GPS accuracy to the entire inventory of conventional projectiles.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA - 4	0603609N Conventional Munitions	2299 Non-Nuclear Expendable Ordnance (NNEO)

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04 Pres Controls)	0.916	25.773	25.778
Current BES/President's Budget: (FY04/05 PRESBUD Controls)	0.914	25.486	25.490
Total Adjustments	-0.002	-0.287	-0.288
Summary of Adjustments			
BSO Adjustments	-0.002		
Economic Ammumptions		-0.287	
Inlfation			-0.082
WCF Rates			-0.206
Subtotal	-0.002	-0.287	-0.288

Schedule:

Not Applicable

Technical:

Not Applicable

R-1 SHOPPING LIST - Item No. 55

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603609N Conventional Munitions	2299 Non-Nuclear Expendable Ordnance (NNEO)

D. OTHER PROGRAM FUNDING SUMMARY:

Related RDT&E: PE 0603795 Naval Surface Fire Support

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
BLIN 025000 5"/54 Ammunition	0	0.7	0.7	0	0	0	0	N/A	N/A

E. ACQUISITION STRATEGY: *

-Award 5-Year (Multi-Option) Contract for MFF.
-Award single year competitive contract for Extended Range Propelling Charge.
-Award two contracts for developing the GIF baseline design for high rate, low cost production. Evaluate 10 fuzes from each contractor in laboratory and simulated gun launch conditions to assess guidance, navigation and control features, conventional fuzing functions and shock survivability. Formally document all design and test data and provide to both contractors. Complete two additional design-build-test cyclces, resulting in each contractor providing 25 and 100 fuzes for government evaluation. Peform the full spectrum of laboratory, simulation and gun launch tests to determine the best design. Award 1,250 fuze option to one contractor.

F. MAJOR PERFORMERS: **

MFF: Contractor - Alliant Tech Systems (ATK), Janesville, WI - Awarded July 99
Gov't - Naval Surface Warfare Center, Dahlgren Division, Dahlgren, VA
Extended Range Propelling Charge: Gov't - Naval Surface Warfare Center, Indian Head Division, Indian Head, MD
Guidance integrated Fuzing - Contractor - unknown at this time, TBD
Gov't - Naval Surface Warfare Center, Dahlgren Division, Dahlgren, Virginia
Army Research, Development & Engineering Center (ARDEC), Picatinney Arsenal, Picatinney, NJ

*** Not required for Budget Activities 1,2,3, and 6**
**** Required for DON and OSD submit only.**

Exhibit R-3 Cost Analysis (page 1)

DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA 4**

PROGRAM ELEMENT: 0603609N Conventional Munitions

PROJECT NUMBER AND NAME: 2299 Non-Nuclear Expendable Ordnance (NNEO)

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s 99/02 Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	NSWC Dahlgren	1.933								1.933	
	C/CPFF	ALLIANT	1.054								1.054	
	SS/CPFF	MOTOROLA	0.336								0.336	
	WR	NSWC Indian Head	0.600			0.436	Nov-03	0.439	Oct-04	Continuing	Continuing	
	CPFF	GIF Contractor 1				9.991	Nov-03	11.723	Mar-05	Continuing	Continuing	
	CPFF	GIF Contractor 2				9.991	Nov-03	2.338	Mar-05	Continuing	Continuing	
Ancillary Hardware Development											0.000	
Component Development											0.000	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering											0.000	
Training Development											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			3.923	0.000		20.418		14.500		0.000	Continuing	

Remarks:

Development Support	WR	NSWC Dahlgren				0.500	Nov-03	0.350	Oct-04	Continuing	Continuing	
Software Development	WR	NSWC Dahlgren				0.275	Nov-03	0.200	Oct-04	Continuing	Continuing	
Training Development	WR	NSWC Dahlgren						0.125	Oct-04	Continuing	Continuing	
Training Development	MIPR	ARDEC						0.350	Oct-04	Continuing	Continuing	
Integrated Logistics Support	WR	NSWC Dahlgren						0.175	Oct-04	Continuing	Continuing	
Integrated Logistics Support	MIPR	ARDEC						0.480	Oct-04	Continuing	Continuing	
Configuration Management	WR	NSWC Dahlgren				0.350	Nov-03	0.400	Oct-04	Continuing	Continuing	
Contract Support	WR	NSWC Dahlgren				0.150	Nov-03	0.350	Oct-04	Continuing	Continuing	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		1.275		2.430		0.000	Continuing	

Remarks:

Exhibit R-3 Cost Analysis (page 2) | DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA - 4** | PROGRAM ELEMENT: 0603609N Conventional Munitions | PROJECT NUMBER AND NAME: 2299 Non-Nuclear Expendable Ordnance (NNEO)

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s 99/02 Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC Dahlgren	0.528			0.780	Nov-03	1.630	Oct-04	Continuing	Continuing	
	WR	NSWC China Lake	0.200								0.200	
	WR	ARL				0.300	Nov-03	.		Continuing	Continuing	
Operational Test & Evaluation	WR	COMOPTEVFOR	0.200			0.200	Nov-03	0.330	Oct-04	Continuing	Continuing	
	WR	NSWC Dahlgren				0.128	Nov-03			Continuing	Continuing	
	MIPR	ARDEC						0.950	Oct-04	Continuing	Continuing	
Live Fire Test & Evaluation											0.000	
Test Assets	C/CPFF	ALLIANT		0.361	Feb-03						0.361	
	WR	NSWC Indian Head						0.400	Oct-04	Continuing	Continuing	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.928	0.361		1.408		3.310		0.000	Continuing	

Remarks:

Contractor Engineering Support	FP	EDO	0.032								0.032	
	C/CPFF	ALLIANT		0.113	Feb-03						0.113	
	FP	Various				0.200	Nov-03	0.600	Oct-04	Continuing	Continuing	
Government Engineering Support	WR	NSWC Dahlgren	0.293	0.440	Oct-02	1.235	Oct-03	3.100	Oct-04	Continuing	Continuing	
Government Engineering Support	MIPR	ARDEC/ARL				0.400	Nov-03	0.600	Oct-04	Continuing	Continuing	
Program Management Support	WR	NSWC Dahlgren	0.093			0.350	Nov-03	0.650	Oct-04	Continuing	Continuing	
Program Management Support	MIPR	ARDEC				0.200	Nov-03	0.300	Oct-04	Continuing	Continuing	
Travel	WR	NSWC Dahlgren	0.020								0.020	
Labor (Research Personnel)											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.438	0.553		2.385		5.250		0.000	Continuing	

Remarks:

Total Cost			5.289	0.914		25.486		25.490		0.000	Continuing	

Remarks:

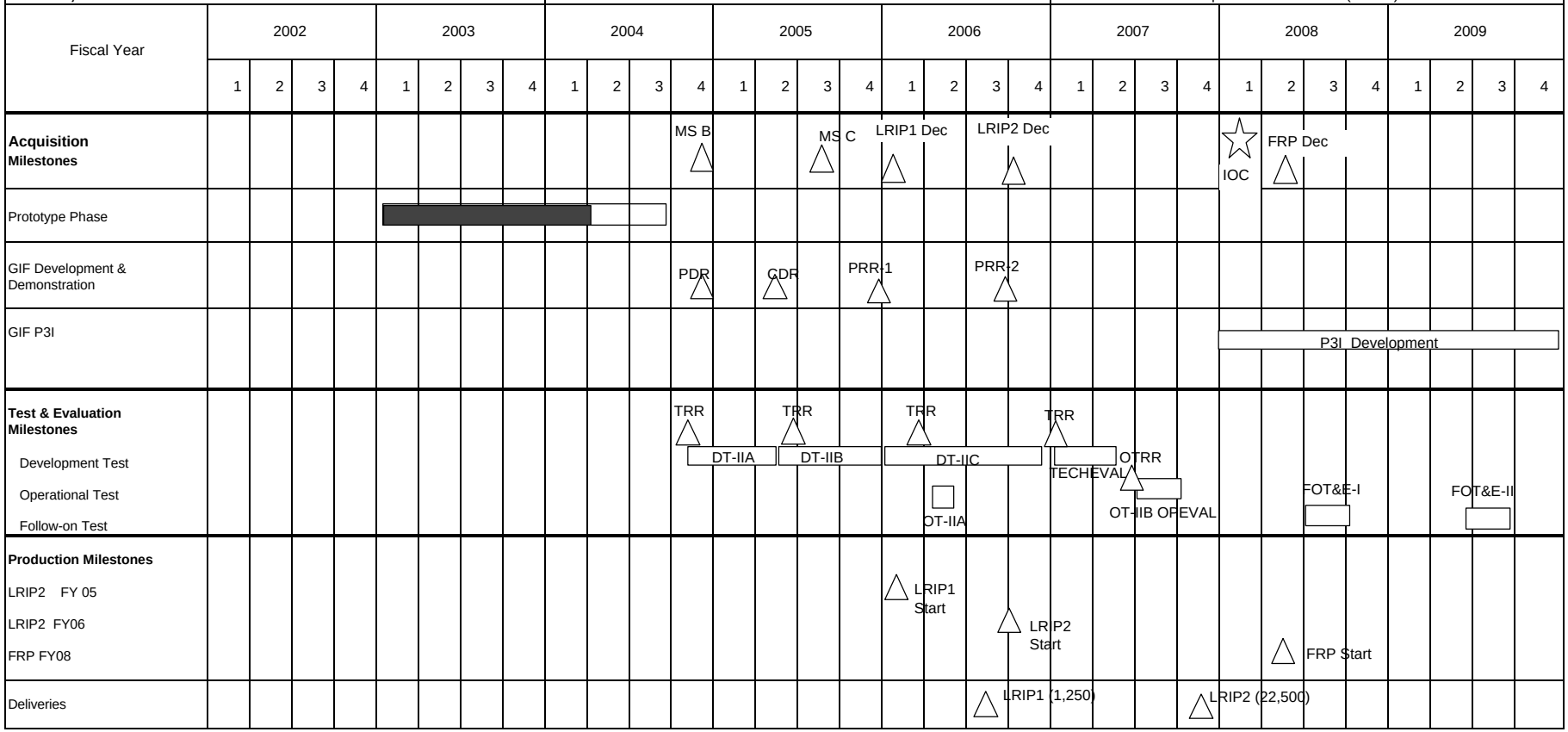
CLASSIFICATION:

EXHIBIT R4, Schedule Profile — DATE: **February 2004**

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

PROGRAM ELEMENT NUMBER AND NAME: 0603609N Conventional Munitions

PROJECT NUMBER AND NAME: 2299 Non-Nuclear Expendable Ordnance (NNEO)



R-1 SHOPPING LIST - Item No. 55

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E BA-5**	PROGRAM ELEMENT 0603609N Conventional Munitions				PROJECT NUMBER AND NAME 2299 Non-Nuclear Expendable Ordnance (NNEO)			
Schedule Profile		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Prototype Phase		1Q-4Q	1Q-3Q04					
Milestone B			4Q04					
Preliminary Design Review (PDR)			4Q04					
Test Readiness Review (TRR)			4Q04					
Developmental Test (DT-IIA)			4Q04					
Critical Design Review (CDR)				2Q05				
Test Readiness Review (TRR)				2Q05				
Developmental Test (DT-IIB)				2Q05				
Milestone C				3Q05				
Production Readiness Review (PRR-1)				4Q05				
LRIP1 Decision					1Q06			
LRIP1 Sart					1Q06			
Test Readiness Review (TRR)					1Q06			
Developmental Test (DT-IIC)					1Q06			
Operational Testing (OT-IIA)					2Q06			
LRIP1 Delivery					3Q06			
Production Readiness Review (PRR-2)					3Q06			
LRIP2 Decision					4Q06			
LRIP 2 Start					4Q06			
Test Readiness Review (TRR)						1Q07		
TECHEVAL						1Q07		
Operational Test Readiness Review (OTRR)						2Q07		
OPEVAL						3Q07		
LRIP 2 Delivery						4Q07		
Initial Operational Capability (IOC)							1Q08	
P3I Development Start							1Q08	
Full Rate Production (FRP) Decision							2Q08	
FRP Start							2Q08	
FOT&E1							3Q08	
FOT&E2								3Q09

R-1 SHOPPING LIST - Item No. 55

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603609N/Conventional Munitions			PROJECT NUMBER AND NAME 0363/Insensitive Munitions Advanced Development				
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**3.640**	**3.019**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Most Navy munitions react violently when exposed to unplanned stimuli such as fire, shock and bullet impact, thus presenting a great hazard to ships, aircraft and personnel. This program will provide, validate and transition technology to all new weapon developments and priority weapon systems and enable production of munitions insensitive to these stimuli with no reduction in combat performance. The Insensitive Munitions Advanced Development (IMAD) Program is the Navy's focused effort on propellants, propulsion units, explosives, warheads, fuses and pyrotechnics to reduce the severity of cook-off and bullet/fragment impact reactions, minimizing the probability for sympathetic detonation, both in normal storage and in use, increasing ship survivability and satisfying performance and readiness requirements. Each technology area is divided into subtasks addressing specific munition/munition class IMAD deficiencies. Energetic materials producibility is demonstrated to assure national capability to produce and load munitions systems. The program is being closely coordinated with other Military Departments, NATO and allied countries to eliminate redundant efforts and maximize efficiency. A joint service IMAD requirement has been developed. Insensitive munitions are identified as a DoD critical technology requirement and considered as part of a weapon design per DoD 5000.2R.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603609N/Conventional Munitions	0363/Insensitive Munitions Advanced Development

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.237	1.154	0.000
RDT&E Articles Quantity			

Continue validation and assessment of weapon systems POA&M's for IMAD compliance. Continue compilation and analysis of weapon system, energetic material and generic technology IMAD test data.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.905	0.703	0.000
RDT&E Articles Quantity			

Demonstrate high explosives that show improved IMAD characteristics while maintaining or improving operational performance. Complete qualification of internal blast explosive. Continue evaluation of pressed and cast metal accelerating explosives. Plan to complete qualification of high performance booster explosive to weapons systems. Begin qualification of best candidate metal accelerating explosive.
Accomplishments: Demonstrated high explosives that show improved IMAD characteristics while maintaining or improving operational performance. Completed qualification of internal blast explosive. Continued evaluation of pressed metal accelerating explosives. Began qualification high performance booster explosive to weapons systems.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.048	0.035	0.000
RDT&E Articles Quantity			

Evaluate ordnance and container concepts. Continue modeling applications that reduce and enhance IMAD warhead design.

R-1 SHOPPING LIST - Item No. 55

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603609N/Conventional Munitions	0363/Insensitive Munitions Advanced Development

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.450	1.127	0.000
RDT&E Articles Quantity			

Evaluate and demonstrate IMAD propellants and propulsion systems which provide improved or comparable performance to in-service systems and better IMAD characteristics. Combine candidate IMAD propellants and case concepts to demonstrate compliance with IMAD and performance requirements. Demonstrate an insensitive multi-mission, high performance rocket motor. Evaluate options for minimum smoke propellants for shoulder launched applications.

Accomplishments: Evaluated and demonstrated IMAD propellants and propulsion systems which provide improved or comparable performance to in-service systems and better IMAD characteristics. Combined candidate IMAD propellants and case concepts to demonstrate compliance with IMAD and performance requirements.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603609N/Conventional Munitions	0363/Insensitive Munitions Advanced Development

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04 Pres Controls)	3.682	3.053	3.103
Current BES/President's Budget: (FY05 Pres Controls)	3.640	3.019	0.000
Total Adjustments	-0.042	-0.034	-3.103

Summary of Adjustments

ISSUE 21461 cuts Insensitive Munitions funding to -0- in FY 05

SBIR	-0.033		
BSO Adjustments	-0.009		
Economic Assumptions		-0.034	
Reprogramming			-3.103
Subtotal	-0.042		

Schedule:

NOT APPLICABLE

Technical:

NOT APPLICABLE

R-1 SHOPPING LIST - Item No. 55

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603609N/Conventional Munitions	0363/Insensitive Munitions Advanced Development

D. OTHER PROGRAM FUNDING SUMMARY: NOT APPLICABLE

E. ACQUISITION STRATEGY:

NOT APPLICABLE

F. MAJOR PERFORMERS:

NAWC WPN DIV/China Lake - Propulsion Development and Evaluation	11/03
NOSSA/Indian Head - Program Management and Explosive Development	11/03

R-1 SHOPPING LIST - Item No. 55

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **FEBRUARY 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603609N/Conventional Munitions				PROJECT NUMBER AND NAME 0363/Insensitive Munitions Advanced Development						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Propulsion Dev. And Eval.	WX	NAWC WPN DIV/China Lake	83.931	1.492	11/02	1.127	11/03	0.000	NA	0.000	86.550	NA
	RCP	NAWC WPN DIV/China Lake	10.250	0.000	NA	0.000	NA	0.000	NA	0.000	10.250	NA
Explosives Dev. And Eval.	WX	NSWC/Indian Head Div.	68.334	0.898	11/02	0.693	11/03	0.000	NA	0.000	69.925	NA
Ordnance Dev. And Eval.	WX	NSWC/Dahlgren Div.	19.338	0.048	11/02	0.035	11/03	0.000	NA	0.000	19.421	NA
Pyrotechnic Dev. And Eval.	WX	NSWC/Crane Div.	6.553	0.007	11/02	0.010	11/03	0.000	NA	0.000	6.570	NA
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			188.406	2.445		1.865		0.000		0.000	192.716	NA
Remarks:												
Development Support											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

R-1 SHOPPING LIST - Item No. 55

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **FEBRUARY 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603609N/Conventional Munitions			PROJECT NUMBER AND NAME 0363/Insensitive Munitions Advanced Development						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support											0.000	
Program Management Support	WX	NSWC/Indian Head Div.	29.926	0.000	NA	0.000	NA	0.000	NA	0.000	29.926	NA
Program Management Support	WX	NOSSA	0.291	1.161	11/02	1.154	11/03	0.000	NA	0.000	2.606	NA
Travel	WX	NOSSA	0.348	0.034	11/02	0.000	01/00	0.000	NA	0.000	0.382	NA
Labor (Research Personnel)											0.000	
SBIR Assessment											0.000	
Subtotal Management			30.565	1.195		1.154		0.000		0.000	32.914	NA
Remarks:												
Total Cost			218.971	3.640		3.019		0.000		0.000	225.630	NA
Remarks:												

R-1 SHOPPING LIST - Item No. 55

CLASSIFICATION:

EXHIBIT R4, Schedule Profile: **NOT APPLICABLE**																																
																														DATE: **FEBRUARY 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**									PROGRAM ELEMENT NUMBER AND NAME 0603609N/Conventional Munitions														PROJECT NUMBER AND NAME 0363/Insensitive Munitions Advanced Development											
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																																
Prototype Phase																																
Radar System Development																																
EDM Radar Delivery																																
Software 1XXSW Delivery 2XXSW Delivery				SSR																												
Test & Evaluation Milestones																																
Development Test																																
Operational Test																																
Production Milestones																																
LRIP I FY 05																																
LRIPII FY 06																																
FRP FY 07																																
Deliveries																																

R-1 SHOPPING LIST - Item No. 55

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail: **NOT APPLICABLE**					DATE: **FEBRUARY 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603609N/Conventional Munitions				PROJECT NUMBER AND NAME 0363/Insensitive Munitions Advanced Development			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Prototype Phase								
System Design Review (SDR)								
Milestone II (MSII)								
Contract Preparation								
Software Specification Review (SSR)								
Preliminary Design Review (PDR)								
System Development								
Critical Design Review (CDR)								
Quality Design and Build								
Test Readiness Review (TRR)								
Developmental Testing (DT-IIA)								
Eng Dev Model (EDM) Radar Delivery - Lab								
Software Delivery 1XXSW								
Preproduction Readiness Review (PRR)								
EDM Radar Delivery - Flt Related								
Milestone C (MS C)								
Operational Testing (OT-IIA)								
Start Low-Rate Initial Production I (LRIP I)								
Software Delivery 2XXSW								
Developmental Testing (DT-IIB1)								
Developmental Testing (DT-IIB2)								
Start Low-Rate Initial Production II								
Operational Testing (OT-IIB)								
Developmental Testing (DT-IIC)								
Functional Configuration Audit (FCA)								
Low-Rate Initial Production I Delivery								
Technical Evaluation (TECHEVAL)								
Physical Configuration Audit								
Operational Evaluation (OT-IIC) (OPEVAL)								
Low-Rate Initail Production II Delivery								
IOC								
Full Rate Production (FRP) Decision								
Full Rate Production Start								
First Deployment								

R-1 SHOPPING LIST - Item No. 55

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: FEBRUARY 2004		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Advanced Component Dev. and Prototypes**		PROGRAM ELEMENT NUMBER AND NAME **0603611M Marine Corps Assault Vehicles**				PROJECT NUMBER AND NAME: **B0020 Expeditionary Fighting Vehicle (EFV)**				
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
B0020 EXPEDITIONARY FIGHTING VEHICLE (EFV)		**263.299**	**237.893**	**236.969**	**181.755**	**161.571**	**69.899**	**12.627**	**Cont**	**Cont**
Quantity of RDT&E Articles		5	4							

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Expeditionary Fighting Vehicle (EFV) Program will field a successor to the Marine Corps' current amphibious vehicle, the Assault Amphibious Vehicle Model 7A1 (AAV7A1). The EFV will provide the principal means of tactical surface mobility for the Marine Air Group Task Force (MAGTF) during both ship-to-objective maneuvers and sustained combat operations ashore as part of the Navy and Marine Corps concepts within the Expeditionary Maneuver Warfare capstone. The EFV will provide the Marine Corps with the capability to execute the full spectrum of military missions from humanitarian operations to conventional combat operations. The EFV replaces the AAV7A1 Vehicle, which was originally fielded in the early 1970s. The EFV is a self-deploying, high-water speed, amphibious, armored, tracked vehicle capable of operating in all weather as well as Nuclear, Biological, and Chemical (NBC) environments.

The EFV program is the only ACAT-1D program managed by the Marine Corps. The EFV is the next generation of Marine Corps Assault Vehicles being developed to satisfy the requirements of the 21st Century Marine Warfighters. Along with the Landing Craft Air Cushion (LCAC) and the MV-22 Osprey, the EFV will provide the Marine Corps with the tactical mobility assets required to spearhead the concepts within the Expeditionary Maneuver Warfare capstone. Acquisition of the EFV is critical to the Marine Corps. The total EFV requirement is for 1,013 weapon systems. The EFV program remains the Marine Corps number one priority ground system acquisition.

The program received approval to enter the Systems Development and Demonstration (SDD) Phase (formerly Engineering and Manufacturing Development) of the acquisition process during the Milestone II Defense Acquisition Board Readiness Meeting held on 26 November 2000. All program exit criteria were successfully met or exceeded. The SDD Phase (2001 through 2007) will include validation of manufacturing and production processes, fabrication and testing of SDD vehicles, and finalizing and implementing the Life Cycle Management for EFV.

(U) B. ACCOMPLISHMENTS/PLANNED PROGRAM:

COST ($ in Millions)			**FY2003**	**FY2004**	**FY2005**
Accomplishment/Effort Subtotal Cost			**245.146**	**199.110**	**196.561**
RDT&E Articles Qty			**5**	**4**	

(U) Fabrication of SDD phase prototypes. Design development. Developmental Testing. Survivability Program. SDD prototype shakedown testing.

FY03: Initiate contractor/government shakedown testing of SDD prototypes. Continue design development, manufacturing planning, and producibility design enhancements of the EFV(P) and EFV(C) designs. Continue the EFV survivability program. Continue fabrication and start delivery of SDD prototypes.

FY04: Continue design development, manufacturing planning, and producibility design enhancements of the EFV(P) and EFV(C) designs. Continue the EFV survivability program. Continue/complete fabrication and delivery of SDD prototypes.

FY05: Continue design development, manufacturing planning, and producibility design enhancements of the EFV(P) and EFV(C) designs. Continue the EFV survivability program. Complete fabrication and delivery of SDD prototypes.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Advanced Component Dev. and Prototypes**	PROGRAM ELEMENT NUMBER AND NAME **0603611M Marine Corps Assault Vehicles**	PROJECT NUMBER AND NAME: **B0020 Expeditionary Fighting Vehicle (EFV)**	

COST ($ in Millions)		FY2003	FY2004	FY2005
Accomplishment/Effort Subtotal Cost		**2.560**	**4.930**	**5.338**
RDT&E Articles Qty				

(U) Continue to provide in-house technical support.

COST ($ in Millions)		FY2003	FY2004	FY2005
Accomplishment/Effort Subtotal Cost		**7.865**	**5.368**	**4.891**
RDT&E Articles Qty				

(U) Continue to provide program support to coordinate and update program planning, program analysis, and program execution.

COST ($ in Millions)		FY2003	FY2004	FY2005
Accomplishment/Effort Subtotal Cost		**0.628**	**8.385**	**11.479**
RDT&E Articles Qty				

(U) Develop training courseware, devices and simulators.

FY03: Continue development of EFV training courseware.

FY04: Initiate development of EFV training devices/simulators. Continue development of EFV training courseware.

FY05: Continue development of EFV training devices/simulators. Continue/Complete development of EFV training courseware.

COST ($ in Millions)		FY2003	FY2004	FY2005
Accomplishment/Effort Subtotal Cost		**7.100**	**20.100**	**18.700**
RDT&E Articles Qty				

(U) Ballistic Vulnerability testing. RAM-D testing. EOA.

FY03: Initiate DT of SDD prototypes. Initiate Lethality Testing of MK-46 weapon station.

FY04: Initiate Ballistic Vulnerability Testing. Continue DT of SDD prototypes. Continue Lethality Testing of MK-46 weapon station.

FY05: Complete Ballistic Vulnerability Testing. Continue DT of SDD prototypes. Conduct Operational Testing. Complete Lethality Testing of MK-46 weapon station.

		FY2003	FY2004	FY2005
(U) Total $		**263.299**	**237.893**	**236.969**

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: FEBRUARY 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Advanced Component Dev. and Prototypes**	PROGRAM ELEMENT NUMBER AND NAME **0603611M Marine Corps Assault Vehicles**	PROJECT NUMBER AND NAME: **B0020 Expeditionary Fighting Vehicle (EFV)**

(U) PROJECT CHANGE SUMMARY:

	FY2003	FY 2004	FY 2005
(U) FY 2004 President's Budget:	272.092	240.695	237.819
(U) Adjustments from the President's Budget:			
(U) Congressional Program Reductions	-6.512	-2.802	
(U) Congressional Rescissions			
(U) Congressional Increases	4.675		
(U) Inflation/Pricing Adjustments			-0.850
(U) SBIR/STTR Transfer	-6.956		
(U) Program Adjustment			
(U) FY 2005 President's Budget:	263.299	237.893	236.969

CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 2003 reflects a decrease of $6.956M for SBIR, Congressional pro-rata reductions of $6.512, and a Congressional increase of $4.675M. FY 2004 reflects Congressional pro-rata reductions of $2.802M. FY 2005 reflects inflation reductions and NWCF pricing adjustments of $850K.

(U) Schedule: EFV program schedule is adjusted to add one year to accommodate robust Operational Testing necessary for a successful MS C, Low Rate Initial Production

(U) Technical: Not Applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY 2009	To Compl	Total Cost
(U) PANMC, BLI #147500, EFV	-	-	2.474	5.755	9.402	28.243	14.410	614.152	674.436
(U) PMC BA2, BLI #202200, EFV	16.490	97.195	67.701	239.724	267.046	545.828	831.726	6,180.522	8,246.232
(U) PMC BA7 (Spares), BLI (NA), EFV	0.501	-	-	9.076	9.568	19.421	29.483	247.599	315.648
(U) PMC, EFV Totals	16.991	97.195	67.701	248.800	276.614	565.249	861.209	6,428.121	8,561.880
(U) MILCON P-038	28.344	-	-	-	-	-	-	-	28.344
(U) MILCON P-042	-	-	-	-	10.647	-	-	-	10.647
(U) MILCON P-041	-	-	-	-	3.177	-	-	-	3.177
(U) MILCON P-1010	-	-	-	-	-	-	-	7.182	7.182
(U) REMAINING EFV MCON	-	-	-	-	-	-	-	31.807	31.807
(U) MILCON, EFV Totals	28.344	0.000	0.000	0.000	13.824	0.000	0.000	38.989	81.157

(U) Related RDT&E: Not Applicable.

(U) PE 0206623M (Marine Corps Ground Combat/Supporting Arms Systems), Project C0021, AAV7A1.

(U) PE 0206623M (Marine Corps Ground Combat/Supporting Arms Systems), Project B2237, AVTD.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: FEBRUARY 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Advanced Component Dev. and Prototypes**	PROGRAM ELEMENT NUMBER AND NAME **0603611M Marine Corps Assault Vehicles**	PROJECT NUMBER AND NAME: **B0020 Expeditionary Fighting Vehicle (EFV)**

(U) D. ACQUISITION STRATEGY:

The EFV Program acquisition strategy includes the extensive use of test assets, models, simulation, and advanced technology research to optimize vehicle design, reduce Total Ownership Cost (TOC), vehicle unit cost, and add flexibility to the program schedule. Three fully functional PDRR prototypes were developed and have undergone extensive developmental testing to further vehicle maturity. During the SDD phase of the program, nine prototype vehicles will be manufactured and tested extensively in developmental and operational tests. A tenth vehicle will be manufactured for use during Full Up System Level Lethality testing planned to begin in FY06. Following the LRIP decision review, LRIP vehicles will be delivered in FY07 and FY08 for use during Initial Operational Test and Evaluation (IOT&E). Initial Operational Capability (IOC) and Full Operational Capability (FOC) will occur in FY08 and FY18, respectively.

The EFV management strategy is event driven, designed to ensure a logical progression through the EFV acquisition to reduce risk, ensure affordability, and provide adequate information to decision makers regarding acquisition progress. The EFV Program team is a partnership of government and industry experts, committed to developing the most versatile combat vehicle, providing the optimum balance of combat effectiveness, affordability, innovation, and technology. The program Integrated Product Teams (IPTs), composed of contractors, sub-contractors, Marines, and government civilians, are the foundation of the EFV acquisition management process. The government, prime contractor, and major subcontractors are co-located in a highly integrated communication environment that facilitates proactive decision-making processes and flexible execution of plans to support these teams and product development.

Cost as an Independent Variable (CAIV) has been institutionalized throughout the program and as such is an integral consideration in all trade studies and decisions. The program has had a highly integrated and extensive test approach since its inception which has included a very strong engineering-model and prototype testing program supported by extensive modeling and simulation techniques which is intended to continue throughout System Development and Demonstration (SDD). As a Program Management Oversight for Life Cycle Support pilot program, the program office management strategy includes planning for life cycle support once the system is fielded to more efficiently manage and optimize operating and support requirements and reduce overall program cost.

The program's contracting approach for the EFV is to award the vast majority of the work to one prime contractor, competitively selected in 1996. General Dynamics Land Systems (GDLS) operating through its division General Dynamics Amphibious Systems (GDAMS) will be responsible for designing and producing the vehicle and providing support for testing from Prototype Development and Risk Reduction (PDRR) through LRIP. Contracts for Government Furnished Property will be kept to a minimum and will include only property which could not otherwise be available to the contractor. Local Area Network support contract is currently provided by an 8(a) firm. Contract support for programmatic and technical support was competitively awarded in September 2003 as a cost plus fixed-fee contract and will continue through FY08. The Life Cycle Support Contract is scheduled for award during FY06 for a portion of the initial operations and maintenance support for the fielded EFVs.

(U) E. MAJOR PERFORMERS:

FY 03-07 - General Dynamics, Woodbridge, VA. Validation of manufacturing and production processes, fabrication and testing of SDD vehicles, and finalizing and implementing Life Cycle Management. Awarded Feb 01.

CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: FEBRUARY 2004				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-4 Advanced Component Development and Prototypes			PROGRAM ELEMENT NUMBER AND NAME 0603611M Marine Corps Assault Vehicles					PROJECT NUMBER AND NAME B0020 Expeditionary Fighting Vehicle (EFV)				
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
PDRR Contract	CPAF	GDLS - PDRR Award	399.703							Cont	Cont	400.000
SDD Contract	CPAF	GDLS - SDD Award	257.945	245.146	1/	199.110	1/	196.561	1/	Cont	Cont	865.445
Subtotal Program Dev Spt			657.648	245.146		199.110		196.561		Cont	Cont	

Remarks:

1/ The SDD contract was definitized in July 2001. The SDD contract is for the entire SDD effort and is incrementally funded. Target value does not include the program restructure.

Cost Categories (Tailor to WBS, or System/Iter Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Program Support		EG&G, Manassas, VA	18.357	4.899	2/					Cont	Cont	24.000
Program Support		EG&G, Manassas, VA				3.353	3/	3.845	3/	Cont	Cont	18.226
Program Support		Various Government Contracts	12.621	2.966	4/	2.015	4/	1.046	4/	Cont	Cont	
Training devices/simulators		Various Government Contracts	0.800	0.628	4/	8.385	4/	11.479	4/	Cont	Cont	
Subtotal Program Support			31.778	8.493		13.753		16.370		Cont	Cont	

2/ EG&G contract (FFP with options) was awarded August 1998 and was completed in September 2003.
3/ EG&G contract (CPFF) was awarded in September 2003 for contract performance through FY08.
4/ Various contract award dates.

Cost Categories (Tailor to WBS, or System/Iter Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Testing		Various Locations	15.431	7.100	4/	20.100	4/	18.700	4/	Cont	Cont	
Subtotal T&E			15.431	7.100		20.100		18.700		Cont	Cont	

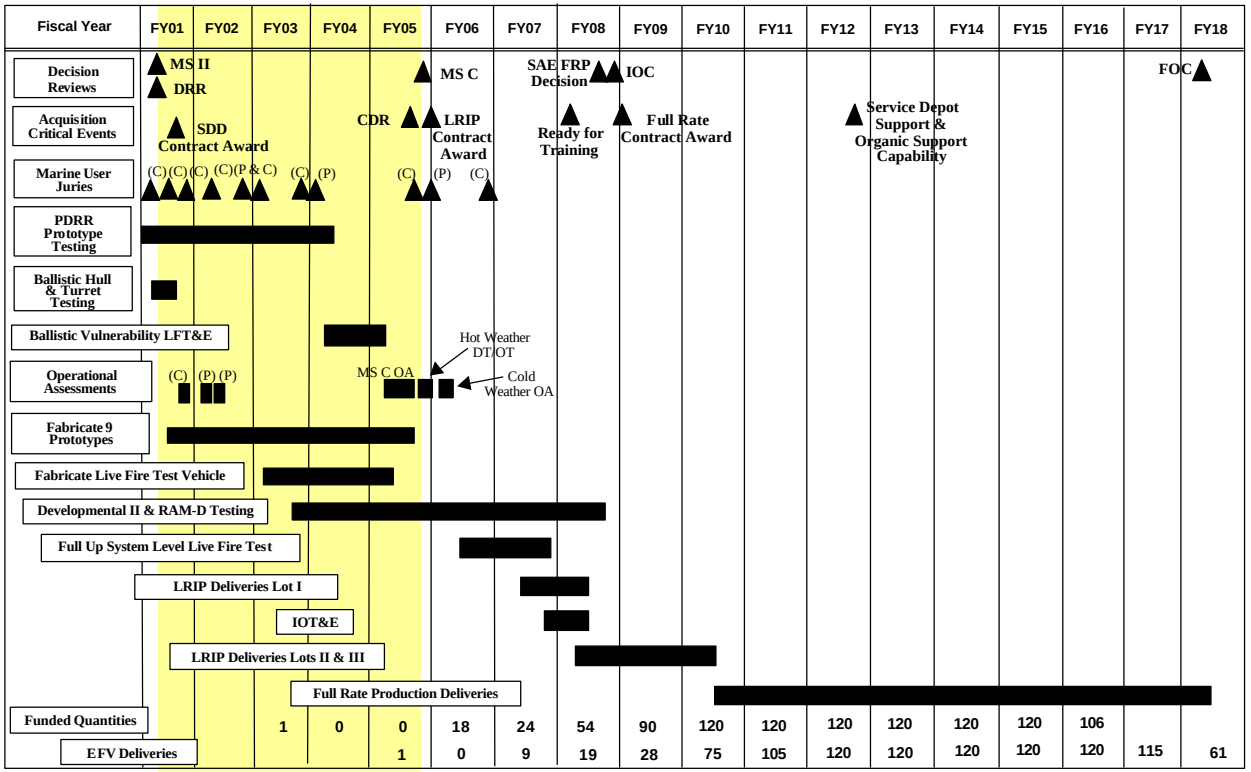
Remarks:

4/ Various contract award dates.

CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: FEBRUARY 2004				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-4 Advanced Component Development and Prototypes			PROGRAM ELEMENT NUMBER AND NAME 0603611M Marine Corps Assault Vehicles					PROJECT NUMBER AND NAME B0020 Expeditionary Fighting Vehicle (EFV)				
Cost Categories (Tailor to WBS, or System/Iter Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
In-house technical support		Various Government Labs	73.905	0.599	4/	3.684	4/	4.024	4/	Cont	Cont	
Mgmt & Prof Support		MITRE CORP, McClean, VA	7.739	1.961	1Q	1.246	1Q	1.314	1Q	Cont	Cont	
Subtotal Management			81.644	2.560		4.930		5.338		Cont	Cont	
Remarks: 4/ Various contract award dates.												
Total Cost			786.501	263.299		237.893		236.969		Cont	Cont	

Exhibit R-4/4a Schedule Profile/Detail		DATE: FEBRUARY 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-4 Advanced Component Development and Prototypes	0603611M Marine Corps Assault Vehicles	B0020 Expeditionary Fighting Vehicle (EFV)



Program Funding Summary		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
(U) RDT&E,N		263.299	237.893	236.969	181.755	161.571	69.899	12.627	Cont	Cont
(U) PANMC, BLI #147500, EFV		-	-	2.474	5.755	9.402	28.243	831.726	Cont	Cont
(U) PMC BA2, BLI #202200, EFV		16.490	97.195	67.701	239.724	267.046	545.828	831.726	6,180.522	8,246.232
(U) PMC BA7, BLI #700000, EFV		0.501	-	-	9.076	9.568	19.421	29.483	247.599	315.648
(U) PMC, EFV TOTALS		16.991	97.195	67.701	248.800	276.614	565.249	861.209	6,428.121	8,561.880
(U) MILCON P-038	-	28.344	-	-	-	-	-	-	-	28.344
(U) MILCON P-042	-	-	-	-	-	10.647	-	-	-	10.647
(U) MILCON P-041	-	-	-	-	-	3.177	-	-	-	3.177
(U) MILCON P-1010	-	-	-	-	-	-	-	-	7.182	7.182
(U) REMAINING EFV MILCON	-	-	-	-	-	-	-	-	31.807	31.807
(U) MILCON, AAAV TOTALS	-	28.344	0.000	0.000	0.000	13.824	0.000	0.000	38.989	81.157

R-1 Shopping List Item No. 56

Exhibit R-4/4a Schedule Profile/Detail					DATE: FEBRUARY 2004			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Advanced Component Development and Prototypes**	PROGRAM ELEMENT NUMBER AND NAME **0603611M Marine Corps Assault Vehicles**			PROJECT NUMBER AND NAME **B0020 Expeditionary Fighting Vehicle (EFV)**				
SCHEDULE DETAIL	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
MS C				4Q				
SAE FRP Decision							4Q	
IOC							4Q	
PDRR Prototype Testing	1-4Q	1-4Q	1-2Q					
Ballistic Vulnerability LFT&E			2-4Q	1Q				
Operational Assessments	1-3Q			2-4Q	2Q			
Fabrication of 9 Prototypes, Refurb 3 PDRR Prototypes	1-4Q	1-4Q	1-4Q	1-2Q				
Fabricate Live Fire Test Vehicle		2-4Q	1-4Q	1-2Q				
Developmental II & RAM-D Testing		4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-3Q	
CDR				4Q				
LRIP Contract Award					1Q			
Full Up System Level Live Fire Test					2-4Q	1-4Q		
LRIP Deliveries Lot I						3-4Q	1-2Q	
IOT&E						4Q	1-2Q	
Ready for Training							1Q	
LRIP Deliveries Lots II & III							2-4Q	1-4Q
Full Rate Contract Award								1Q

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2004			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Advanced Component Dev & Prototypes (AD**		PROGRAM ELEMENT NUMBER AND NAME **0603612M Marine Corps Mine/Countermeasures Systems**					PROJECT NUMBER AND NAME **C2106 Advance Mine Detector**		
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY2009	Cost to Complete	Total Program
Project Cost	**0.310**	**1.202**	**4.522**	**6.234**	**3.716**	**0.640**	**0.000**	**0.000**	**16.624**
RDT&E Articles Qty		**12**							

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Advance Mine Detector (AMD) will be a man-portable system capable of detecting both metallic and nonmetallic buried mines regardless of fuse type. The AMD will alleviate a critical deficiency for detection of buried metallic and semi-metallic mines. Current mine detection technologies are only able to detect metallic mines. The Family of Explosive Ordnance Disposal (FEOD) mission is to provide a capability to neutralize the hazards associated with explosive ordnance that are beyond the normal capabilities of other specialties and present a threat to operations, installations, personnel and material. The FEOD Equipment accomplishes this mission by detecting, identifying, rendering safe, recovering, evacuating and disassembling, and/or disposing of unexploded ordnance with a variety of tools.

(U) ACCOMPLISHMENTS/PLANNED PROGRAM:

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.310**	**0.460**	**1.135**
RDT&E Articles Qty		12	

AMD: Facilitate program transition to Marine Corps Systems Command (MARCORSYSCOM) from Office of Naval Research (ONR). Provide program management, technical support, and travel.

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.000**	**0.500**	**1.000**
RDT&E Articles Qty			

AMD: Conduct initial developmental testing and follow-up developmental testing in various soil types and environmental conditions of the AMD prototype to determine system capabilities.

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.000**	**0.000**	**0.750**
RDT&E Articles Qty			

AMD: Update programmatic documentation and technical drawings. Development of technical manuals and training packages.

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.000**	**0.217**	**1.637**
RDT&E Articles Qty			

AMD: Conduct Trade Studies to reduce power consumption/weight, improve detection depths, and sweep rate. Engineering and design studies to improve ergonomic characteristics, integrate human factors and finalize overall system design.

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.000**	**0.025**	**0.000**
RDT&E Articles Qty			

FEOD: Conduct re-configuration studies on the EOD tool sets.

(U)Total $	0.310	1.202	4.522

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-4 Advanced Component Dev & Prototypes (AD	0603612M Marine Corps Mine/Countermeasures Systems	C2106 Advance Mine Detector

PROJECT CHANGE SUMMARY:	FY2003	FY2004	FY2005
(U) FY 2004 President's Budget:	**0.486**	**1.215**	**6.032**
(U) Adjustments from the President's Budget:			
(U) Congressional/OSD Program Reductions			
(U) Congressional Rescissions			
(U) Congressional Increases			
(U) Reprogrammings	-0.168		-1.495
(U) SBIR/STTR Transfer	-0.008	-0.013	-0.015
(U) Minor Affordability Adjustment			
(U) FY 2005 President's Budget:	**0.310**	**1.202**	**4.522**

CHANGE SUMMARY EXPLANATION:

(U) Funding: Change in FY03 funding is due to $8K SBIR reduction and a $168K reduction due to realignment of programs within the Marine Corps. Change in FY04 funding is due to $13K SBIR reduction. Change in FY05 funding is due to reductions of $15K for SBIR and $1.495M realignment of programs.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
PMC BLI 632500 Demo Support Sys Advanced Mine Detector	0.000	2.026	3.422	1.097	11.641	10.72	5.843	Continuing	Continuing

(U) Related RDT&E: Not Applicable.

(U) D. ACQUISITION STRATEGY: By leveraging an exploratory technology program for mine detection, the Marine Corps will maintain active involvement in the AMD development during concept and technology development. A backpack prototype, configured to detect Trinitrotoluene (TNT), Hexahydro-Trinitro-Triazine (RDX), tetryl and metallic and semi-metallic mines, will be delivered 2nd quarter FY 05 for test and evaluation. The demonstrated technology will then transition into system development and demonstration phase for further development. A cost plus contract with negotiated contractor incentives in the areas of weight, sweep rate, and power consumption will be awarded. After completion of Milestone B, the program enters Low Rate Initial Production (LRIP). LRIP items will undergo Intial Operational Test and Evaluation in preparation for full rate production. The production phase will employ a fixed price production contract.

(U) SCHEDULE PROFILE: Not Applicable.

(U) E. MAJOR PERFORMERS:

FY03 - TBD Competetive Contract for program support

FY04 - Aberdeen Test Center, Aberdeen, MD, Test Actvity for the AMD Prototypes

FY05 - TBD Competetive Contract for the Engineering and design support to improve ergonomic characteristics, integrate human factors and finalize overall system design.

Exhibit R-3 Cost Analysis									DATE: February 2004			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT						PROJECT NUMBER AND NAME			
RDT&E, N /BA-4 Advanced Component Dev & Prototypes (ADCP&P)			**0603612M Marine Corps Mine/Countermeasures Sys**						**C2106 Advance Mine Detector**			
Cost Categories	**Contract Method & Type**	**Performing Activity & Location**	**Total PY s Cost**	**FY 03 Cost**	**FY 03 Award Date**	**FY 04 Cost**	**FY 04 Award Date**	**FY 05 Cost**	**FY 05 Award Date**	**Cost to Complete**	**Total Cost**	**Target Value of Contract**
Engineering & Design	TBD	TBD						1.132	2Q/05	Cont.	Cont.	
Systems Engineering	TBD	TBD						0.505	3Q/05	Cont.	Cont.	
Subtotal Product Dev			**0.000**	**0.000**		**0.000**		**1.637**		**Cont.**	**Cont.**	
Remarks:												
Cost Categories	**Contract Method & Type**	**Performing Activity & Location**	**Total PY s Cost**	**FY 03 Cost**	**FY 03 Award Date**	**FY 04 Cost**	**FY 04 Award Date**	**FY 05 Cost**	**FY 05 Award Date**	**Cost to Complete**	**Total Cost**	**Target Value of Contract**
Engineering Spt	RCP	MCSC Quantico, VA		0.128	07/03	0.204	10/03	1.135	10/04	Cont.	Cont.	
Engineering Spt	MIPR	CECOM Alexandria		0.140	07/03							
Engineering Spt	RCP	CECOM Alexandria		0.042	07/03							
Engineering Spt (FEOD)	RCP	MCSC Quantico, VA				0.025	03/04				0.025	0.025
Subtotal Support			**0.000**	**0.310**		**0.229**		**1.135**		**Cont.**	**Cont.**	
Remarks:												
Cost Categories	**Contract Method & Type**	**Performing Activity & Location**	**Total PY s Cost**	**FY 03 Cost**	**FY 03 Award Date**	**FY 04 Cost**	**FY 04 Award Date**	**FY 05 Cost**	**FY 05 Award Date**	**Cost to Complete**	**Total Cost**	**Target Value of Contract**
Testing	MIPR	Aberdeen Proving Grounds, MD				0.500	10/03	0.500	10/04	Cont.	Cont.	
Testing	MIPR	Yuma, AZ						0.500	2Q/05	Cont.	Cont.	
Subtotal T&E			**0.000**	**0.000**		**0.500**		**1.000**		**Cont.**	**Cont.**	
Remarks:												
Cost Categories	**Contract Method & Type**	**Performing Activity & Location**	**Total PY s Cost**	**FY 03 Cost**	**FY 03 Award Date**	**FY 04 Cost**	**FY 04 Award Date**	**FY 05 Cost**	**FY 05 Award Date**	**Cost to Complete**	**Total Cost**	**Target Value of Contract**
Management Spt	RCP	BAE, VA				0.473	10/03	0.750	1Q/05	Cont.	Cont.	
Subtotal Management			**0.000**	**0.000**		**0.473**		**0.750**		**Cont.**	**Cont.**	
Remarks:												
Total Cost			**0.000**	**0.310**		**1.202**		**4.522**		**Cont.**	**Cont.**	

EXHIBIT R-2, RDT&E Budget Item Justification					DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Demonstration/Validation**		PROGRAM ELEMENT (PE) NAME AND NO. **0603635M Marine Corps Ground Combat/Supporting Arms Systems**							
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Total PE Cost	**31.622**	**26.009**	**22.440**	**13.674**	**4.986**	**2.837**	**2.876**	**Cont**	**Cont**
C1964 Anti-Armor Weapon System	**1.117**	**0.754**	**0.493**	**0.497**	**0.500**	**0.516**	**0.525**	**Cont**	**Cont**
C2112 Lightweight 155mm Howitzer (LW155)	**13.097**	**5.763**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**18.860**
C2256 Integrated Infantry Combat System	**0.397**	**1.664**	**1.681**	**1.566**	**1.594**	**1.644**	**1.679**	**Cont**	**Cont**
C2507 Family of Small Craft	**0.606**	**1.065**	**0.001**	**0.001**	**0.000**	**0.000**	**0.000**	**0.000**	**1.673**
C2508 Internally Transportable Vehicle (ITV)	**2.063**	**0.000**	**5.715**	**0.003**	**0.000**	**0.000**	**0.000**	**0.000**	**7.781**
C2614 SMAW Follow-On	**10.510**	**10.236**	**14.550**	**11.607**	**2.892**	**0.677**	**0.672**	**0.000**	**51.144**
C2998 Innovative Stand-Off Door Breaching Munition	**2.390**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**2.390**
C9116 Nanoparticles Neutralization of Facility Threats	**1.442**	**6.527**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**7.969**
Quantity of RDT&E Articles									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This PE supports the demonstration and validation of Marine Corps Ground/Supporting Arms Systems for utilization in Marine Air-Ground Expeditionary Force amphibious operations.

This program is funded under DEMONSTRATION & VALIDATION because it develops and integrates hardware for experimental test related to specific ground weapon system.

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Demonstration/Validation**	PROGRAM ELEMENT (PE) NAME AND NO. **0603635M Marine Corps Ground Combat/Supporting Arms Systems**

B. PROGRAM CHANGE SUMMARY

	FY2003	FY2004	FY2005
(U) FY 2004 President's Budget:	31.059	19.700	20.612
(U) Adjustments from the President's Budget:			
(U) Congressional/OSD Program Reductions			
(U) Congressional Rescissions			
(U) Congressional Increases			
(U) Reprogrammings	0.598	6.000	3.947
(U) SBIR/STTR Transfer	-0.085	0.000	0.000
(U) Minor Affordability Adjustment	0.050	0.309	-2.119
(U) FY 2005 President's Budget:	31.622	26.009	22.440

CHANGE SUMMARY EXPLANATION:

(U) Funding: See Above. (See R-2a exhibits for breakout at project level).

(U) Schedule:

(U) Technical:

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2004			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Advanced Component Dev & Prototypes (ADCP&P)**		PROGRAM ELEMENT NUMBER AND NAME **0603635M Marine Corps Ground Combat/Supt Arms**				PROJECT NUMBER AND NAME **C1964 Anti-Armor Weapon System**			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost	**1.117**	**0.754**	**0.493**	**0.497**	**0.500**	**0.516**	**0.525**	**Cont**	**Cont**
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) This project provides for Marine Corps participation in the Joint Anti-Armor Program entitled Javelin (Advanced Anti-Tank Weapon System - Medium (AAWS-M)) and the Anti-Armor Weapon System - Heavy (AAWS-H). The Javelin weapon system Pre-Planned Product Improvement (P3I) program will provide the Marine Corps and Army with state-of-the-art capability to destroy sophisticated and future armored threats. The AAWS-H is a long range, antitank weapon system that will replace the Tube Launched, Optically Tracked, Wire Guided (TOW) Missile System. It will satisfy an operational requirement to provide increased range (4000 meters), increased lethality against all armored threats, to include explosive reactive armor, active protection, increased probability of hit and kill and increased gunner survivability. Possible Light Armored Vehicle-Anti Tank usage would promote commonality among Marine Corps systems.

(U) B. ACCOMPLISHMENTS/PLANNED PROGRAM:

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.234**	**0.000**	**0.000**
RDT&E Articles Qty			

Engineering/technical support to participate in technical developments in the Javelin program.

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.351**	**0.366**	**0.304**
RDT&E Articles Qty			

Engineering/technical support to participate in technical developments in the AAWS-H program.

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.236**	**0.189**	**0.189**
RDT&E Articles Qty			

Program Office support for the AAWS-H program.

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.000**	**0.199**	**0.000**
RDT&E Articles Qty			

Conduct evaluation of Analysis of Alternatives (AOA) identified AAWS-H solution.

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.296**	**0.000**	**0.000**
RDT&E Articles Qty			

Conduct Weapons System Explosive Safety Review Board (WSESRB) Insensitive Munitions (IM) support.

(U)Total $	1.117	0.754	0.493

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-4 Advanced Component Dev & Prototypes (ADCP&P)	**0603635M Marine Corps Ground Combat/Supt Arms**	**C1964 Anti-Armor Weapon System**

(U) Project Change Summary:	**FY 2003**	**FY 2004**	**FY 2005**
(U) FY2004 President's Budget:	**0.868**	**0.762**	**0.498**
(U) Adjustments to Previous President's Budget:			
(U) Congressional Program Reductions			
(U) Congressional Rescissions			
(U) Congressional Increases			
(U) Reprogrammings			
(U) SBIR/STTR Transfer	**-0.006**		
(U) Minor Affordability Adjustment	**0.255**	**-0.008**	**-0.005**
(U) FY2005 President's Budget:	**1.117**	**0.754**	**0.493**

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
(U) PMC BLI# 301100 JAVELIN	1.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.012
(U) PMC BLI# 312300 MISSILE MODIFICATIONS	49.317	0.583	0.595	27.524	40.510	24.236	0.001	0.000	142.766

(U) Related RDT&E: Not Applicable.

(U) D. ACQUISITION STRATEGY:

AAWS-H - The acquisition strategy anticipates a Competitively Awarded Cost Plus Development Contract with follow-on Firm Fixed Price Production Contract. JAVELIN - Acquisition strategy provides for pre-planned improvements for the Javelin hardware which is procured under a Firm Fixed Price Multi-Year Contract. The first Multi-Year covers FY 97 through FY 99. Hardware on this contract includes the Command Launch Unit (CLU), Tactical Round, Battery Unit, Basic Skills Trainer, and Field Tactical Trainer. The second Multi-Year covers the fiscal years 2000-2003.

(U) E. MAJOR PERFORMERS:

FY 02 to completion - NSWC Dahlgren, VA. Engineering and technical support.
FY 04 - TBD. Evaluation of AAWS-H solution.

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2004			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Advanced Component Dev & Prototypes (ADCP&**		PROGRAM ELEMENT NUMBER AND NAME **0603635M Marine Corps Ground Combat/Supt Arms**				PROJECT NUMBER AND NAME **C2256 Integrated Infantry Combat System (IICS)**			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost	**0.397**	**1.664**	**1.681**	**1.566**	**1.594**	**1.644**	**1.679**	**Cont**	**Cont**
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) The program will enhance the Marine Rifle Squad's battlefield capabilities through the development, optimization, and integration of an assortment of Marine systems/components and technologies into a cohesive, timely and combat effective system. These systems/components include weapons, integrated helmet assembly, protective clothing, communication and target acquisition technologies. This will provide the infantryman with increased lethality, survivability and situational awareness enhancements. Initial funding in this line will be used to determine and exploit integration opportunities on existing infantry equipment being fielded in the near future. Funds will also be used for the Research & Development of a future integrated system that is modular in design and will enhance the infantryman's mobility, lethality, survivability and communications. The IICS is an overarching program, consisting of three main phases. The initial phase enables base-lining current systems. The second phase consists of an iterative process integrating mid-term capabilities, and the final phase inserts technology where opportunities exist. The program will leverage joint technologies but the Marine infantryman's unique items that are worn, carried or consumed will be used for the baseline.

(U) ACCOMPLISHMENTS/PLANNED PROGRAM:

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.168**	**0.865**	**0.969**
RDT&E Articles Qty			

Program management, specialized engineering and technical support.

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.229**	**0.600**	**0.000**
RDT&E Articles Qty			

Modeling and Simulation (M&S) scenario development to refine and validate models for assessing IICS efforts (Military Operations in Urban Terrain (MOUT) & Jungle Vignettes; and Mountain and Nuclear, Biological and Chemical (MNTN & NBC) environment vignettes.)

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.000**	**0.199**	**0.000**
RDT&E Articles Qty		**1**	

Development of prototype working integration issues with the development of combat gear (Soldier and Biological Chemical Command (SBCCOM) Natick, MA)

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.000**	**0.000**	**0.712**
RDT&E Articles Qty			

Product Development and integration efforts.

(U) Total $	0.397	1.664	1.681

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-4 Advanced Component Dev & Prototypes (ADCP&	**0603635M Marine Corps Ground Combat/Supt Arms**	**C2256 Integrated Infantry Combat System (IICS)**

(U) PROJECT CHANGE SUMMARY:	**FY2003**	**FY2004**	**FY2005**
(U) FY 2004 President's Budget:	**1.740**	**1.682**	**1.692**
(U) Adjustments from the President's Budget:			
(U) Congressional Program Reductions			
(U) Congressional Rescissions			
(U) Congressional Increases			
(U) Reprogrammings			
(U) SBIR	-0.031		
(U) Minor Affordability Adjustment	-1.312	-0.018	-0.011
(U) FY 2005 President's Budget:	**0.397**	**1.664**	**1.681**

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY: Not Applicable.

(U) Related RDT&E: (U) PE 0602131M (Marine Corps Landing Force Technology)
(U) PE 0603640M (Marine Corps Advanced Technology Demonstration)
(U) PE 0604657A (US Army Land Warrior Program)

(U) C. ACQUISITION STRATEGY: The Integrated Infantry Combat System is a phased approach of enhancements to the rifle squad with an endstate of a "system." Modularity and integration are important design factors. Risks associated with technology creep and cost will be mitigated by 1) improving the equipment and making it modular in form, 2) integrating these individual improvements into the squad as a whole, and 3) completing this via a phased approach.

(U) E. MAJOR PERFORMERS:

Oct 02, Oct 03 - Concurrent Technologies Corporation, Johnstown, PA - Produced a technology roadmap for Marine infantry equipment.
Oct 04 - M2 Technologies & Whitney, Bradley & Brown Tysons Corner, VA - Concept of Operations, Capabilities Development.
May 02 - SAIC Corp, Dumfries, VA - Producing the Integrated Computer Aided Manufacturing (ICAM) model which models relative worth of different Marine infantry equipment.
Oct 02, Oct 03, Oct 04 - NSWC Dahlgren, VA - Specialized engineering and technical support.
Feb 03, Oct 03, Oct 04 - BAE Inc., Stafford, VA - Program management and technical support.
Oct 04 - Titan Systems, Stafford, VA - Program management and technical support.

(U) SCHEDULE PROFILE: Not Applicable.

Exhibit R-3 Cost Analysis							DATE: February 2004					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Dem/Val**		PROGRAM ELEMENT **0603635M MC Ground Combat/Supt Arms**				PROJECT NUMBER AND NAME **C2256 Integrated Infantry Combat System**						
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Product Development	MIPR	CTC, Johnstown, PA	0.294							0.000	0.294	
Product Development	MIPR	SBCCOM, NATICK, MA	0.125			0.199	10/03			Cont.	Cont.	
Product Development	MIPR	TBD						0.500	10/04	Cont.	Cont.	
Product Development	MIPR	SAIC Corp, Dumfries, VA	0.753							Cont.	Cont.	
Product Development	RCP	Various	1.704							Cont.	Cont.	
Subtotal Product Dev			2.876	0.000		0.199		0.500		Cont.	Cont.	
Remarks:												
Cost Categories (Tailor to WBS, or System/Ite Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
SUPPORT												
Program Support	WR	NSWC DAHLGREN, VA	0.519	0.200	10/02	0.284	10/03	0.298	10/04	Cont.	Cont.	
Program Support	RCP	SAIC, Inc., Dumfries, VA	0.170			0.150	10/03	0.148	10/04	Cont.	Cont.	
Program Support	RCP	BAE, Inc., Stafford, VA				0.000	10/03	0.000	10/04	Cont.	Cont.	
Program Support	RCP	Titan Systems Inc, Stafford, VA				0.331	10/03	0.325	10/04	Cont.	Cont.	
Program Support	RCP	M2/WB&B Inc. Tysons Corner, VA				0.500	10/03	0.360	10/04	Cont.	Cont.	
Program Support	RCP	BAE, Inc., Stafford, VA	0.255	0.168	10/02	0.150	10/03	0.000	10/04	Cont.	Cont.	
Subtotal Support			0.944	0.368		1.415		1.131		Cont.	Cont.	
Remarks:												
Cost Categories (Tailor to WBS, or System/Ite Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Cost Categories (Tailor to WBS, or System/Ite Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Travel	WR	MCSC, Quantico, VA	0.110	0.029	10/02	0.050	10/03	0.050	10/04	Cont.	Cont.	
Subtotal Management			0.110	0.029		0.050		0.050		Cont.	Cont.	
Remarks:												
Total Cost				0.397		1.664		1.681		Cont.	Cont.	

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2004			
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME				
RDT&E, N /BA-4 Demonstration/Validation	**0603635M Marine Corps Ground Combat/Supt Arms**				**C2508 Internally Transportable Vehicle (ITV)**				
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY2008	FY2009	Cost to Complete	Total Program
Project Cost	**2.063**	**0.000**	**5.715**	**0.003**	**0.000**	**0.000**	**0.000**	**0.000**	**7.781**
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Internally Transportable Vehicles (ITV) program was previously known as the Light Strike Vehicle (LSV) program. This project develops a joint MV-22 aircraft transportable family of light tactical, wheeled vehicles. The ITV's will provide reconnaissance units with a high mobility weapons platform. Follow-on variants will address logistics, command and control, medical and personnel movement missions. The ITV will replace the Fast Attack Vehicles (FAVs) currently employed throughout the Marine Air Ground Task Force (MAGTF).

(U) B. ACCOMPLISHMENTS/PLANNED PROGRAM:

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.300**	**0.000**	**0.469**
RDT&E Articles Qty			

ITV: Research and Engineering Studies

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.160**	**0.000**	**1.000**
RDT&E Articles Qty			

ITV: Engineeering and Logistic Support

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.660**	**0.000**	**0.800**
RDT&E Articles Qty			

ITV: Program Management and Support

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.643**	**0.000**	**0.000**
RDT&E Articles Qty			

ITV: Prototype Development & Testing

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.300**	**0.000**	**3.446**
RDT&E Articles Qty			

ITV: Procure Test Vehicles

(U) Total $	**2.063**	**0.000**	**5.715**

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-4 Demonstration/Validation	**0603635M Marine Corps Ground Combat/Supt Arms**	**C2508 Internally Transportable Vehicle (ITV)**

(U) Project Change Summary	**FY2003**	**FY 2004**	**FY 2005**
(U) FY2004 President's Budget	**1.945**	**0.000**	**0.000**
(U) Adjustments from the FY 2004 President's Budget:			
(U) Congressional/OSD Program Reductions			
(U) Congressional Rescissions			
(U) Congressional Increases			
(U) Reprogrammings	0.264		5.746
(U) SBIR/STTR Transfer	-0.039		
(U) Minor Affordability Adjustment	-0.107		-0.031
(U) FY 2005 President's Budget	**2.063**	**0.000**	**5.715**

CHANGE SUMMARY EXPLANATION:

(U) Funding: Changes in FY 03 are due to a $39K SBIR reduction, a $107K affordability adjustment and a $264K increase due to realignment of Marine Corps funds. Changes in FY05 are due to a $31K minor affordability reduction and a $5.746M increase due to realignment of Marine Corps funds

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY: Not Applicable.

(U) Related RDT&E: United States Special Operations Command (USSOCOM) joint participation in the ITV program. USSOCOM funding will be applied towards testing and evaluation of the Expeditionary Assault variant of the ITV in conjunction with Marine Corps funding.

(U) D. ACQUISITION STRATEGY: The program is in the final phases of requirements revision. The current acquisition strategy is for procurement of a Commercial, off-the-shelf/Non-Developmental Item (COTS/NDI) solution. This strategy is evolving into modified COTS or Spiral Development, based upon results of ongoing studies.

(U) E. MAJOR PERFORMERS:

FY03 - USSOCOM, Test and Evaluation
FY03 - Naval Air Warfare Center, Carderrock, MD Engineering Support
FY05 - TBD, Procure Test Vehicles

Exhibit R-3 Cost Analysis									DATE: February 2004				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Dem/Val**		PROGRAM ELEMENT **0603635M MC Ground Combat/Supt Arms**				PROJECT NUMBER AND NAME **C2508 Internally Transportable Vehicle (ITV)**							
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	**Contract Method & Type**	**Performing Activity & Location**	**Total PY s Cost**	**FY 03 Cost**	**FY 03 Award Date**	**FY 04 Cost**	**FY 04 Award Date**	**FY 05 Cost**	**FY 05 Award Date**	**Cost to Complete**	**Total Cost**	**Target Value of Contract**
Prototype Development	RCP	MCSC, Quantico VA	6.454	0.300	05/03			3.446	2Q/05	0.000	10.200	10.200
Product Development	RCP	MCSC, Quantico VA	1.294	0.500	01/03					0.000	1.794	1.794
Subtotal Product Dev			**7.748**	**0.800**		**0.000**		**3.446**		**0.000**	**11.994**	**11.994**
Remarks:												
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	**Contract Method & Type**	**Performing Activity & Location**	**Total PY s Cost**	**FY 03 Cost**	**FY 03 Award Date**	**FY 04 Cost**	**FY 04 Award Date**	**FY 05 Cost**	**FY 05 Award Date**	**Cost to Complete**	**Total Cost**	**Target Value of Contract**
Development Support	WR	Naval Surface Warfare Ctr VA	0.821	0.340	12/02			0.600	1Q/05	0.000	1.761	1.761
Development Support	MIPR	Army Engineers, MS	0.125					0.100	1Q/05	0.000	0.225	0.225
Aircraft Interface	WR	Naval Air Warfare Center, MD	0.300	0.060	12/02			0.300	1Q/05	0.000	0.660	0.660
Development Support	WR	Naval Surface Warfare Ctr IN	0.165	0.100	12/02			0.200	1Q/05	0.000	0.465	0.465
Structural Analysis	MIPR	Tank-Auto Command, IL	0.185					0.000		0.000	0.185	0.185
Subtotal Support			**1.596**	**0.500**		**0.000**		**1.200**		**0.000**	**3.296**	**3.296**
Remarks:												
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	**Contract Method & Type**	**Performing Activity & Location**	**Total PY s Cost**	**FY 03 Cost**	**FY 03 Award Date**	**FY 04 Cost**	**FY 04 Award Date**	**FY 05 Cost**	**FY 05 Award Date**	**Cost to Complete**	**Total Cost**	**Target Value of Contract**
Reliability Testing	MIPR	Aberdeen Proving Grnd, MD	1.139							0.000	1.139	1.139
Developmental Test & Eval	WR	Naval Air Warfare Center, MD	0.200	0.380	01/03			0.277	1Q/05	0.000	0.857	0.857
Subtotal T&E			**1.339**	**0.380**		**0.000**		**0.277**		**0.000**	**1.996**	**1.996**
Remarks:												
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	**Contract Method & Type**	**Performing Activity & Location**	**Total PY s Cost**	**FY03 Cost**	**FY 03 Award Date**	**FY 04 Cost**	**FY 04 Award Date**	**FY 05 Cost**	**FY 05 Award Date**	**Cost to Complete**	**Total Cost**	**Target Value of Contract**
Contractor Eng Suppt		MCSC, Quantico VA	0.185	0.130	12/03			0.300	1Q/05	0.000	0.615	0.615
Prog. Mgt, Spt, & Tvl		MCSC, Quantico VA	0.183	0.253	12/03			0.492	1Q/05	0.000	0.928	0.928
Subtotal Management			**0.368**	**0.383**		**0.000**		**0.792**		**0.000**	**1.543**	**1.543**
Remarks:												
Total Cost			**11.051**	**2.063**		**0.000**		**5.715**		**0.000**	**18.829**	

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2004			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Advanced Component Dev & Prototypes (ADCP&P)**		PROGRAM ELEMENT NUMBER AND NAME **0603635M Marine Corps Ground Combat/Supt Arms**				PROJECT NUMBER AND NAME **C2614 Shoulder-Launched Multi-Purpose Assault Weapon (SMAW) Follow-on**			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost	**10.510**	**10.236**	**14.550**	**11.607**	**2.892**	**0.677**	**0.672**	**0.000**	**51.144**
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Follow-On To Shoulder-Launched Multi-Purpose Assault Weapon (FOTS) is an accurate, shoulder-fired, assault weapon designed to defeat a variety of targets on the battlefield. It consists of a launcher, sighting and fire control system, and projectile. FOTS will replace the Shoulder-Launched Multi-Purpose Assault Weapon (SMAW) without loss of present capabilities while providing: 1) fire from enclosure capability, 2) reduced launcher signature, 3) increased lethality, 4) greater breaching effects, 5) lighter weight, 6) increased reliability, and 7) increased availability.

(U) B. ACCOMPLISHMENTS/PLANNED PROGRAM:

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**7.141**	**0.000**	**0.000**
RDT&E Articles Qty			

System integration, concept and technical development

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.333**	**6.296**	**0.000**
RDT&E Articles Qty			

Conduct systems testing and evaluation in support of source selection for phase B

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.991**	**0.955**	**1.471**
RDT&E Articles Qty			

Provide government program management / in-house support

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.079**	**0.100**	**0.140**
RDT&E Articles Qty			

Travel/Temporary Additional Duty (TAD)

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**1.020**	**1.000**	**1.920**
RDT&E Articles Qty			

Provide government engineering and technical support

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.946**	**0.000**	**0.000**
RDT&E Articles Qty			

Provide Contractor PM, Acq, and Engineering Support

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Advanced Component Dev & Prototypes (ADCP&P)**	PROGRAM ELEMENT NUMBER AND NAME **0603635M Marine Corps Ground Combat/Supt Arms**		PROJECT NUMBER AND NAME **C2614 Shoulder-Launched Multi-Purpose Assault Weapon (SMAW) Follow-on**
COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.000**	**1.885**	**10.719**
RDT&E Articles Qty			

System development and demonstration RISK MITIGATIONS

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.000**	**0.000**	**0.300**
RDT&E Articles Qty			

Initial Operational Test and Evaluation (IOT&E) preparatory work

(U) Total $	10.510	10.236	14.550

(U) PROJECT CHANGE SUMMARY:

	FY2003	**FY2004**	**FY2005**
(U) FY 2004 President's Budget:	**10.185**	**10.351**	**18.422**
(U) Adjustments from the President's Budget:			
(U) Congressional/OSD Program Reductions			
(U) Congressional Rescissions			
(U) Congressional Increases			
(U) Reprogrammings	0.334		-1.800
(U) SBIR/STTR Transfer	-0.009		
(U) Minor Affordability Adjustment		-0.115	-2.072
(U) FY 2005 President's Budget:	**10.510**	**10.236**	**14.550**

CHANGE SUMMARY EXPLANATION:
(U) Funding: See above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
(U) PMC 301600 Follow On To SMAW	0.000	0.000	0.000	2.129	2.435	2.374	4.242	Continuing	Continuing
(U) PANMC 147100 Follow On To SMAW	0.000	0.000	0.000	9.561	60.137	77.882	118.933	Continuing	Continuing

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Advanced Component Dev & Prototypes (ADCP&P)**	PROGRAM ELEMENT NUMBER AND NAME **0603635M Marine Corps Ground Combat/Supt Arms**	PROJECT NUMBER AND NAME **C2614 Shoulder-Launched Multi-Purpose Assault Weapon (SMAW) Follow-on**

(U) Related RDT&E: Not Applicable.

(U) D. ACQUISITION STRATEGY:

The acquisition strategy for Follow-On To Shoulder-Launched Multi-Purpose Assault Weapon (FOTS) represents a fundamental shift from the traditional military systems acquisition paradigm in which external market demand is leveraged by offering a fully developed system to external markets. Rather, the market place will influence the determination of the ultimate design of the weapon in order to capitalize on an expanded customer base to facilitate interoperability and achieve economies of scale. The subsystem integration and demonstration phase was a competitive cost plus fixed fee program, awarding to multiple contractors and culminating in a comparative demonstration, leading to a down-selection to a single contractor for the System Development and Demonstration phase. System Development and Demonstration phase will be full and open competition, cost plus fixed fee.

(U) E. MAJOR PERFORMERS:

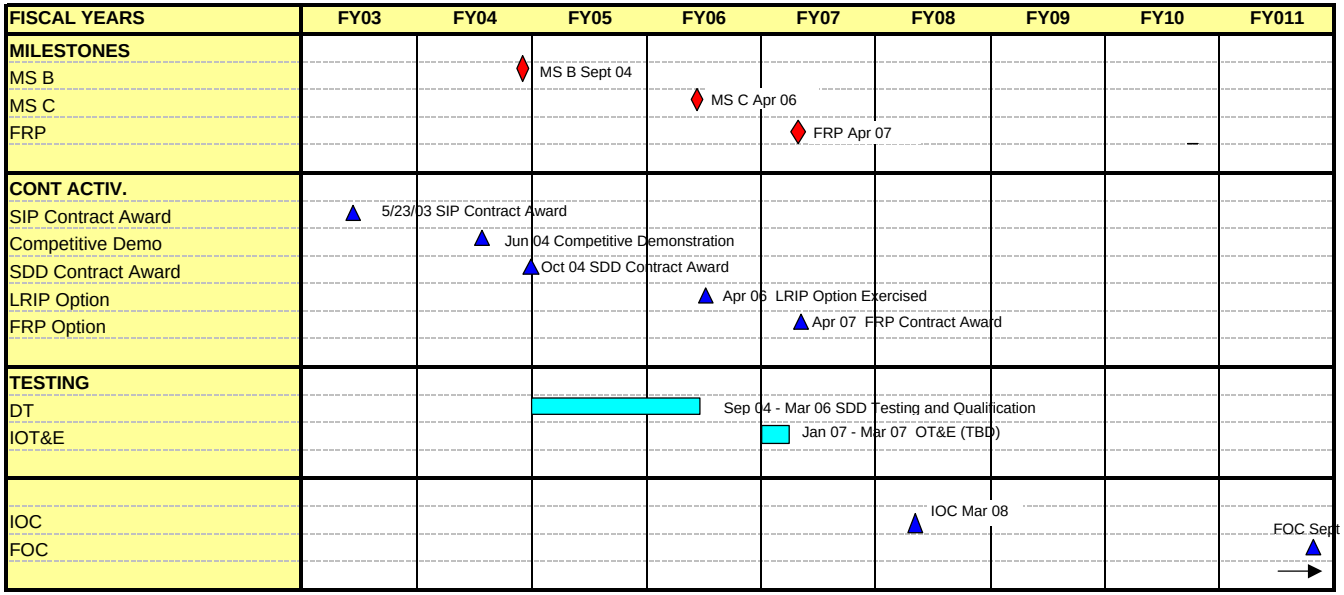
May 03 - Lockheed Martin (Orlando, FL) and General Dynamics (Burlington, VT). System integration.

Oct 04 - TBD. System development and demonstration.

Exhibit R-3 Cost Analysis								DATE: February 2004				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Advanced Component Dev & Prototypes (ADCP&P)**				PROGRAM ELEMENT **0603635M MC Ground Combat/Supt Arms**					PROJECT NUMBER AND NAME **C2614 SMAW Follow-on**			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Product Development	SS/CPAF	CMS Defense Sys,Titusville,FL	4.000							0.000	4.000	
Product Development	SS/CPAF	InvenCom Inc., Charlotte, NC	1.300							0.000	1.300	
Product Development	SS/CPAF	Raphael, USA	0.600							0.000	0.600	
System Integration	C/CPAF	Lockheed Martin, Orlando, FL		3.508	05/03	1.000	04/04			0.000	4.508	
System Integration	C/CPAF	General Dynamics, Burlington, VT		3.333	05/03	0.855	04/04			0.000	4.188	
System Devel & Demo	SS/CPAF	TBD						9.162	10/04	0.000	9.162	
Product Development	C/CPAF	Auto Opening Device		0.300	04/03					0.000	0.300	
LRIP	SS/FFP	TBD						1.800	10/04	Cont.	Cont.	
Subtotal Product Dev			5.900	7.141		1.855		10.962		Cont.	Cont.	
Remarks:												
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Program Support	WR	NSWC, Dahlgren, VA	2.577	0.809	10/02	0.580	10/03	1.251	10/04	Cont.	Cont.	
Program Support	WR	NAVSEA, Indian Head, MD	0.501	0.180	04/03					0.000	0.681	
Program Support	C/IDIQ	Telecolote Inc., Huntsville, AL	0.124	0.031	04/03	0.075	10/03	0.075	10/04	Cont.	Cont.	
Program Support	C/FFP	BAE Systems, Stafford, VA	0.000	0.946	10/02	0.375	10/03	0.496	10/04	Cont.	Cont.	
Subtotal Support			3.202	1.966		1.030		1.822		Cont.	Cont.	
Remarks:												
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Operational T&E	VARIOUS	MCOTEA, Quantico, VA		0.020	05/03			0.300	10/04	Cont.	Cont.	
Developmental Test & Eval	VARIOUS	NSWC Dahlgren Div, Dahlgren, VA		0.200	07/03	6.406	10/03			0.000	6.606	
Test & Evaluation	WR	NSWC Crane, IN		0.113	05/03							
Subtotal T&E			0.000	0.333		6.406		0.300		Cont.	Cont.	
Remarks:												
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Management Support	WR	MCSC, Quantico, VA	0.406	1.070	10/02	0.945	10/03	1.466	10/04	Cont.	Cont.	
Subtotal Management			0.406	1.070		0.945		1.466		Cont.	Cont.	
Remarks:												
Total Cost				**10.510**		**10.236**		**14.550**		**Cont.**	**Cont.**	

Exhibit R-4/4a Schedule Profile/Detail		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Advanced Component Dev & Prototypes (ADCP&P)**	PROGRAM ELEMENT **0603635M MC Ground Combat/Supt Arms**	PROJECT NUMBER AND NAME **C2614 SMAW Follow-on**

FOLLOW ON TO SMAW (FOTS)



Program Funding Summary	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
(U) RDT&E,N	10.510	10.236	14.550	11.607	2.892	0.677	0.672	Continuing	Continuing
(U) PMC 301600 Follow On To SMAW	0.000	0.000	0.000	2.129	2.435	2.374	4.242	Continuing	Continuing
(U) PANMC 147100 Rockets All Types (FOTS)	0.000	0.000	0.000	9.561	60.137	77.882	118.933	Continuing	Continuing

Exhibit R-4/4a Schedule Profile/Detail		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Advanced Component Dev & Prototypes (ADCP&P)**	PROGRAM ELEMENT **0603635M MC Ground Combat/Supt Arms**	PROJECT NUMBER AND NAME **C2614 SMAW Follow-on**

FOTS SCHEDULE DETAIL	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Milestone B		4Q					
System Integration	3Q						
System Design and Development Contract Award			1Q				
System Test and Evaluation			1-4Q	1-2Q			
Milestone C				3Q			
Production				3-4Q	1-2Q		
IOT&E					2Q		
FRP					3-4Q	1-4Q	1-4Q
IOC						2Q	

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification										DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**						R-1 ITEM NOMENCLATURE 0603654N/Joint Service EOD Development					
COST ($ in Millions)	Prior Years Cost		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Total PE Cost			**12.360**	**16.868**	**18.047**	**17.445**	**17.749**	**19.823**	**19.348**	**Continuing**	**Continuing**
0377/Joint Service EOD Systems			**5.734**	**4.528**	**7.339**	**7.520**	**8.508**	**9.348**	**10.531**	**Continuing**	**Continuing**
1317/EOD Diving System			**6.626**	**7.665**	**2.456**	**2.296**	**2.771**	**2.823**	**2.819**	**Continuing**	**Continuing**
4023/VSW MCM/ Force Protection UUV			**0.000**	**4.675**	**6.458**	**6.565**	**4.705**	**4.130**	**4.025**	**Continuing**	**Continuing**
4024/SMCM Shallow and Deep Water UUV			**0.000**	**0.000**	**1.794**	**1.064**	**1.765**	**3.522**	**1.973**	**Continuing**	**Continuing**
Quantity of RDT&E Articles			**Various**	**Various**	**Various**	**Various**	**Various**	**Various**	**Various**		**0**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This is a Joint Service Program. This program provides for the development of Explosive Ordnance Disposal tools and equipment for use by all military services. The responsibility is assigned to the Navy as single service manager, by Department of Defense Directive 5160.62 of 26 April 1989, for management of the Joint Service Explosive Ordnance Disposal Research and Development Program. Proliferation of sophisticated types of foreign and domestic ordnance necessitate a continuing development program to provide Explosive Ordnance Disposal personnel of all military services with the special equipment and tools required to support this mission. This program also provides life support related equipment necessary to support the performance of Navy Explosive Ordnance Disposal tasks underwater. This equipment must have inherently low acoustic and magnetic signatures in order to allow the Explosive Ordnance Disposal technician to safely approach, render-safe and dispose of sea mines and other underwater ordnance.

R-1 SHOPPING LIST - Item No. 59

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603654N/Joint Service EOD Development				PROJECT NUMBER AND NAME 0377/Joint Service EOD Systems			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	
Project Cost	**5.734**	**4.528**	**7.339**	**7.520**	**8.508**	**9.348**	**10.531**	
RDT&E Articles Qty	**Various**	**Various**	**Various**	**Various**	**Various**	**Various**	**Various**	

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Provides Explosive Ordnance personnel of all military services with the specialized equipment and tools required to support their mission of detection/location, identification, render-safe, recovery, field and laboratory evaluation, and disposal of unexploded ordnance (UXO) that is a threat to military operations, installations, personnel, or material. UXO includes foreign and domestic, both conventional and non-conventional, including improvised explosive devices (IEDs).

R-1 SHOPPING LIST - Item No. 59

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603654N/Joint Service EOD Development	0377/Joint Service EOD Systems

(U) B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	1.323	0.915	1.354	
RDT&E Articles Quantity	Various	Various	Various	

Develop EOD detection, identification and knowledge systems to include, the Non-Invasive Filler Identification (NFI) project, and the Joint EOD Knowledge Technology Operational Demonstration Advanced Concept Technology Demonstration (JEOD-KTOD ACTD) project. Also, conduct Analysis of Alternatives and conduct evaluations of Commercial/Non-Developmental Item (C/NDI EOD tools/equipment).

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	2.531	2.295	3.850	
RDT&E Articles Quantity	Various	Various	Various	

Develop access, disruption and neutralization systems to include, the Large IED Access and Disruption project, the Submunition Clearance project, the Low Order Tools project, and the Joint Laser Ordnance Neutralization System (JLONS). Also, conduct Analysis of Alternatives and conduct evaluations of Commercial/Non-Developmental Item (C/NDI EOD tools/equipment).

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	1.300	0.818	0.835	
RDT&E Articles Quantity	Various	Various	Various	

Develop remote systems to include the EOD Man Portable Robotics Program (MPRS) project.

R-1 SHOPPING LIST - Item No. 59

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603654N/Joint Service EOD Development	0377/Joint Service EOD Systems

(U) B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	0.580	0.500	1.300	
RDT&E Articles Quantity	Various	Various	Various	

Develop Classified Project II and Classified Project III.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	
RDT&E Articles Quantity	Various	Various	Various	

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	
RDT&E Articles Quantity	Various	Various	Various	

R-1 SHOPPING LIST - Item No. 59

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-4	0603654N/Joint Service EOD Development	0377/Joint Service EOD Systems	

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 04 President Controls):	5.981	4.579	6.602
Current BES/President's Budget (FY05 President Controls):	5.734	4.528	7.339
Total Adjustments	-0.247	-0.051	0.737
Summary of Adjustments			
Misc Adjustments	-0.247	-0.051	-0.063
Increase to Classified Projects	0.000	0.000	0.800
Subtotal	-0.247	-0.051	0.737

(U) Schedule:

The R&D contract award for the Non-Invasive Filler ID was delayed by 2 Qtrs. The testing and production decision wil only be delayed 1 Qtr. Due to the maturity of the commercial systems being evaluated for the EOD Man Portable Robotic System, more testing will be performed during the preliminary stage shortening the final test phase since very few design changes are anticipated. Production Decision for the EOD Man Portable Robotic System will remain unchanged. The Submunitions Clearance System is ahead of schedule due to the identification of an interim solution for sub-munitions clearance which partially meets the need and can be fielded quickly. In order to satisfy the full need, the JLONS program will be initiated in FY 05.

(U) Technical:

Not applicable.

R-1 SHOPPING LIST - Item No. 59

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603654N/Joint Service EOD Development	0377/Joint Service EOD Systems

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
OPN 5509	293	152	1574	6600	4850	5200	5100	Continuing	Continuing

(U) E. ACQUISITION STRATEGY: *

Analysis of Alternatives (AOA) studies are always conducted prior to the initiation of new subprojects. The AOA addresses and emphasizes acquisition strategies of the most cost-effective solution over the subprojects' life-cycle. The acquisition strategies observe the following hierarchy of alternatives: commercial item (including modification), non-developmental item (including modification), and lastly, developmental programs. Contracting for RDT&E, if required, is always competitive and when feasible, production options are included.

For the Large IED Access & Disruption there is a dual acquisition strategy; an acquisition sub-project for commercially available Large IED tools and a full-scale development sub-project. Within each of these sub-projects there will be two tools pursued.

(U) F. MAJOR PERFORMERS: **

The majority of funding in this line is executed by Naval Explosive Ordnance Disposal Technology Division located in Indian Head, MD in FY03 through FY05. The funding is used for develop Joint Service EOD tools/equipment. The funding document will be issued as follows: FY03-10/02; FY04-10/03; FY05-10/04.

*** Not required for Budget Activities 1,2,3, and 6**
**** Required for DON and OSD submit only.**

R-1 SHOPPING LIST - Item No.59

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603654N/Joint Service EOD Development			PROJECT NUMBER AND NAME 0377/Joint Service EOD Systems						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	EODTD, IH, MD	79.412	1.644	10/02	0.769	10/03	2.392	10/04	Continuing	Continuing	
Software Development	WR	EODTD, IH, MD	3.379	0.150	10/02	0.150	10/03	0.200	10/04	Continuing	Continuing	
ILS	WR	EODTD, IH, MD	36.020	0.900	10/02	0.750	10/03	1.000	10/04	Continuing	Continuing	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			118.811	2.694		1.669		3.592		0.000	126.766	
Remarks:												
Program Management Support	C/CPFF	Dynamic Systems, Alex, VA	3.190	0.270	10/02						3.460	
Program Management Support	C/CPFF	TBD				0.300	10/03	0.300	10/04	Continuing	Continuing	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			3.190	0.270		0.300		0.300		0.000	4.060	
Remarks:												

R-1 SHOPPING LIST - Item No. 59

CLASSIFICATION:

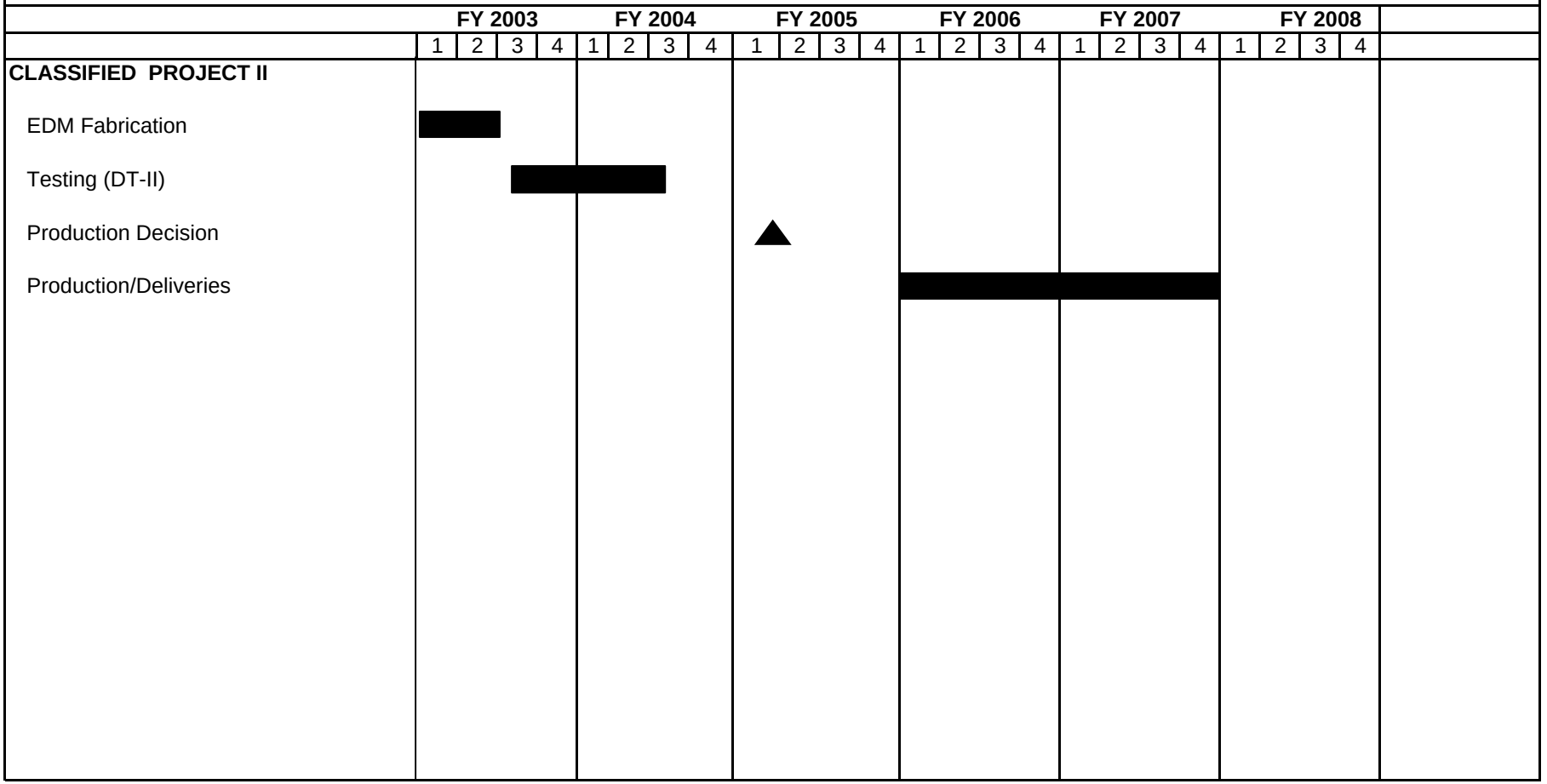
Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603654N/Joint Service EOD Development			PROJECT NUMBER AND NAME 0377/Joint Service EOD Systems						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	EODTD, IH, MD	54.703	1.870	10/02	1.574	10/03	2.000	10/04	Continuing	Continuing	N/A
Operational Test & Evaluation	WR	EODTD, IH, MD	8.245								8.245	N/A
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			62.948	1.870		1.574		2.000		0.000	68.392	
Remarks:												
Program Management Support	WR	EODTD, IH, MD	3.920	0.250	10/02	0.350	10/03	0.400	10/04	Continuing	Continuing	N/A
Miscellaneous	Various	Various	3.586	0.650	02/03	0.635	10/03	1.047	10/04	Continuing	Continuing	N/A
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			7.506	0.900		0.985		1.447		Continuing	Continuing	
Remarks:												
Total Cost			192.455	5.734		4.528		7.339		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 59

EXHIBIT R-4, RDT&E Project Justification			DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**	PROGRAM ELEMENT NAME AND N JT Service EOD Development 060365	PROJECT NAME AND NUMBER JT Service EOD Systems/0377	

0603654N Joint Service EOD Development; Q0377 Joint Service EOD Systems

RDT&E Milestone Chart



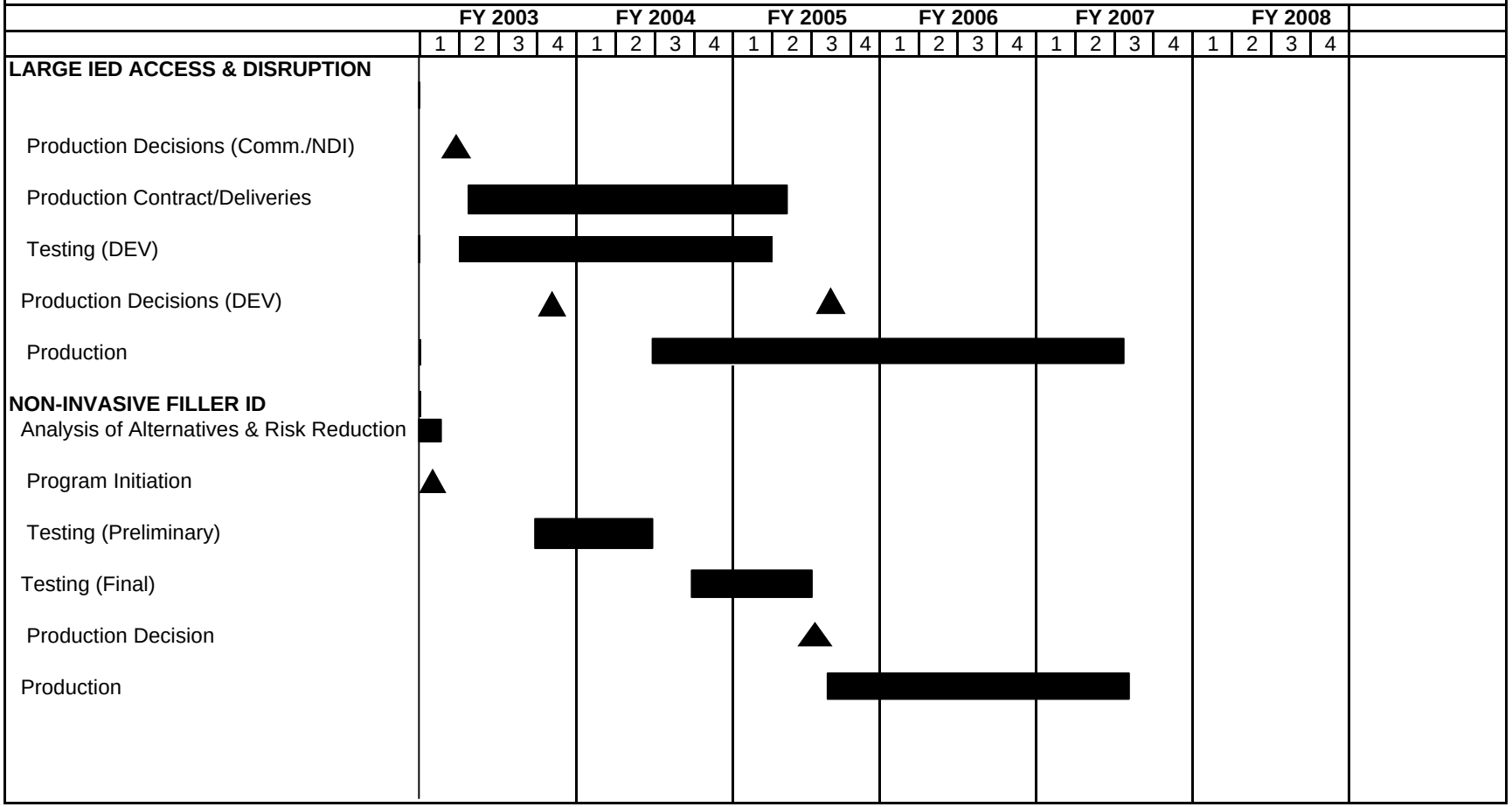
R-1 SHOPPING LIST - ITEM NO. 59

CLASSIFICATION:

EXHIBIT R-4, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**	PROGRAM ELEMENT NAME AND N JT Service EOD Development 06036	PROJECT NAME AND NUMBER JT Service EOD Systems/0377

0603654N Joint Service EOD Development; Q0377 Joint Service EOD Systems

RDT&E Milestone Chart

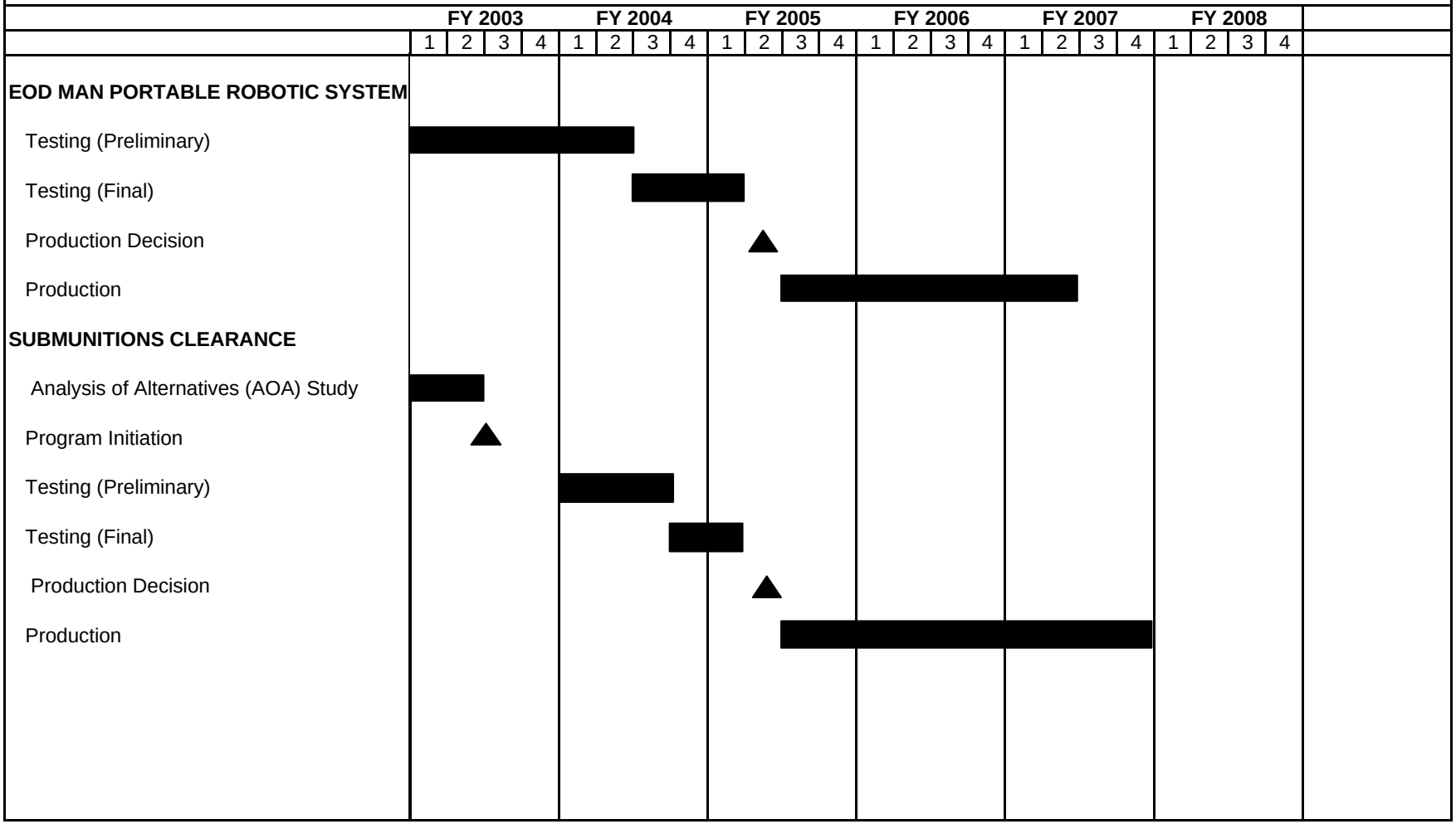


R-1 SHOPPING LIST - ITEM NO. 59

EXHIBIT R-4, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**	PROGRAM ELEMENT NAME AND N JT Service EOD Development 06036	PROJECT NAME AND NUMBER JT Service EOD Systems/0377

0603654N Joint Service EOD Development; Q0377 Joint Service EOD Systems

RDT&E Milestone Chart



R-1 SHOPPING LIST - ITEM NO. 59

CLASSIFICATION:

EXHIBIT R-4, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**	PROGRAM ELEMENT NAME AND NUMBER JT Service EOD Development 0603654N	PROJECT NAME AND NUMBER JT Service EOD Systems/0377

0603654N Joint Service EOD Development; Q0377 Joint Service EOD Systems

RDT&E Milestone Chart

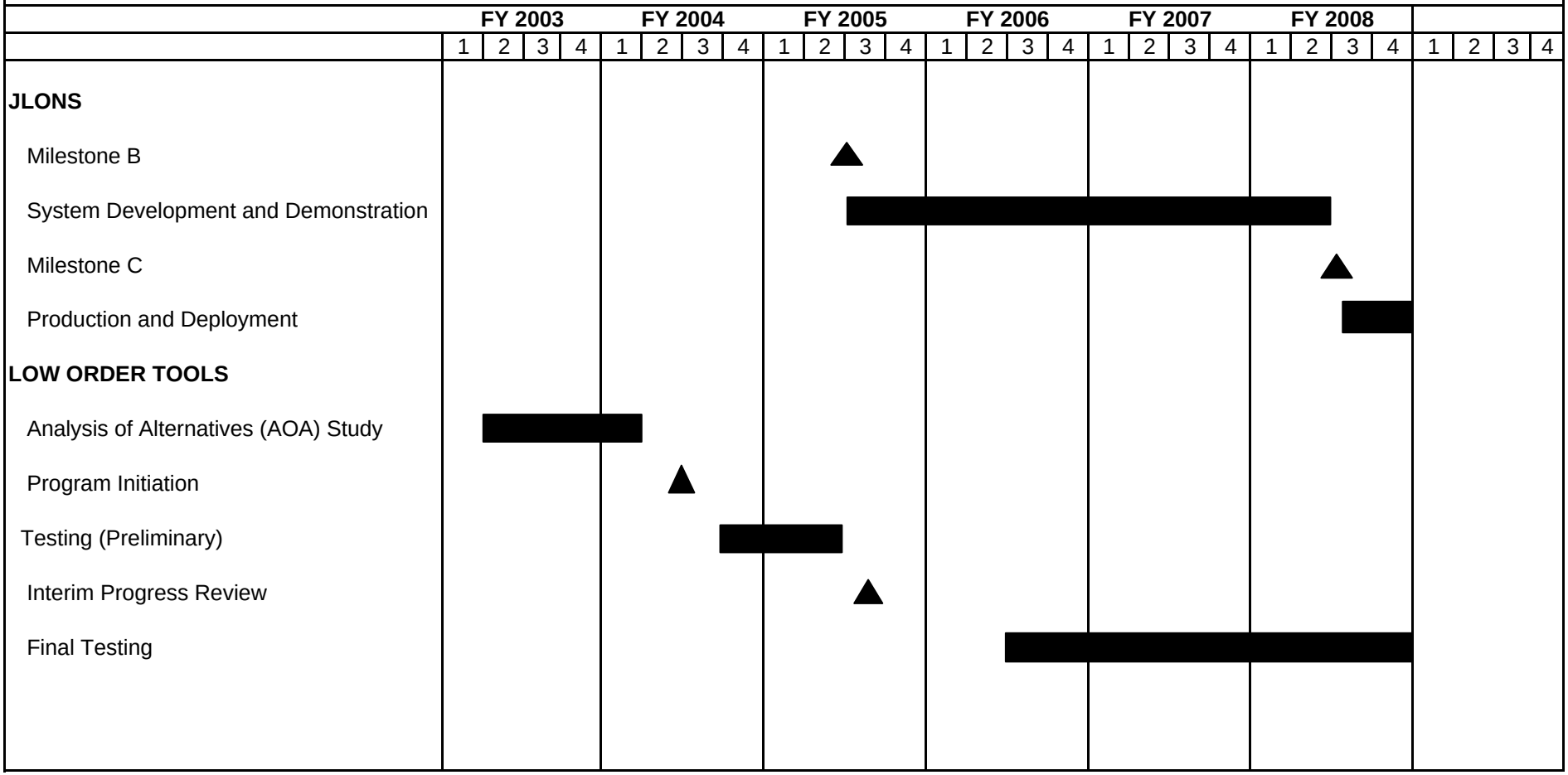
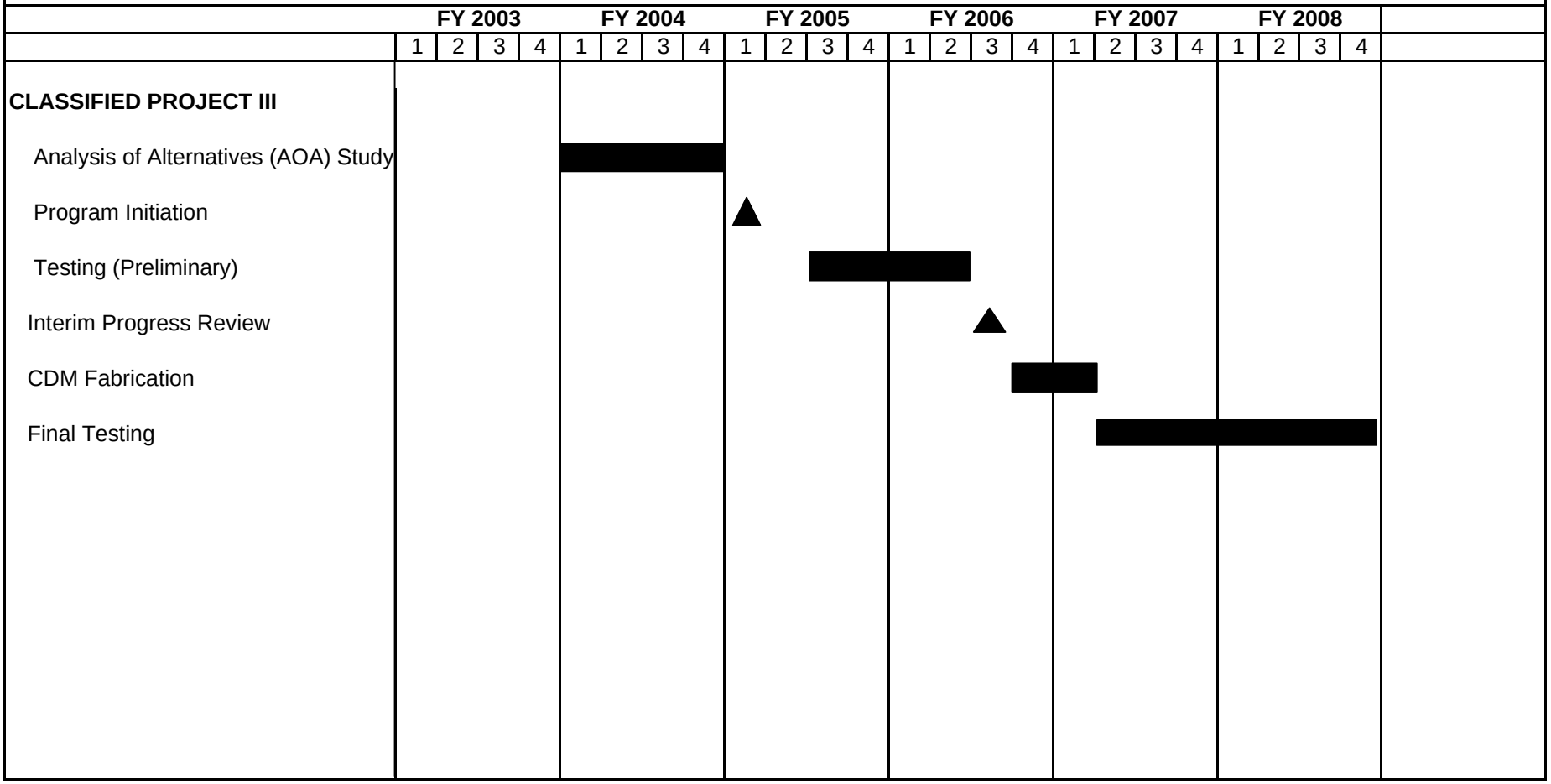


EXHIBIT R-4, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**	PROGRAM ELEMENT NAME AND N JT Service EOD Development 06036	PROJECT NAME AND NUMBER JT Service EOD Systems/0377

0603654N Joint Service EOD Development; Q0377 Joint Service EOD Systems

RDT&E Milestone Chart



R-1 SHOPPING LIST - ITEM NO.59

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/ BA-4**	PROGRAM ELEMENT 0603654N/Joint Service EOD Development				PROJECT NUMBER AND NAME 0377/Joint Service EOD Systems			
CLASSIFIED PROJECT II	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008		
EDM Fabrication	1Q-2Q							
Testing (DT-II)	3Q-4Q	1Q-3Q						
Production Decision			1Q					
Production/Delieveries				1Q-4Q	1Q-4Q			
LARGE IED ACCESS & DISRUPTION								
Production Decision (Comm./NDI)	1Q							
Product Contract/Deliviers	2Q-4Q	1Q-4Q	1Q-2Q					
Testing (DEV)	2Q-4Q	1Q-4Q	1Q					
Production Decision (DEV)	4Q		3Q					
Production		3Q-4Q	1Q-4Q	1Q-4Q	1Q-3Q			
NON-INVASIVE FILLER ID								
Analysis of Alternatives & Risk Reduction	1Q							
Program Initiaion	1Q							
Testing (Preliminary)	4Q	1Q-2Q						
Testing (Final)		3Q-4Q	1Q-2Q					
Production Decision			3Q					
Production			3Q-4Q	1Q-4Q	1Q-2Q			
EOD MAN PORTABLE ROBOTIC SYSTEM								
Testing (Preliminary)	1Q-4Q	1Q-2Q						
Testing (Final)		3Q-4Q	1Q					
Production Decision			2Q					
Production			2Q-4Q	1Q-4Q	1Q-2Q			

R-1 SHOPPING LIST - Item No. 59

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/ BA-4**	PROGRAM ELEMENT 0603654N/Joint Service EOD Development				PROJECT NUMBER AND NAME 0377/Joint Service EOD Systems			
SUBMUNITIONS CLEARANCE	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008		
Analysis of Alternatives (AOA) Study	1Q-2Q							
Program Initation	2Q-3Q							
Testing (Preliminary)		1Q-3Q						
Testing (Final)		4Q	1Q					
Proudtion Decision			2Q					
Production			2Q-4Q	1Q-4Q	1Q-4Q			
JLONS								
Milestone B			2Q-3Q					
System Development and Demonstration			3Q-4Q	1Q-4Q	1Q-4Q	1Q-2Q		
Milestone C						2Q-3Q		
Production and Deployment						3Q-4Q		
LOW ORDER TOOLS								
Analysis of Alternatives (AOA) Study	2Q-4Q	1Q						
Program Initiation		2Q-3Q						
Testing (Preliminary)		3Q-4Q	1Q-2Q					
Interim Progress Review			3Q					
Final Testing				3Q-4Q	1Q-4Q	1Q-4Q		
CLASSIFIED PROJECT III								
Analysis of Alternatives (AOA) Study		1Q-4Q						
Program Initation			1Q					
Testing (Preliminary)			3Q-4Q	1Q-2Q				
Interim Progress Review				3Q				
CDM Fabrication				3Q-4Q	1Q-2Q			
Final Testing					2Q-4Q	1Q-4Q		

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603654N/Joint Service EOD Development				PROJECT NUMBER AND NAME 1317/EOD Diving Systems			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	
Project Cost	**6.626**	**7.665**	**2.456**	**2.296**	**2.771**	**2.823**	**2.819**	
RDT&E Articles Qty	**Various**	**Various**	**Various**	**Various**	**Various**	**Various**	**Various**	

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Provides for development of diving equipment and explosive charges to support Explosive Ordnance Disposal (EOD) underwater operations. The equipment must have inherently low acoustic and magnetic signatures in order to allow the EOD technician to safely approach, render-safe, and dispose of sea mines and other underwater ordnance.

R-1 SHOPPING LIST - Item No. 59

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-4	0603654N/Joint Service EOD Development	1317/EOD Diving Systems	

(U) B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	0.237	0.450	0.664	
RDT&E Articles Quantity	Various	Various	Various	

Test and gain approval for Navy use (ANU) of EOD diving, Commercial/Non-Developmental Items (C/NDI).

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	1.686	0.661	0.200	
RDT&E Articles Quantity				

Development of Advanced Underwater Limpet Mine equipment to enhance EOD units' ability to detect neutralize and gather inellligence on underwater limpet and special attach mines and the development of low magnetic Micro Diver Display that provides sonar input from the Underwater Imaging Systems when in dark turbid, low visibility water environments.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	0.342	0.313	0.000	
RDT&E Articles Quantity				

Develop and test a product improvement Advanced Miniature Mine PIP Sensor for the Underwater Imaging System to allow the system to conduct stand-off identification and computer aided detection and classification.

R-1 SHOPPING LIST - Item No. 59

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603654N/Joint Service EOD Development	1317/Joint Service EOD Systems

(U) B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	4.095	4.254	0.000	
RDT&E Articles Quantity				

Develop, test, and gain approval for fleet use of specialized equipment to support the Very Shallow Water Mine Countermeasures mission and CNO approved VSW MCM Detachment (USN/USMC). This also includes the development of small, affordable MCM Unmanned Underwater Vehicles.

*Starting in FY05, this effort has been moved to Program Element 0603654N Project Q4023.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	0.266	0.523	1.592	
RDT&E Articles Quantity				

Conduct market Research for the Active Thermal Protection System to support VSW and EOD MCM diving in cold water environments. Develop an Advanced Underwater Breathing Apparatus (UBA). Develop a diver Hull Navigation System to improve current capabilities in existing hull search operations.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	0.000	1.464	0.000	
RDT&E Articles Quantity				

Demonstrate operation of a UUV-based capability package for standoff, multiple MCM operations from surface MCM platorms (e.g., MHC, HSV, etc.)

*Starting in FY05 this effort has been moved to Program Element 0603654N, Project Q4024.

R-1 SHOPPING LIST - Item No. 59

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603654N/Joint Service EOD Development	1317/Joint Service EOD Systems

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 04 President Controls):	6.608	7.806	9.030
Current BES/President's Budget (FY05 President Controls):	6.626	7.665	2.456
Total Adjustments	0.018	-0.141	-6.574
Summary of Adjustments			
New Project, Q4023 established for UUV Program	0.000	0.000	-6.543
New Project, Q4024 established for SMCM UUV Program	0.000	0.000	-1.797
Increase to UUV Program	0.166	0.000	1.800
Moved to Project Q4024 SMCM UUV Program			
Miscellaneous Adjustment	-0.148	-0.141	-0.034
Subtotal	0.018	-0.141	-6.574

(U) Schedule:

The production decision for the Advanced Underwater Limpet Mine Program slipped from FY04 to FY05. Conducted market research for the Active Thermal Protection. No suitable systems exist at mature technology level to continue to production. Advanced Mini Mine project extended to include additional interoperability testing for use with Micro Diver Display.

(U) Technical:

Not applicable.

R-1 SHOPPING LIST - Item No.59

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603654N/Joint Service EOD Development	1317/Joint Service EOD Systems

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
OPN 0975	0	5056	4809	5849	4068	0	1000	Continuing	Continuing
OPN 5509	1006								

(U) E. ACQUISITION STRATEGY: *

Analysis of Alternatives (AOA) studies are always conducted prior to the initiation of new subprojects. The AOA addresses and emphasizes acquisition strategies of the most cost-effective solution over the subprojects' life-cycle. The acquisition strategies observe the following hierarchy of alternatives: commercial item (including modification), non-developmental item (including modification), and lastly, developmental programs. Contracting for RDT&E, if required, is always competitive and when feasible, production options are included.

(U) F. MAJOR PERFORMERS: **

The majority of funding in this line is executed by Naval Explosive Ordnance Disposal Technology Division located in Indian Head, MD in FY03 through FY05. The funding is used for development Underwater EOD tools/equipment. The funding document will be issued as follows: FY04-10/03; FY05 10/04.

*** Not required for Budget Activities 1,2,3, and 6**
**** Required for DON and OSD submit only.**

R-1 SHOPPING LIST - Item No. 59

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603654N/Joint Service EOD Development			PROJECT NUMBER AND NAME 1317/Joint Service EOD Systems							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	EODTD, IH, MD	26.750	3.384	10/02	3.696	10/03	1.450	10/04	Continuing	Continuing	
Software Development	WR	EODTD, IH, MD	1.291	0.250	10/02	0.250	10/03	0.147	10/04	Continuing	Continuing	
Systems Engineering	WR	EODTD, IH, MD	7.355	0.350	10/02	0.400	10/03	0.123	10/04	Continuing	Continuing	
ILS	WR	EODTD, IH, MD	11.317	0.250	10/02	0.300	10/03	0.049	10/04	Continuing	Continuing	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			46.713	4.234		4.646		1.769		0.000	57.362	
Remarks:												
Program Management Support	C/CPFF	Dynamic Systems, Alex, VA	3.186	0.351	10/02						3.537	
Program Management Support	C/CPFF	TBD				0.500	10/03	0.123	10/04	Continuing	Continuing	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			3.186	0.351		0.500		0.123		0.000	4.160	
Remarks:												

R-1 SHOPPING LIST - Item No. 59

CLASSIFICATION:

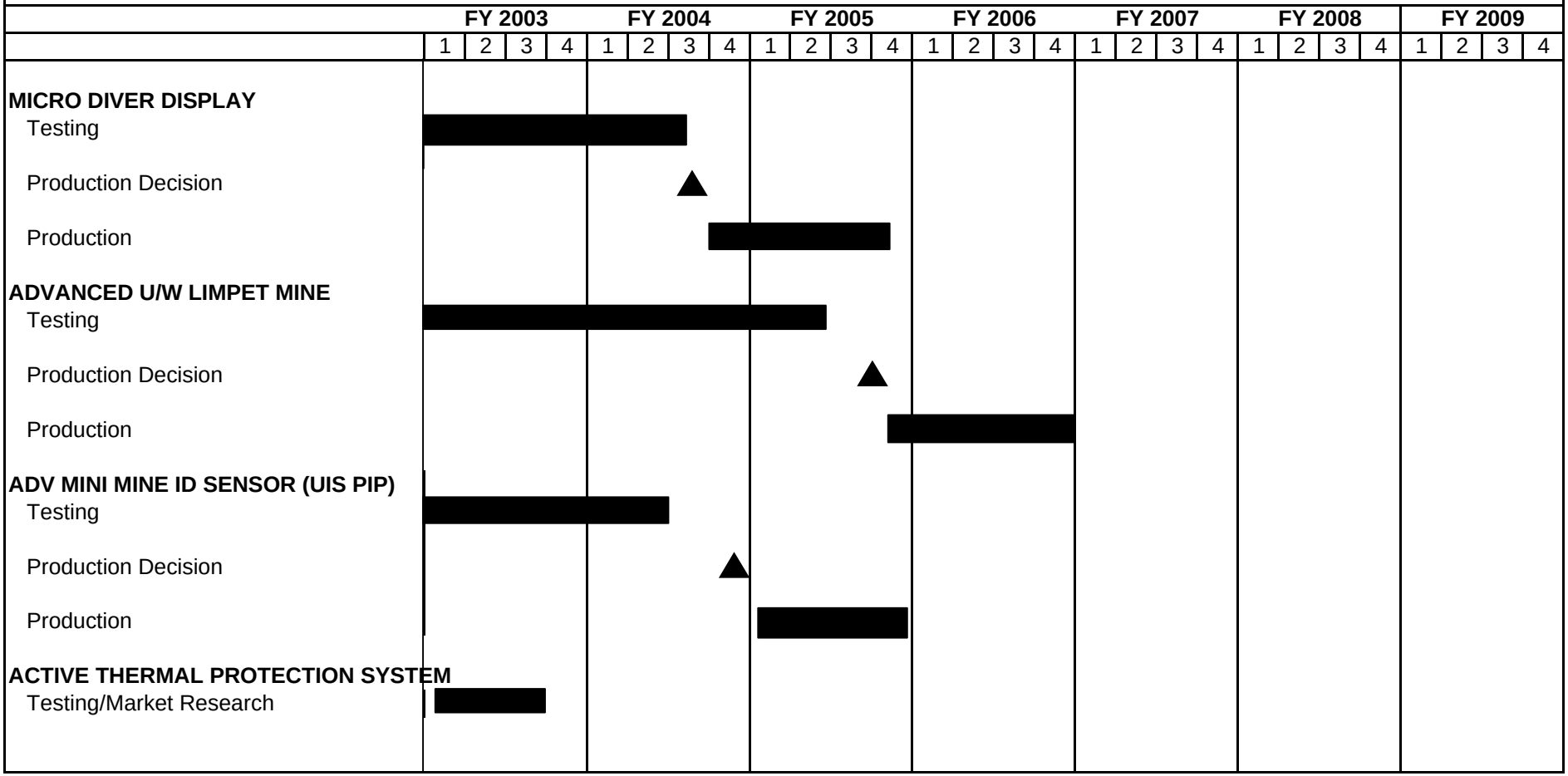
Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603654N/Joint Service EOD Development			PROJECT NUMBER AND NAME 1317/Joint Service EOD Systems						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	EODTD, IH, MD	3.120	0.350	10/02	0.550	10/03	0.147	10/04	Continuing	Continuing	
Operational Test & Evaluation	WR	EODTD, IH, MD	1.560								1.560	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			4.680	0.350		0.550		0.147		0.000	5.727	
Remarks:												
Program Management Support	WR	EODTD, IH, MD	5.417	0.700	10/02	0.800	10/03	0.221	10/04	Continuing	Continuing	
Miscellaneous		Various	3.634	0.991	02/03	1.169	10/03	0.196	10/04	Continuing	Continuing	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			9.051	1.691		1.969		0.417		0.000	13.128	
Remarks:												
Total Cost			63.630	6.626		7.665		2.456		0.000	80.377	
Remarks:												

R-1 SHOPPING LIST - Item No. 59

EXHIBIT R-4, Schedule Profile		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**	PROGRAM ELEMENT NAME AND N **JT Service EOD Dev 0603654N**	PROJECT NAME AND NUMBER EOD Diving Systems/1317

0603654N Joint Service EOD Development; 1317 EOD Diving Systems

RDT&E Milestone Chart

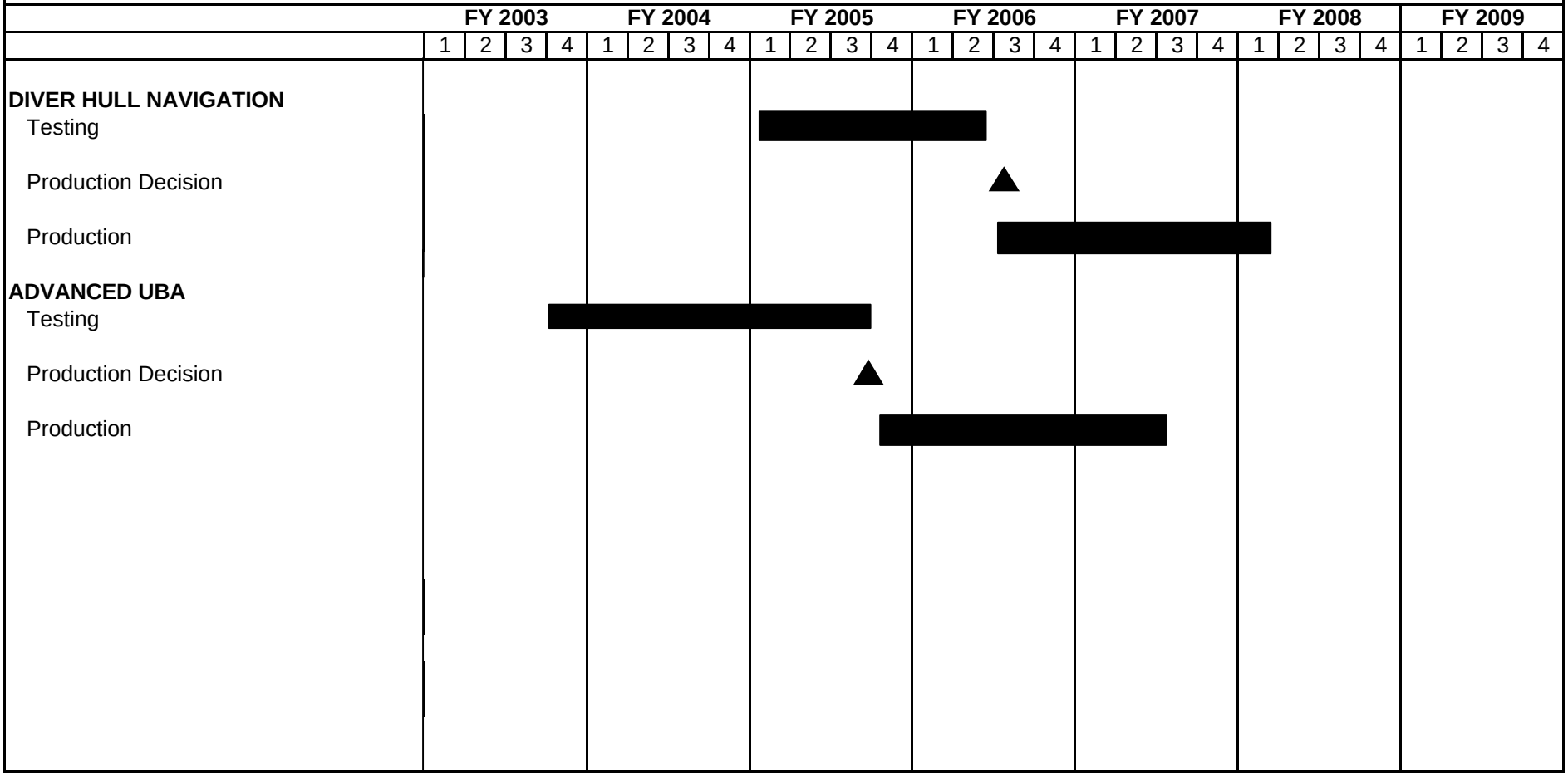


R-1 SHOPPING LIST - ITEM NO. 59

EXHIBIT R-4, Schedule Profile		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**	PROGRAM ELEMENT NAME AND N **JT Service EOD Dev 0603654N**	PROJECT NAME AND NUMBER EOD Diving Systems/1317

0603654N Joint Service EOD Development; 1317 EOD Diving Systems

RDT&E Milestone Chart



R-1 SHOPPING LIST - ITEM NO. 59

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/ BA-4**	PROGRAM ELEMENT 0603654/Joint Service EOD Development				PROJECT NUMBER AND NAME 1317/EOD Diving Systems		
	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
MICRO DIVER DISPLAY							
Testing	1Q-4Q	1Q-3Q					
Production Decision		3Q					
Production		3Q-4Q	1Q-4Q				
ADVANCED U/W LIMPET MINE							
Testing	1Q-4Q	1Q-4Q	1Q-2Q				
Production Decision			3Q				
Production			4Q	1Q-4Q			
ADV MINI MINE ID SENSOR (UIS PIP)							
Testing	1Q-4Q	1Q-2Q					
Production Decision		4Q					
Production			1Q-4Q				
ACTIVE THERMAL PROTECTION SYSTEM							
Testing/Market Research	1Q-3Q						
DIVER HULL NAVIGATION							
Testing			1Q-4Q	1Q-2Q			
Production Decision				3Q			
Production				3Q-4Q	1Q-4Q	1Q	
ADVANCED UBA							
Testing	3Q-4Q	1Q-4Q	1Q-3Q				
Production Decision			3Q				
Production			4Q	1Q-4Q	1Q-3Q		

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603654N/Joint Service EOD Development				PROJECT NUMBER AND NAME 4023/EOD VSW MCM/Force Protection UUV			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	
Project Cost	**0.000**	**4.675**	**6.458**	**6.565**	**4.705**	**4.130**	**4.025**	
RDT&E Articles Qty	**Various**	**Various**	**Various**	**Various**	**Various**	**Various**	**Various**	

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Provides for development of small affordable, Unmanned Underwater Systems to support Explosive Ordnance Disposal (EOD) and Naval Special Clearance missions operations. The equipment must be highly portable in order to support the EOD technician to safely approach, render-safe, and dispose of sea mines and other underwater ordnance. Provides support for the Navy's high priority mission of Very Shallow Water (VSW) mine countermeasures, including clandestine reconnaissance and mine clearance in support of amphibious operations and ships hull search in support of Homeland Defense.

R-1 SHOPPING LIST - Item No.59

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-4	0603654N/Joint Service EOD Development	4023/EOD VSW MCM/Force Protection UUV	

(U) B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	0.000	4.675	6.458	
RDT&E Articles Quantity				

This program supports development, testing and fleet approval for evolving genertations of small, afforadble UUV's to address validated fleet requirements in support of Explosive Ordnance Disposal and Naval Special Clearance missions areas.

*Starting in FY05 effort was moved from Program Element 0603654N, Project Q1317.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	
RDT&E Articles Quantity				

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	
RDT&E Articles Quantity				

R-1 SHOPPING LIST - Item No. 59

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603654N/Joint Service EOD Development	4023/EOD VSW MCM/Force Protection UUV

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 04 President Controls):	0.000	0.000	0.000
Current BES/President's Budget (FY05 President Controls):	0.000	4.675	6.458
Total Adjustments	0.000	4.675	6.458
Summary of Adjustments			
New Project, Q4023 established for UUV Program	0.000	0.000	6.540
Congress add MIFD	0.000	4.675	0.000
Miscellaneous Adjustment	0.000	0.000	-0.082
Subtotal	0.000	4.675	6.458

(U) Schedule:

Not Applicable

(U) Technical:

Not applicable.

R-1 SHOPPING LIST - Item No. 59

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603654N/Joint Service EOD Development	4023/EOD VSW MCM/Force Protection UUV

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
OPN 0975	0	0	2305	4120	12482	3496	3628	Continuing	Continuing

(U) E. ACQUISITION STRATEGY: *

Analysis of Alternatives (AOA) studies are always conducted prior to the initiation of new subprojects. The AOA addresses and emphasizes acquisitions strategies of the most cost-effective solution over the subprojects' life -cycle. The acquisition strategies observe the following hierarchy of alternatives: commercial item (including modifications), non-developmental item (including modifications), and lastly, developmental programs. Contracting for RDT&E, if required is always competitive and when feasible, production options are included.
This ongoing program capitalizes on a user operational evaluation system effort involving Fleet operators engaged in tactical experimentation with prototype UUVs. These UUV operators also participate in detailed requirements analyses and definition. A preliminary operational capability with UUV will be realized at the VSW MCM Detachment, with a competitive acquisition strategy to field a more robust and capable first generation S-C-M system. The addition of mine reacquisition and identification (RI) capabilities to the VSW MCM UUV toolbox is programmed, for delivery. Further improvements to the toolbox to add basic mine neutralization capabilities will then be pursued.

(U) F. MAJOR PERFORMERS: **

The majority of funding in this line is executed by Naval Explosive Ordnance Disposal Technology Division located in Indian Head, MD FY05. The funding is used for development of Unmanned Underwater Vehicle. The funding document will be issued as follows: FY04 1/04; FY05 10/04.

*** Not required for Budget Activities 1,2,3, and 6**
**** Required for DON and OSD submit only.**

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603654N/Joint Service EOD Development				PROJECT NUMBER AND NAME 4023/EOD VSW MCM/Force Protection UUV						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	EODTD, IH, MD	0.000	0.000		3.974		4.244	10/04	Continuing	Continuing	
Software Development	WR	EODTD, IH, MD	0.000	0.000		0.000		0.000	10/04	Continuing	Continuing	
Systems Engineering	WR	EODTD, IH, MD	0.000	0.000		0.000		0.200	10/04	Continuing	Continuing	
ILS	WR	EODTD, IH, MD	0.000	0.000		0.000		0.200	10/04	Continuing	Continuing	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			0.000	0.000		3.974		4.644		0.000	8.618	
Remarks:												
Program Management Support	C/CPFF	Dynamic Systems, Alex, VA	0.000	0.000							0.000	
Program Management Support	C/CPFF	TBD				0.000		0.300	10/04	Continuing	Continuing	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.300		0.000	0.300	
Remarks:												

CLASSIFICATION:

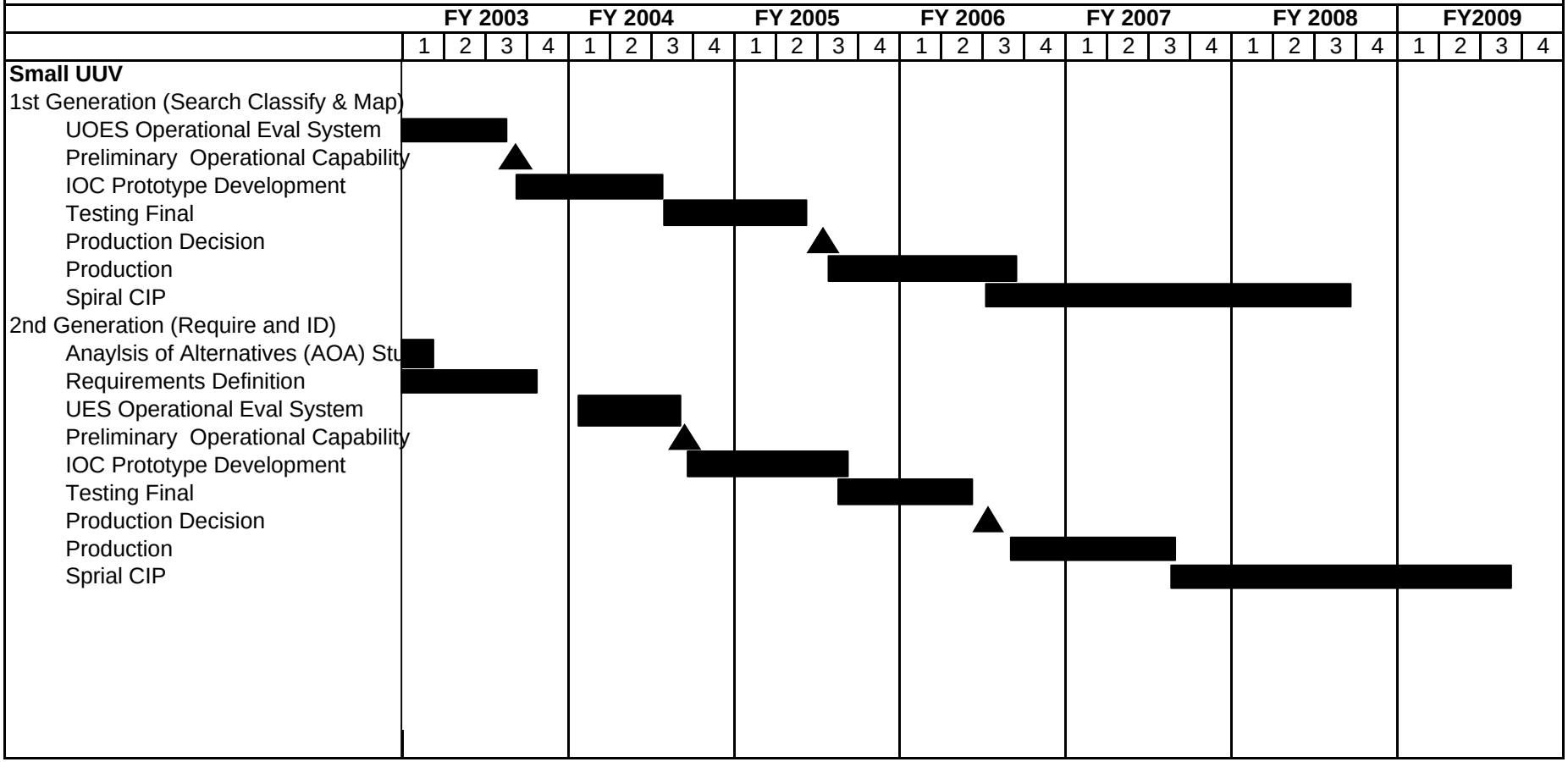
Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603654N/Joint Service EOD Development			PROJECT NUMBER AND NAME 4023/EOD VSW MCM/Force Protection UUV						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	EODTD, IH, MD	0.000	0.000		0.000		0.403	10/04	Continuing	Continuing	
Operational Test & Evaluation	WR	EODTD, IH, MD	0.000								0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		0.000		0.403		0.000	0.403	
Remarks:												
Program Management Support	WR	EODTD, IH, MD	0.000	0.000		0.000		0.400	10/04	Continuing	Continuing	
Miscellaneous		Various	0.000	0.000		0.701		0.711	10/04	Continuing	Continuing	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			0.000	0.000		0.701		1.111		0.000	1.812	
Remarks:												
Total Cost			0.000	0.000		4.675		6.458		0.000	11.133	
Remarks:												

R-1 SHOPPING LIST - Item No. 59

EXHIBIT R-4, Schedule Profile		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**	PROGRAM ELEMENT NAME AND N **JT Service EOD Dev 0603654N**	PROJECT NAME AND NUMBER 4023/EOD VSW MCM/Force Protection UUV

0603654N Joint Service EOD Development; 4023 EOD VSW MCM/Force Prtoection UUV

RDT&E Milestone Chart

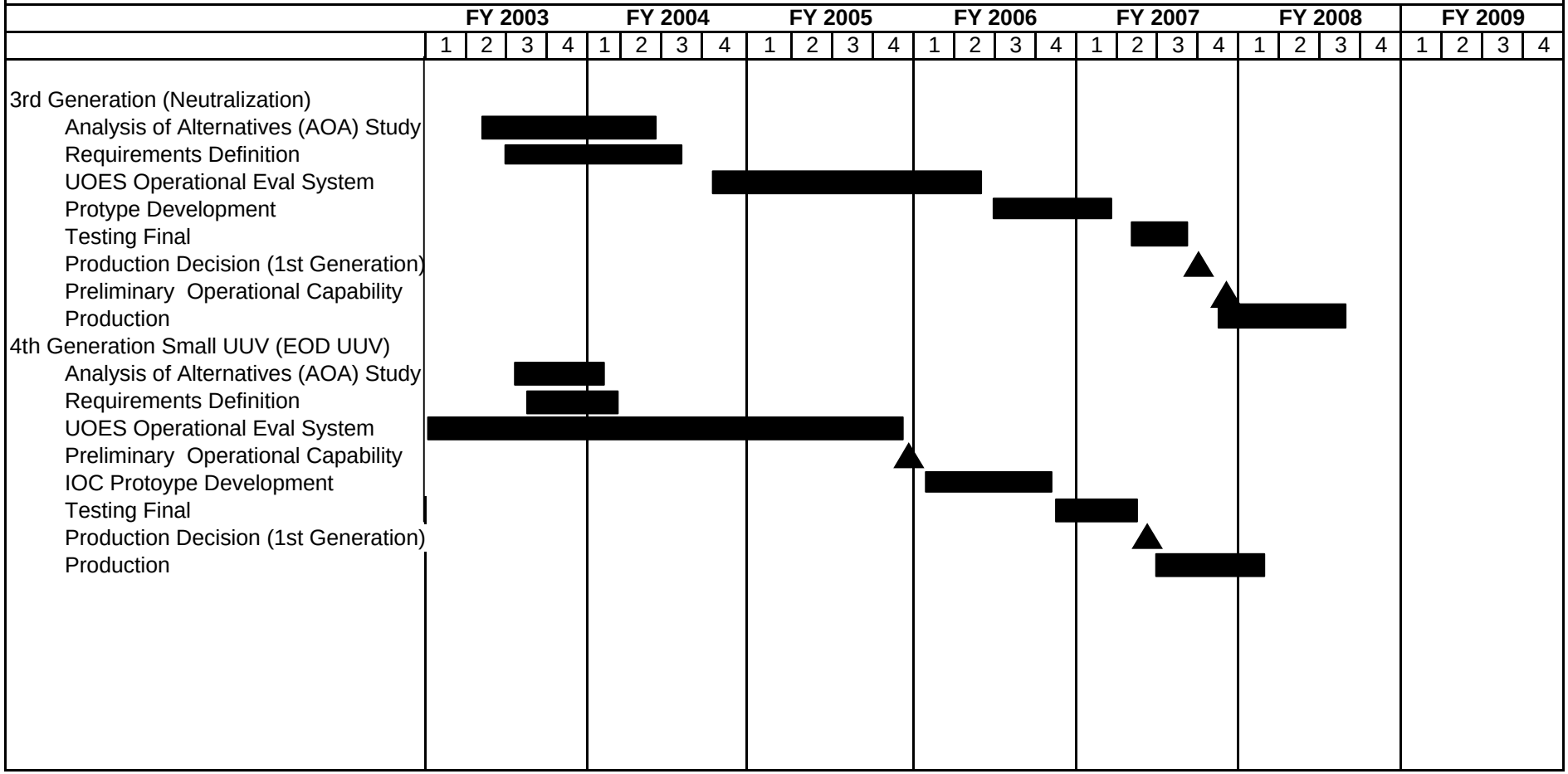


R-1 SHOPPING LIST - ITEM NO. 59

EXHIBIT R-4, Schedule Profile		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**	PROGRAM ELEMENT NAME AND N **JT Service EOD Dev 0603654N**	PROJECT NAME AND NUMBER 4023/EOD VSW MCM/Force Protection UUV

0603654N Joint Service EOD Development; 4023/EOD VSW MCM/Force Protection UUV

RDT&E Milestone Chart



R-1 SHOPPING LIST - ITEM NO. 59

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/ BA-4**	PROGRAM ELEMENT 0603654/Joint Service EOD Development				PROJECT NUMBER AND NAME 4023/EOD VSW MCM/Force Protection UUV			
1st Generation Small UUV (Search, Classify & Map)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	
UOES Operational Eval System	1Q-3Q							
Preliminary Operational Capability	3Q							
IOC Prototype Development	3Q-4Q							
Testing Final		1Q-3Q						
Production Decision			3Q					
Production			3Q-4Q	1Q-3Q				
Spiral CIP				3Q-4Q	1Q-4Q	1Q-3Q		
2nd Generation (Require and ID)								
Anaylsis of Alternatives (AOA) Study	1Q							
Requirements Definition	1Q-4Q							
UES Operational Eval System		1Q-3Q						
Preliminary Operational Capability		3Q						
IOC Prototype Development		3Q-4Q	1Q-3Q					
Testing Final			3Q-4Q	1Q-2Q				
Production Decision				3Q				
Production				3Q-4Q	1Q-3Q			
Sprial CIP					3Q-4Q	1Q-4Q	1Q-3Q	
3rd Generation (Neutralization)								
Analysis of Alternatives (AOA) Study	2Q-4Q	1Q-2Q						
Requirements Definition	3Q-4Q	1Q-3Q						
UOES Operational Eval System		4Q	1Q-4Q	1Q-2Q				
Protype Development				3Q-4Q	1Q			
Testing Final					2Q-3Q			
Production Decision (1st Generation)					3Q			
Preliminary Operational Capability					4Q			
Production					4Q	1Q-3Q		
4th Generation (EOD UUV)								
Analysis of Alternatives (AOA) Study	2Q-4Q	1Q						
Requirements Definition	3Q-4Q	1Q						
UOES Operational Eval System	1Q-4Q	1Q-4Q	1Q-4Q					
Preliminary Operational Capability			4Q					
IOC Protoype Development				1Q-4Q				
Testing Final				4Q	1Q-2Q			
Production Decision (1st Generation)					2Q-3Q			
Production					2Q-4Q	1Q		

R-1 SHOPPING LIST - Item No. 59

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603654N/Joint Service EOD Development				PROJECT NUMBER AND NAME 4024 SMCM Shallow and Deep Water UUV			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	
Project Cost	**0.000**	**0.000**	**1.794**	**1.064**	**1.765**	**3.522**	**1.973**	
RDT&E Articles Qty	**Various**	**Various**	**Various**	**Various**	**Various**	**Various**	**Various**	

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Provides for development of Small Low -Cost Unmanned Underwater Vehicles to support dedicated mine countermeasures operations. The UUV systems must have a small deployment footprint for rapid employment abroad various SMCM platforms. Equipment includes Launch and Recovery Sub-Systems.

R-1 SHOPPING LIST - Item No. 59

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-4	0603654N/Joint Service EOD Development	4024 SMCM Shallow and Deep Water UUV	

(U) B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.794	
RDT&E Articles Quantity				

Demonstrate operation of a UUV-based capability package for standoff, multiple MCM operations from surface MCM platorms (e.g., MHC, HSV, etc.)

*Starting in FY05 effort was moved from Program Element 0603654N, Project Q1317.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	
RDT&E Articles Quantity				

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	
RDT&E Articles Quantity				

R-1 SHOPPING LIST - Item No. 59

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603654N/Joint Service EOD Development	4024 SMCM Shallow and Deep Water UUV

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 04 President Controls):	0.000	0.000	0.000
Current BES/President's Budget (FY05 President Controls):	0.000	0.000	1.794
Total Adjustments	0.000	0.000	1.794
Summary of Adjustments			
New Project, Q4024 established for UUV Program	0.000	0.000	1.800
Miscellaneous Adjustment	0.000	0.000	-0.006
Subtotal	0.000	0.000	1.794

(U) Schedule:

Not Applicable

(U) Technical:

Not applicable.

R-1 SHOPPING LIST - Item No. 59

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603654N/Joint Service EOD Development	4024 SMCM Shallow and Deep Water UUV

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
OPN 5509							4381	Continuing	Continuing

(U) E. ACQUISITION STRATEGY: *

Analysis of Alternatives (AOA) studies are always conducted prior to the initiation of new projects. The AOA addresses and emphasizes acquisition strategies of the most cost-effective solution over the subprojects' life-cycle. The acquisition strategies observe the following hierarchy of alternatives: commercial item (including modification), non-developmental item (including modifications), and lastly, developmental programs. Contracting for RDT&E, if required, is always competitive and when feasible, production options are included.
The Surface Mine Countermeasures (SMCM) UUV program will begin in FY04 with a two-year experimentation phase involving Fleet Mine Warfare operators engaged in tactical experimentation with prototype UUVs operating from Surface MCM platforms. The focus of this program is to increase the current capabilities of Surface MCM ships while reducing the overall risk to MCM forces. During this two-year initiatives, these UUV Fleet operators will develop tactics for employing UUV systems from SMCM platforms along with operational requirements. Upon completion of the two-year experimentation phase, a competitive acquisition strategy will begin to field a more capable and robust first generation system.

(U) F. MAJOR PERFORMERS: **

The majority of funding in this line is executed by Naval Explosive Ordnance Disposal Technology Division located in Indian Head, MD in FY05. The funding is used to develop an Unmanned Underwater Vehicle. The funding document will be issued as follows: FY05 10/04.

*** Not required for Budget Activities 1,2,3, and 6**
**** Required for DON and OSD submit only.**

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603654N/Joint Service EOD Development			PROJECT NUMBER AND NAME 4024 SMCM Shallow and Deep Water UUV							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	EODTD, IH, MD	0.000	0.000		0.000		1.529	10/04	Continuing	Continuing	
Software Development			0.000	0.000		0.000		0.000		Continuing	Continuing	
Systems Engineering			0.000	0.000		0.000		0.000		Continuing	Continuing	
ILS			0.000	0.000		0.000		0.000		Continuing	Continuing	
			0.000								0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			0.000	0.000		0.000		1.529		0.000	1.529	
Remarks:												
Program Management Support			0.000	0.000				0.000			0.000	
Program Management Support								0.000		Continuing	Continuing	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

R-1 SHOPPING LIST - Item No. 59

CLASSIFICATION:

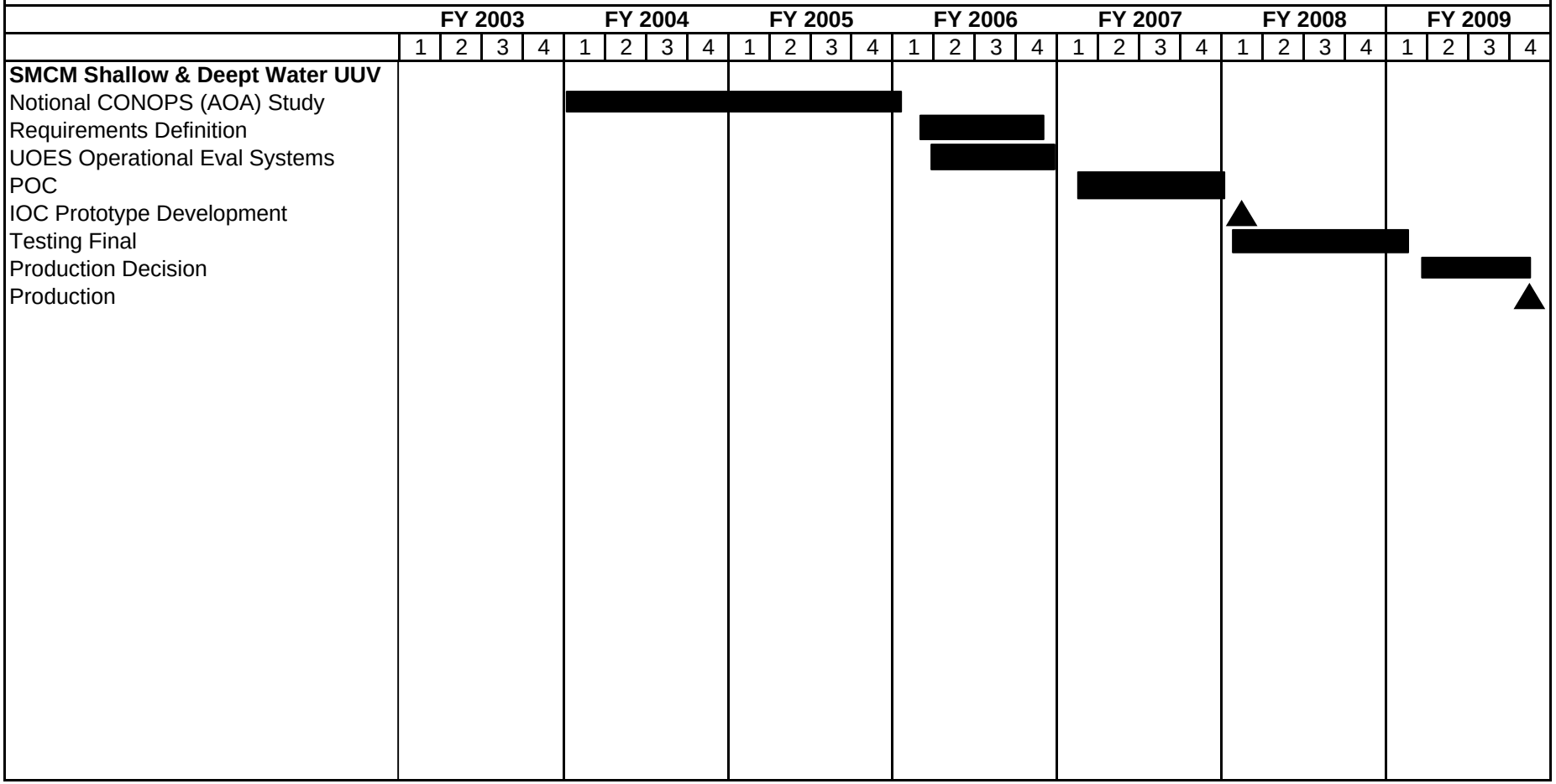
Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603654N/Joint Service EOD Development			PROJECT NUMBER AND NAME 4024 SMCM Shallow and Deep Water UUV						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation			0.000	0.000		0.000		0.000			0.000	
Operational Test & Evaluation			0.000								0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Program Management Support	WR	EODTD, IH, MD	0.000	0.000		0.000		0.000			0.000	
Miscellaneous		Various	0.000	0.000		0.000		0.265			0.265	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			0.000	0.000		0.000		0.265		0.000	0.265	
Remarks:												
Total Cost			0.000	0.000		0.000		1.794		0.000	1.794	
Remarks:												

R-1 SHOPPING LIST - Item No. 59

EXHIBIT R-4, Schedule Profile		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**	PROGRAM ELEMENT NAME AND N **JT Service EOD Dev 0603654N**	PROJECT NAME AND NUMBER 4024 SMCM Shallow and Deep Water UUV

0603654N Joint Service EOD Development; 4024 SMCM Shallow and Deept Water UUV

RDT&E Milestone Chart



R-1 SHOPPING LIST - ITEM NO. 59

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/ BA-4**	PROGRAM ELEMENT 0603654/Joint Service EOD Development				PROJECT NUMBER AND NAME 4024 SMCM Shallow and Deep Water UUV			
Small Shallow and Deept Water UUV	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	
Notinal CONOPS (AOA) Study		1Q-4Q	1Q-4Q	1Q				
Requirments Definiton				1Q-4Q				
UOES Operational Eval System				2Q-4Q				
POC					1Q-4Q			
IOC Protoytpe Development						1Q		
Testing Final						1Q-4Q	1Q	
Production Decision								
Production							4Q	

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**					R-1 ITEM NOMENCLATURE 0603658N Cooperative Engagement Capability			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	
Total PE Cost	**106.020**	**86.725**	**103.452**	**114.010**	**67.280**	**63.636**	**63.599**	
2039/Cooperative Engagement Capability (CEC)	**81.318**	**71.595**	**103.452**	**114.010**	**67.280**	**63.636**	**63.599**	
2616/Battlegroup Interoperability Issues	**24.702**	**15.130**						

Defense Emergency Response Funds (DERF) Funds: Not Applicable.

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Cooperative Engagement Capability (CEC) significantly improves Battle Force Anti-Air Warfare (AAW) capability by coordinating all Battle Force AAW sensors into a single, real-time, composite track picture capable of fire control quality. CEC distributes sensor data from each ship and aircraft, or cooperating unit (CU), to all other CUs in the battle force through a real-time, line of sight, high data rate sensor and engagement data distribution network. CEC is highly resistant to jamming and provides accurate gridlocking between CUs. Each CU independently employs high capacity, parallel processing and advanced algorithms to combine all distributed sensor data into a fire control quality track picture which is the same for all CUs. CEC data is presented as a superset of the best AAW sensor capabilities from each CU, all of which are integrated into a single input to each CU's combat weapons system. CEC will significantly improve our Battle Force defense in depth, including both local area and ship defense capabilities against current and future AAW threats. Moreover, CEC will provide critical connectivity and integration of over-land air defense systems capable of countering emerging air threats, including land attack cruise missiles, in a complex littoral environment.

CEC consists of the Data Distribution System (DDS), the Cooperative Engagement Processor (CEP), and Combat System modifications. The DDS encodes and distributes ownship sensor and engagement data and is a high capacity, jam resistant, directive system providing a precision gridlocking and high throughput of data. The CEP is a high capacity distributed processor that is able to process force levels of data in near real-time. This data is passed to the ship's combat system as high quality data for which the ship can cue its onboard sensors or use the data to engage targets without actually tracking them.

R-1 SHOPPING LIST - Item No. 60

CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603658N Cooperative Engagement Capability	2039/Cooperative Engagement Capability; 2616/BG Interoperability Issues

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	10.564	13.338	18.603	
RDT&E Articles Quantity				

Development, integration and testing of computer program Baseline 2.1 with AEGIS CGs and DDGs, ACDS and SSDS equipped ships during FOT&E-3/4.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	29.919	10.800	3.300	
RDT&E Articles Quantity				

E-2C HAWKEYE 2000 aircraft and CEC AN/USG-3 system integration and FOT&E-2 testing, and RMP Advanced HAWKEYE.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost		1.600		
RDT&E Articles Quantity				

Single Integrated Air Picture (SIAP) improvements.

R-1 SHOPPING LIST - Item No.60

CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603658N Cooperative Engagement Capability	2039/Cooperative Engagement Capability; 2616/BG Interoperability Issues

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	1.536	1.162	1.200	
RDT&E Articles Quantity				

Systems Engineering/Integration Agent (SE/IA) for development and execution of systems engineering processes by NSWC, Dahlgren.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	10.000	32.000	67.000	
RDT&E Articles Quantity				

Execution of Systems Integration/Design Agent competition; initiation of P3I initiatives/Track Management functions and Platform Independent Model (PIM) and Platform Specific Models (PSM) including GIG Horizontal Fusion Inititatves.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	47.271	19.857	5,839	
RDT&E Articles Quantity				

CEC system improvements including enhanced communications, expansion of networking capacity, next generation/reduced size equipment, development of system protection/multi-level secure operations, and Planar Array Active Antenna (PAAA).

R-1 SHOPPING LIST - Item No. 60

CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603658N Cooperative Engagement Capability	2039/Cooperative Engagement Capability; 2616/BG Interoperability Issues

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	2.000	2.000	2.000	
RDT&E Articles Quantity				

Participation in system interoperability exercises including the Joint Combat Identification Evaluation Team (JCIET) and Roving Sands, etc.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	3.900	5.400	4.945	
RDT&E Articles Quantity				

Field activity support of CEC development efforts (i,e, In-Service Engineering; Integrated Logistics Support Planning).

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	0.830	0.568	0.565	
RDT&E Articles Quantity				

Program management support.

R-1 SHOPPING LIST - Item No. 60

CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603658N Cooperative Engagement Capability	2039/Cooperative Engagement Capability; 2616/BG Interoperability Issues

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04 Pres Controls)	109.606	72.506	76.918
Current President's Budget: (FY05 Pres Controls)	106.020	86.725	103.452
Total Adjustments	-3.586	14.219	26.534
Summary of Adjustments			
SBIR/STTR Transfer	-2.558		
BSO Adjustments	-1.076		
P3I Improvements/Track Management			32.000
Reprogramming			-4.923
Economic Assumptions	.048		
Manpower Adjustments			-.074
NWCF Rates			-.469
Congressional Undistributed Reductions		-1.081	
Congressional Increases		15.300	
Subtotal	-3.586	14.219	26.534

Schedule:

Accelerated deployment of USS NIMITZ Battle Group required replanning of Follow-on Test and Evaluation-2 (FOT&E) schedule of integrated CEC/E-2C HAWKEYE 2000 aircraft. FOT&E-1 tests with USS NIMITZ Battle Group was completed December 2002. Several engineering tests have been successfully completed in FY 2003 in preparation for FOT&E -2 which will be completed in March 2004.

Technical:

CEC will collaborate with Single Integrated Air Picture (SIAP) Systems Engineering track management solution. P3I developments will address a smaller, cheaper, less power and cooling hardware solutions, including alternative communications and a lightweight antenna.

R-1 SHOPPING LIST - Item No.60

CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603658N Cooperative Engagement Capability	2039/Cooperative Engagement Capability; 2616/BG Interoperability Issues

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
Cooperative Engagement Capability/OPN	70.068	66.597	57.531	46.697	46.484	62.041	49.802	57.270	783.596
E-2C Aircraft /APN	35.500	27.300	15.600	5.300	5.300	21.300	27.100	388.100	566.400
Various - SCN Procurement	12.900	12.900	6.400	45.100	19.300	51.500	58.000	382.400	747.700
Development, Marine Corps	.700	6.000	3.000	4.000	.900	.900	.600	Cont.	Cont.

E. ACQUISITION STRATEGY:

The realignment of track management functions with the SIAP SE approach and Navy Open Architecture, while competing System Integrator functions, and utilizing a Pre-planned Product Improvement (P3I) program in lieu of a CEC Block 2 development effort, has been approved by the Over-arching Integrated Product Team (OIPT). A revised acquisition strategy is under development with OSD participation that will reflect this approach and allow for multiple industry participants and focus on joint initiative involvement.

F. MAJOR PERFORMERS:

Raytheon Systems Company, St. Petersburg, FL Development of AN/USG-2 (shipboard) and AN/USG-3 (airborne) equipment and support of testing.
Johns Hopkins University, Applied Physics Laboratory, Laurel, MD Technical Design Agent for AN/USG-2 and AN/USG-3 equipment and support of testing.
Northrop-Grumman Corporation, Bethpage, LI, NY Integration of AN/USG-3 equipment with E-2C HAWKEYE 2000 and Advanced HAWKEYE aircraft.
Naval Surface Weapons Center, Dahlgren, VA Software Support Activity (SSA) and Systems Engineering/Integration Agent (SE/IA).

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603658N Cooperative Engagement Capability				PROJECT NUMBER AND NAME 2039/Cooperative Engagement Capability; 2616/BG Interoperability Issues						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
AN/USG-2/3 Development	CPAF	Raytheon, St. Petersburg, FL	546.730	25.123	Oct-02	24.169	Oct-03	8.174	Oct-04	Continuing	Continuing	TBD
AN/USG-2/3 Development	CPAF	Award Fees	81.000	4.393	Various	1.500	Various	1.500	Various	Continuing	Continuing	TBD
AN/USG-2/3 Development/TDA	CPFF	JHU/APL, Laurel, MD	228.318	8.548	Nov-02	8.000	Oct-03	8.000	Oct-04	Continuing	Continuing	TBD
Block 2 Development/Competition	CPAF	Various	1.000	10.000	Various					Continuing	Continuing	TBD
P3I Efforts/Track Management	TBD	Various			Oct-02	32.000	Oct-03	67.000	Oct-04	Continuing	Continuing	TBD
E-2C/AHE Aircraft Integration	CPAF	Northrop-Grumman, LI., NY	173.289	10.119	Various	2.000	Oct-03	3.300	Oct-04		188.708	199.387
Tactical Component Network (TCN)	CPFF	Various	3.999	15.455	Oct-02						19.454	19.454
P-3 Aircraft Integration	CPAF	Lockheed-Martin	40.377								40.377	40.377
Baseline 2.2 Development	CPAF	Lockheed-Martin	11.881								11.881	11.881
Space Based IR Sensors (SBIRS)	CPAF	Lockheed-Martin	12.843								12.843	12.843
Modeling & Simulation	PD	PMS-456	5.261							Continuing	Continuing	
In-Service Engineering Activity	WX	NSWC, Port Hueneme, CA	13.642	4.790	Oct-02	2.527	Oct-03	2.285	Oct-04	Continuing	Continuing	
Land Based Test Network	PD	SPAWAR (PMW-159)	1.302								1.302	
Land Based Test Network	PD	NATC, Patuxent River, MD	.957								0.957	
Software Support Activity	WX	NSWC, Dahlgren, VA	51.741	5.731	Oct-02	4.000	Oct-03	3.500	Oct-04	Continuing	Continuing	
Antenna Redesign	RC	NSWC, Crane, IN	6.483								6.483	
Production Engineering Activity	WX	NSWC, Crane, IN	38.524	2.719	Oct-02	1.000	Oct-03	1.000	Oct-04	Continuing	Continuing	
AEGIS Integration	CPAF	Lockheed-Martin	124.933								124.933	124.933
SSDS/ACDS Integration	CPAF	Raytheon, San Diego, CA	39.871								39.871	39.871
Area Air Def. Commander (AADC)	CPAF	General Dynamics	10.096								10.096	10.096
Various	Various	Miscellaneous	85.958					2.128	Various	Continuing	Continuing	
SIAP Improvements	CPFF	JHU/APL, Laurel, MD	.000			1.600	Oct-03					
Subtotal Product Development			1478.205	86.878		76.796		96.887		Continuing	Continuing	

Remarks:

R-1 SHOPPING LIST - Item No. 60

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603658N Cooperative Engagement Capability				PROJECT NUMBER AND NAME 2039/Cooperative Engagement Capability; 2616/BG Interoperability Issues						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Test Support	CPAF	Raytheon, St. Peters., FL	6.635	1.481	Various	1.219	Oct-03	2.000	Oct-04		11.335	TBD
Test Support	CPAF	Award Fees	.983	.219	Various	.181	Various				1.383	
Test Support	CPFF	JHU/APL, Laurel, MD	9.007	1.000	Nov-02	1.100	Oct-03	.800	Oct-04		11.907	TBD
Test Support	WX	NRL, Washington, DC	5.692	.660	Oct-02	1.230					7.582	
Test Support	WX	NSWC, Port Hueneme, CA	20.170	11.431	Oct-02	1.458	Oct-03	1.000	Oct-04		34.059	
Air Operations Test Support	WX	NAVAIR (PMA-207)	5.409	.600	Oct-02	1.450					7.459	
Test Data Reduction	WX	NWAS, Corona, CA	14.254	2.370	Oct-02	1.440	Oct-03	.800	Oct-04		18.864	
Various	Various	Various	91.473	.551	Various	1.283	Various	1.400	Various		94.707	
Subtotal Test & Evaluation			153.623	18.312		9.361		6.000		Continuing	Continuing	
Remarks:												
Program Management Support	FFP	Various	59.534	.830	Oct-02	.568	Oct-03	.565	10/04	Continuing	Continuing	
Subtotal Management			59.534	.830		.568		.565		Continuing	Continuing	
Remarks:												
Total Cost			1,691.362	106.020		86.725		103.452		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 60

CLASSIFICATION:

EXHIBIT R4, Schedule Profile			DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603658N Cooperative Engagement Capability	PROJECT NUMBER AND NAME 2039/Cooperative Engagement Capability; 2616/BG Interoperability Issues	

Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																																
AN/USG-2 (Shipboard)			MS III																													
AN/USG-3 (Airborne)												IOC																				
AN/USG-2 (Shipboard) and AN/USG-3 (Airborne)												FOC																				
Develop PIM Establish SI/DA Contract Production of Mini-Terminal Production of LW Antennas																																
Test & Evaluation Milestones Development Test (AN/USG-3) Operational Test (AN/USG-3) Development/Operational Test (AN/USG-2)			DT-IIIA		DT-IIIB OT-IIIA	OT-IIIB						DT-IIIC		OT-IIIC		DT-IIID	OT-IIID															
Production Milestones AN/USG-2 (Shipboard) AN/USG-3 (Airborne)			FRP LRIP-5				LRIP-6																									
Deliveries	6	3	2	3	2	3	3	1	3	3	3	2	3	4	2	3	6	6	6	5	4	3	3	2	4	4	4	3	3	2	2	1

R-1 SHOPPING LIST - Item No. 60

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603658N Cooperative Engagement Capability				PROJECT NUMBER AND NAME 2039/CEC; 2616/BG Interoperability Issues			
Schedule Profile		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
BLOCK 1:								
Milestone III (MSIII) (AN/USG-2)								
Full Rate Production (AN/USG-2)								
LRIP-5 (AN/USG-3)								
LRIP-6 (AN/USG-3)		3Q03						
FOT&E-1 (AN/USG-3) (DT-IIIA/OT-IIIA) (Start)								
FOT&E-1 (AN/USG-3) (DT-IIIA/OT-IIIA) (Complete)		1Q03						
FOT&E-2 (AN/USG-3) (DT-IIIB/OT-IIIB) (Start)		1Q03						
FOT&E-2 (AN/USG-3) (DT-IIIB/OT-IIIB) (Complete)			1Q-2Q 04					
Initial Operational Capability (AN/USG-3)				1Q05				
Full Operational Capability (FOC) (AN/USG-2/3)				1Q05				
FOT&E-3 (DT-IIIC)			4Q04					
FOT&E-3 (OT-IIIC)				2Q05				
FOT&E-4 (DT-IIID)				4Q05				
FOT&E-4 (OT-IIID)					1Q06			
PRE-PLANNED PRODUCT IMPROVEMENT (P3I):								
Develop Platform Independent Model (PIM)			2Q04					
Establish SI/DA			3Q04					
Production of Mini-Terminal					1Q06			
Production of LtWt Antennas					1Q06			

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**					R-1 ITEM NOMENCLATURE 0603713N/Ocean Engineering Technology Development			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost		**24.585**	**17.977**	**26.232**	**18.712**	**9.969**	**6.710**	**6.845**
0099/Deep Submergence Biomedical Development		**3.755**	**2.996**	**3.280**	**3.375**	**4.077**	**4.160**	**4.244**
0394/Shallow Depth Diving Equipment		**20.830**	**14.981**	**22.952**	**15.337**	**5.892**	**2.550**	**2.601**

Defense Emergency Response Funds (DERF) Funds: N/A.

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Developments in this program will enable the U.S. Navy to overcome deficiencies that constrain underwater operations in the areas of search, location, rescue, recovery, salvage, construction, and protection of offshore assets. This program develops medical technology, diver life support equipment, and the vehicles, systems, tools and procedures to permit manned underwater operations.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603713N/Ocean Engineering Technology Development				PROJECT NUMBER AND NAME 0099/Deep Submergence Biomedical Development			
COST ($ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**3.755**	**2.996**	**3.280**	**3.375**	**4.077**	**4.160**	**4.244**
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Develops advanced biomedical and bioengineering technology for enhancing medical and life support for submarine escape and rescue; and for diver safety and effectiveness; supports deeper, longer, and more flexible dives. Deliverables for DISSUB (disabled submarine) include: medical procedures for submarine escape and rescue (including new Submarine Rescue Diving and Recompression System (SRDRS)), life support parameters, medical procedures for life support, exposure guidance for atmospheric contaminants, non-chemical CO2 scrubbing, prevention and treatment of decompression illness, and senior survivor expert decision system. Deliverables for diver enhancement include: exposure guidance for diver underwater continuous noise, impulse noise, and underwater blast, exposure guidance for oxygen breathing, collection of operational diving depth/time profiles to predict decompression risk, and enhanced underwater swimming efficiency. Requirements: NAPDD #587-873, Deep Submergence Biomedical Development, 23 November 1999.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603713N/Ocean Engineering Technology Development	0099/Deep Submergence Biomedical Development

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		1.451	1.440	1.660
RDT&E Articles Quantity				

Diver Health and Safety Research: Pulmonary oxygen toxicity risk algorithm. Procedures for assessing and mitigating risk for diving in contaminated water. Procedure to determine remaining CO2 scrubber duration. Development of advanced insulation garments for diver thermal protection. Develop final guidance for warm water diving. Continue collection of operational dive profiles for advanced modeling. Submarine ballast tank air quality survey. Novel methods for diver thermal protection. Improve resistance to O2 toxicity. Diver anthropometry. Chemical hardening of diving equipment. Predictive index of visual and auditory O2 toxicity. Guidelines for flying after diving. Guidelines for infra- and ultra-sound diver exposure. Develop an advanced diver thermal model. Guidelines for ballast tank diving. Protective gear for diver noise exposure. Electronic collection of operational dive data.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		2.287	1.367	1.423
RDT&E Articles Quantity				

Submarine Rescue: Decompression procedures for pressurized SRDRS operators. Use of perfluorocarbons to accelerate decompression in submarine rescue. Adjunctive therapies for treating DISSUB survivors. Guidance for food, water, clothing, medical supplies to enhance survival of submarine crews awaiting rescue. Flexible computer generated decompression schedules for wide range of conditions in a DISSUB. Develop DISSUB triage procedures. DISSUB survival trial. Develop oxygen metabolizer for closed vehicles. Accelerate decompression by negative pressure breathing. Treatment guidance for decompression sickness and arterial gas embolism in submarine escape and rescue. Interventions for toxicological problems with rescued submariners. Minimizing decompression sickness and arterial gas embolism with Submarine Escape and Immersion Suit (SEIS) training. Use of pharmacologic agents to reduce decompression risk in submarine rescuees.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.017	0.189	0.197
RDT&E Articles Quantity				

Used for cancelled accounts (19K) and RDA (74K).

R-1 SHOPPING LIST - Item No. 61

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603713N/Ocean Engineering Technology Development	0099/Deep Submergence Biomedical Development

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04/05 Pres Controls)	3.766	3.030	3.291
Current BES/President's Budget (FY05 President Controls)	3.755	2.996	3.280
Total Adjustments	-0.011	-0.034	-0.011
Summary of Adjustments			
66556 FY03 SBIR 5-May-03	-0.001		
66642 BSO ADJUSTMENTS	-0.010		
68041 Section 8094: Management Impr		-0.008	
68066 Sec. 8126: Efficiencies/Revis		-0.026	
69492 PBD-604 Inlation			-0.009
69512 PBD604 non purchase inflation			-0.002
Subtotal	-0.011	-0.034	-0.011

Schedule:

Not Applicable

Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603713N/Ocean Engineering Technology Development	0099/Deep Submergence Biomedical Development

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
Not Applicable										

E. ACQUISITION STRATEGY: *

Integrated thrust area teams (e.g. decompression research) are established with university, commercial and in-house Navy lab to jointly execute biomedical R&D; peer review of research proposals accomplished by independent Technical Advisory Board; annual review of progress by Executive Review Board (CNO/NAVSEA/ONR/BUMED); program management by 0-6 Medical Dept Officer; contracting by competitive process using BAA and leveraging ONR capabilities.

F. MAJOR PERFORMERS: **

Navy Experimental Diving Unit (NEDU) (Oct/each FY) is the center for manned diving biomedical research and development for the Navy. All Navy manned diving research facilities were consolidated at NEDU during the last BRAC.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603713N/Ocean Engineering Technology Development			PROJECT NUMBER AND NAME 0099/Deep Submergence Biomedical Development							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Component Development											0.000	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering											0.000	
Training Development											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Development Support											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603713N/Ocean Engineering Technology Development			PROJECT NUMBER AND NAME 0099/Deep Submergence Biomedical Development						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NEDU	18.293	2.552	12/02	2.785	10/03	3.059		Continuous	26.689	
	CPIF	OceanWorks		1.171	11/02						1.171	1.171
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			18.293	3.723		2.785		3.059		0.000	27.860	
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support	IPA		0.102								0.102	
Travel			0.018	0.015		0.022		0.024		Continuous	0.079	
Labor (Research Personnel)											0.000	
*SBIR Assessment			0.093	0.017		0.189		0.197			0.496	
Subtotal Management			0.213	0.032		0.211		0.221		0.000	0.677	
Total Cost			18.506	3.755		2.996		3.280		0.000	28.537	

Remarks:*SBIR Assessment inludes other extramural program assessments FY03-05.

Remarks:

R-1 SHOPPING LIST - Item No. 61

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603713N/Ocean Engineering Technology Development				PROJECT NUMBER AND NAME 0394/Shallow Depth Diving Equipment			
COST ($ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**20.830**	**14.981**	**22.952**	**15.337**	**5.892**	**2.550**	**2.601**
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project is to develop systems to support submarine escape and rescue missions, and conventional diver operations. Diver operations include ship husbandry, salvage/recovery, and submarine rescue operations to support national, as well as, Navy needs around the world. Modern certifiable diving systems that ensure diver safety and allow maximum work efficiency will replace currently antiquated systems. Efforts are currently (through FY 07) focused on the Submarine Rescue Diving and Recompression System (SRDRS) to provide a new rapidly deployed emergency submarine rescue capability. SRDRS will fill the gap created by the decommissioning of USS PIGEON (ASR 21) and USS ORTOLAN (ASR 22) and provide a new capability of pressurized transportation of rescuees from a stricken submarine directly to the decompression system eliminating the requirement for Deep Submergence Rescue Vehicles, Mother Submarines and Submarine Rescue Chambers. SRDRS is to include an air transportable rapid assessment/underwater work system, a decompression chamber system and a pressurized rescue module. The SRDRS will provide a global rapid response capability to support submarine rescue missions with an increase in capability at a fraction of the cost of the currently available systems. FY04-07 budget as indicated above is solely for the SRDRS program acquisition.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603713N/Ocean Engineering Technology Development	0394/Shallow Depth Diving Equipment

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		20.830	14.981	22.952
RDT&E Articles Quantity				

Complete fabrication and acceptance testing of the prototype Submarine Decompression System and support equipment. Complete design, begin fabrication and acceptance testing of prototype Pressurized Rescue Module and support equipment. Begin integration and testing of all SRDRS components.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603713N/Ocean Engineering Technology Development	0394/Shallow Depth Diving Equipment

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04/05 Pres Controls)	11.406	15.150	11.626
Current BES/President's Budget (FY05 President Controls)	20.830	14.981	22.952
Total Adjustments	9.424	-0.169	11.326
Summary of Adjustments			
Programmatic Adjustements			11.400
Economic Adjustments	0.120		-0.074
Reprogrammings	9.600		
SBIR	-0.296		
Congressional Adjustments		-0.169	
	9.424	-0.169	11.326

Schedule:

Not Applicable

Technical:

Not Applicable

R-1 SHOPPING LIST - Item No. 61

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603713N/Ocean Engineering Technology Development	0394/Shallow Depth Diving Equipment

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
Not Applicable									

E. ACQUISITION STRATEGY: *

The Submarine Rescue System (SRS) segment of the SRDRS is largely based on the use of Commercial-Off-the-Shelf (COTS) technology and maximum use of Non-Developmental Items (NDI). The SRS segment is being procured using performance based specifications. Many of the SRS contracts were awarded competitively and were based on technical capability and cost considerations (best value). Program Management of SRDRS is accomplished through the use of Program Executive Officer, Submarines (PEO SUB) leadership. This change was enacted in February 2003 realigning the responsibility from SEA00C to PEOSUB. The Prototype system will provide full operational capability and no additional procurement is planned. The system is designed to be Government Owned/Commercially Operated (GO/CO).

F. MAJOR PERFORMERS: **

Oceaneering International is providing systems engineering and integration support for the SRS through a Veterans Administration contract. Oceanworks, Inc. is the detailed designer and fabrication of the Pressurized Rescue Module. Global Phillips Cartner is providing fabrication and integration of the SRDRS mission support equipment.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603713N/Ocean Engineering Technology Development			PROJECT NUMBER AND NAME 0394/Shallow Depth Diving Equipment						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development												
Ancillary Hardware Development												
Design, System integration	CPAF	Oceaneering (remark 2)	6.638		N/A		N/A		N/A		6.638	
Decompression Chambers (SDC 1 and 2	FFP	NFESC	3.240	0.077	Dec-02		N/A		N/A		3.317	
Various Mission Support Equip. (MSE)	CPAF	GPC	6.714	1.843	Various	1.678	Various	3.425	Various		13.660	
Pressurized Rescue Module Sys. (PRMS	CPIF	Oceanworks	11.968	10.900	Various	6.070	Various	2.673	Various		31.611	
Various PRMS MSE	Various	Miscellaneous	2.435	4.055	Various	0.199	Various	5.395	Various		12.084	
Systems Engineering - Design, Integratio	Various	Oceaneering	8.253	2.125	Various	3.495	Various	3.881	Various		17.754	
Systems Engineering - Technical	Various	Various	3.213	0.130	Various	0.302	Various	0.311	Various		3.956	
Licenses											0.000	
GFE											0.000	
Award Fees	CPAF	Oceaneering	1.234		N/A		N/A		N/A		1.234	
	CPAF	GPC	0.254	0.055	Nov-02	0.050	Various	0.103	Various		0.462	
											0.000	
Subtotal Product Development			43.949	19.185		11.794		15.788			90.716	

Remarks:
1. July 2003 Exhibit R-2 (2 pages) and R-4 (2 pages) restructured as part of SRDRS SRS program realignment within NAVSEA from SEA00C to PEOSUBs. OPNAV N773 sponsor is aware of realignment and ongoing rebaselining effort.
2. Prior year values adjusted to match Submarine Rescue System (SRS) portion only = $451.596 FY98-02 RDT&E,N. Other PY costs are for the Assessment/Underwater Work System (AUWS) managed by PMS 395. Oceaneering CPAF contract not used FY03 and out. PY value reduced from $9.078 to $6.638 and NSWC/CSS value of $20.089 zeroed from PY SEA00C exhibit submits.
3. SDC-1 and SDC-2 chambers under a FFP contract through NFESC. Contract completion date (CCD) remains 31 August 2003 and was missed. Liquidated damages are being assessed per the FAR. A significant Request for Equitable Adjustment (REA) has been submitted. Adjudication or financial liability to program is not included in controls.

Development Support	Various	Miscellaneous	0.279		N/A		N/A		N/A		0.279	
Software Development	WR	NSWC CD	0.221		N/A		N/A		N/A		0.221	
Integrated Logistics Support	MIPR	DOI, Titan	2.114	0.160	Various		N/A		N/A		2.274	
Integrated Logistics Support	Various	Miscellaneous	0.000		N/A	0.600	Various	0.780	Various		1.380	
Configuration Management	Various	Various				0.450	Various	0.915	Various		1.365	
Technical Data											0.000	
GFE											0.000	
Award Fees	CPAF	Phoenix International	0.023		N/A		N/A		N/A		0.023	
Subtotal Support			2.637	0.160		1.050		1.695			5.542	

Remarks:

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603713N/Ocean Engineering Technology Development			PROJECT NUMBER AND NAME 0394/Shallow Depth Diving Equipment						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various	Miscellaneous	1.093	0.220	Various	0.181	Various	1.121	Various		2.615	
Operational Test & Evaluation	WX	COMOPTEVFOR	0.020	0.000	N/A	0.074	Various	0.053	Various		0.147	
Miscellaneous	Various	Various	0.000	0.000	N/A	0.025	Various	2.109	Various		2.134	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			1.113	0.220		0.280		3.283			4.896	
Remarks:												
Contractor Engineering Support	Various	Miscellaneous	1.225	0.095	Various		N/A		N/A		1.320	
Government Engineering Support	WX	NFESC	0.416	0.060	Dec-02		N/A		N/A		0.476	
Government Engineering Support	MIPR	DOI	1.161		N/A		N/A		N/A		1.161	
Government Engineering Support	WX	PSNSY, Various	0.000	0.011	Various		Various		Various		0.011	
Government Engineering Support	Various	Miscellaneous	0.347	0.603	Various	1.088	Various	1.017	Various		3.055	
Program Management Support	Various	Miscellaneous	0.329	0.100	Various	0.366	Various	0.371	Various		1.166	
Travel	Various	Various	0.365	0.100	Various	0.100	Various	0.100	Various		0.665	
SBIR Assessment (remark 1)			0.300	0.296	Various	0.303	Various	0.698	Various		1.597	
Subtotal Management			4.143	1.265		1.857		2.186			9.451	
Remarks:												
Total Cost			51.842	20.830		14.981		22.952			110.605	

Remarks:
1. SBIR Assessment includes other extramural program assessments FY 02-05. PY only includes some ($300K) of the non-SBIR extramural program expenses from FY 02 still listed in program controls.
2. FY03 Control based on PBIS value of July 31, 2003 at $20.374M.
3. FY04 shortfall of $4.0M identified to N773 sponsor.

R-1 SHOPPING LIST - Item No. 61

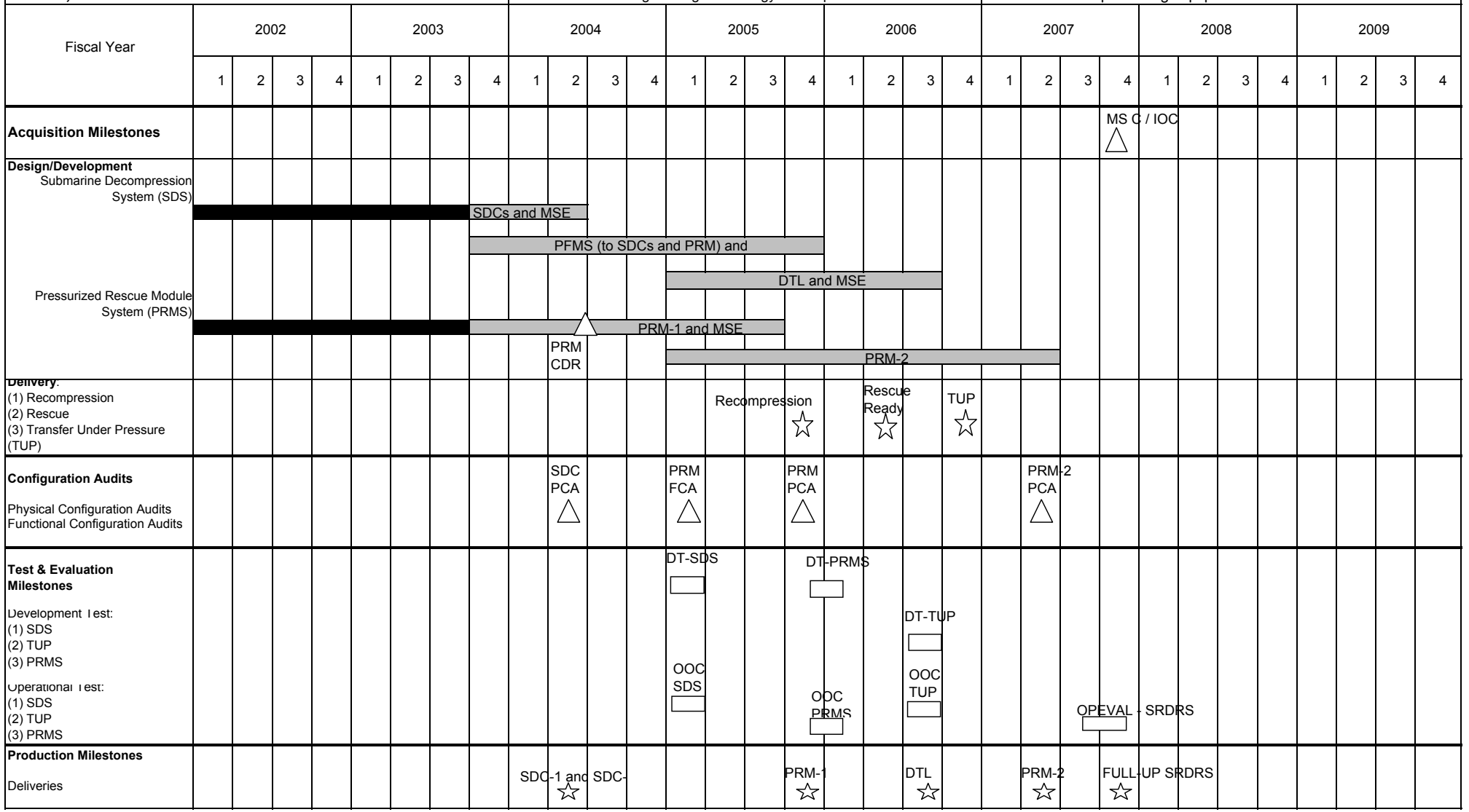
CLASSIFICATION:

EXHIBIT R4, Schedule Profile | DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4**

PROGRAM ELEMENT NUMBER AND NAME: 0603713N/Ocean Engineering Technology Development

PROJECT NUMBER AND NAME: 0394/Shallow Depth Diving Equipment



R-1 SHOPPING LIST - Item No. 61

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT& BA-4**	PROGRAM ELEMENT 0603713N/Ocean Engineering Technology Development				PROJECT NUMBER AND NAME 0394/Shallow Depth Diving Equipment			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Milestone II (MSII)								
Detail Design/Development and Fab (SDS - SDC, PFMS, [	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-3Q			
Detail Design/Devel. and Fab (PRMS - PRMS-1 and PRM-	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-2Q		
Critical Design Review (CDR) - PRMS			2Q					
Physical Configuration Audit - SDC			2Q					
Hardware Delivery - SDC-1 and SDC 2			2Q					
Functional Configuration Audit (FCA) - PRM				1Q				
Developmental Testing (DT-SDS)				1Q				
Operational Testing (OOC-SDS)				1Q				
Acquisition Capability Delivery - Recompression				4Q				
Physical Configuration Audit - PRM				4Q				
Hardware Delivery - PRM-1 and PRMS				4Q				
Developmental Testing (DT-PRMS)				4Q	1Q			
Operational Testing (OOC-PRMS)				4Q	1Q			
Acquisition Capability Delivery - Rescue Ready					2Q			
Hardware Delivery - DTL					3Q			
Developmental Testing (DT-TUP)					3Q			
Operational Testing (OOC-TUP)					3Q			
Acquisition Capability Delivery - TUP					4Q			
Physical Configuration Audit - PRM-2						2Q		
Hardware Delivery - PRM-2						2Q		
Operational Evaluation Full SRDRS						3Q-4Q		
Milestone C						4Q		
Acquisition Capability Delivery - Full Up SRDRS						4Q		
First Deployment (Rescue Ready (DSRV Equiv.)					2Q			
First Deployment (Fly Away Recompression w/ TUP)					4Q			
First Deployment Full -Up SRDRS						4Q		
Initial Operational Capability (IOC) of Full Up SRDRS						4Q		

R-1 SHOPPING LIST - Item No. 61

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**					R-1 ITEM NOMENCLATURE PE0603721N / Environmental Protection			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost		**43.048**	**31.855**	**24.641**	**20.571**	**20.881**	**21.641**	**22.154**
Shipboard Waste Management / 0401		**27.527**	**24.994**	**16.980**	**12.172**	**10.670**	**11.206**	**11.764**
Environmental Compliance / 2210		**2.742**	**0.758**	**0.776**	**0.811**	**1.027**	**1.070**	**0.833**
Pollution Abatement / 0817		**10.195**	**4.027**	**6.885**	**7.588**	**9.184**	**9.365**	**9.557**
Marine Mammal Detection & Mitigation / 9204*		**1.620**	**2.076**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Field Demonstration of Containment Tech / 9203*		**0.964**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) Many environmental laws, regulations, and policies impose restrictions on Navy vessels, aircraft, and facilities that interfere with operations and/or increase the cost of operations. The Navy must be able to conduct its national security mission in compliance with applicable environmental requirements in the U.S. and abroad without compromising performance, safety, or health, while simultaneously minimizing the cost of compliance. This program develops processes, prototype hardware, systems, and operational procedures that will allow the Navy to operate in U.S., foreign, and international waters, air, space, and land areas while complying with environmental U.S. statutes and international agreements. Projects support the Navy's compliance with: OPNAVINST 5090.1B CH-2 of 9 September 1999 and other Navy environmental-related policies; the Clean Water Act, Clean Air Act, Act to Prevent Pollution from Ships, National Environmental Policy Act, Marine Plastic Pollution Research and Control Act, Endangered Species Act, Marine Mammal Protection Act, Resource Conservation and Recovery Act, Toxic Substances Control Act, U.S. Public Vessel Medical Waste Anti-Dumping Act, and Federal Facility Compliance Act; and Executive Orders 12088, 12114, 12843, 13089, 13101, 13112, 13148, and 13158. Project 0401 supports RDT&E efforts that allow Navy ships and submarines to comply with existing laws, regulations, and policies in four major areas: ozone depleting substances, liquid wastes, solid wastes, and hazardous and other wastes. Project 2210 funds RDT&E requirements that allow Navy compliance with laws, regulations and policies impacting the basing, re-alignment, operation, repair and replacement of Naval aircraft in four major areas: engine emissions, air vehicle hazardous materials and wastes, ozone depleting substances, and aviation shipboard emissions. Project 0817 funds RDT&E requirements that allow Navy to develop and validate technologies to enable Navy facilities to comply with environmental laws, regulations, and policies in a cost-effective manner.

* Projects 9203 and 9204 are Congressional adds.

R-1 SHOPPING LIST - Line No. 62

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection				PROJECT NUMBER AND NAME 0401 / Shipboard Waste Management			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**27.527**	**24.994**	**16.980**	**12.172**	**10.670**	**11.206**	**11.764**
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) Navy ships and submarines must routinely operate in U.S., international, and foreign waters, and visit numerous U.S. and foreign ports. No body of water is without environmental restrictions that impact the movements and operations of Navy vessels. Environmental requirements tend to be most restrictive in port and in coastal waters, where the Navy's increasing littoral presence places ships and submarines in discharge-restricted waters for longer periods of time. Growing international cooperation in addressing global environmental concerns is resulting in expanding areas of ocean designated as environmentally sensitive, where special prohibitions on ship discharges are imposed. Navy vessels must comply with applicable environmental legal requirements while ensuring continued access to all waters for operations, exercises, training, and port access. The large crews and limited onboard space of Navy ships and submarines severely constrain their ability to hold wastes for return to port for shoreside disposal. This project develops and evaluates shipboard waste processing equipment and systems to enable ships and submarines to manage their wastes in an environmentally-compliant, safe, and operationally-compatible manner. It also addresses afloat environmental issues other than shipboard wastes, e.g., protected marine animals and hull antifouling, that pose significant operational and port entry threats to the Navy Fleet.

R-1 SHOPPING LIST - Line No. 62

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603721N / Environmental Protection	0401 / Shipboard Waste Management

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Ozone Depleting Substances		3.591	1.000	1.000
RDT&E Articles Quantity				

FY 03: (U) Continued development of shipboard alternative (non-vapor-compression) cooling concepts. Completed evaluation of non-ozone depleting substance (non-ODS) fire protection concepts and systems for future surface ships.
FY 04: (U) Complete development of shipboard alternative (non-vapor-compression) cooling concepts. Initiate development of solutions for lubrication and engineering design problems in surface ship CFC-114 air-conditioning plant conversion designs.
FY 05: (U) Continue development of solutions for lubrication and engineering design problems in surface ship CFC-114 air-conditioning plant conversion designs.

R-1 SHOPPING LIST - Line No. 62

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603721N / Environmental Protection	0401 / Shipboard Waste Management

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Integrated Liquid Wastes		9.136	5.211	5.600
RDT&E Articles Quantity				

FY 03: (U) Continued support of rulemaking process with Environmental Protection Agency (EPA) in development of Uniform National Discharge Standards (UNDS) for liquid waste discharges from Navy vessels: continued discharge analyses and setting of Marine Pollution Control Device (MPCD) performance standards. Continued development of integrated liquid waste treatment system: completed 10-gpm Oil/Waste Separator (OWS-10) Polisher ILS documentation, completed 50-gpm Oil/Water Separator (OWS-50) Polisher ILS documentation, and completed 5-gpm Oil/Water Separator (OWS-5) Polisher ILS documentation; continued development of Engineering Development Model (EDM) non-oily wastewater treatment system.

FY 04: (U) Continue support of rulemaking process with Environmental Protection Agency (EPA) in development of Uniform National Discharge Standards (UNDS) for liquid waste discharges from Navy vessels: continue discharge analyses and setting of Marine Pollution Control Device (MPCD) performance standards. Continue development of integrated liquid waste treatment system: complete development of Engineering Development Model (EDM) non-oily wastewater treatment system; initiate development of MPCD treatment systems; initiate development of shipboard Oil Pollution Abatement System improvements; initiate evaluation of commercial non-oily wastewater treatment systems.

FY 05: (U) Continue support of rulemaking process with Environmental Protection Agency (EPA) in development of Uniform National Discharge Standards (UNDS) for liquid waste discharges from Navy vessels: continue discharge analyses and setting of Marine Pollution Control Device (MPCD) performance standards. Continue development of Integrated liquid waste treatment system: continue development of MPCD treatment systems; continue development of shipboard Oil Pollution Abatement Systems improvements; continue evaluation of commercial non-oily wastewater treatment systems.

R-1 SHOPPING LIST - Line No. 62

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603721N / Environmental Protection	0401 / Shipboard Waste Management

B. Accomplishments/Planned Program (Cont.)

		FY 03	FY 04	FY 05
Solid Wastes		6.500	6.968	0.500
RDT&E Articles Quantity				

FY 03: (U) Completed development of management processes and systems for plastics for submarine application: completed transition of SSN-21 Class and SSN-774 Class submarine design solutions. Continued development of advanced thermal destruction system for processing shipboard solid wastes.
FY 04: (U) Complete development of advanced thermal destruction system for processing shipboard solid wastes. Initiate evaluation of commercial thermal destruction systems for shipboard solid wastes.
FY 05: (U) Continue evaluation of commercial thermal destruction systems for shipboard solid wastes.

		FY 03	FY 04	FY 05
Hazardous and Other Major Ship Wastes		8.300	11.815	9.880
RDT&E Articles Quantity				

FY 03: (U) Continued shipboard hazardous materials substitution and elimination process and continued test and evaluation of pollution-prevention equipment aboard surface ships. Completed quality assurance testing on reformulated commercial paints. Continued development of marine mammals ship database tracking system: Continued development and testing of new low/no-copper underwater hull antifouling coatings. Continued development of underwater hull cleaning system. Initiated development of Environmental Information Management System (EIMS).
FY 04: (U) Continue shipboard hazardous materials substitution and elimination process and continue test and evaluation of pollution-prevention equipment aboard surface ships and submarines. Continue development of marine mammals ship database tracking system: continue demonstration of acoustic modelling. Continue development and testing of new low/no-copper underwater hull antifouling coatings. Continue development of underwater hull cleaning system. Continue development of Environmental Information Management System (EIMS).
FY 05: (U) Continue shipboard hazardous materials substitution and elimination process and continue test and evaluation of pollution-prevention equipment aboard surface ships and submarines. Continue development of marine mammals ship database tracking system: continue demonstration of acoustic modelling. Continue development and testing of new low/no-copper underwater hull antifouling coatings. Continue development of underwater hull cleaning system. Continue development of Environmental Information Management System (EIMS).

R-1 SHOPPING LIST - Line No. 62

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603721N / Environmental Protection	0401 / Shipboard Waste Management

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04 Pres Controls)	28.163	25.283	24.171
Current BES/President's Budget:	27.527	24.994	16.980
Total Adjustments	-0.636	-0.289	-7.191
Summary of Adjustments			
Oil Spill Recovery Equipment			6.200
Technical Realignment			0.800
NWCF Rates			0.186
Misc. Adjustment	0.093	0.289	0.005
SBIR	0.264		
FY03 BTR	0.279		
Subtotal	0.636	0.289	7.191

Schedule:

Not applicable.

Technical:

Not applicable.

R-1 SHOPPING LIST - Line No. 62

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603721N / Environmental Protection	0401 / Shipboard Waste Management

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost

(U) Demonstrated and validated technologies are transitioned to various SCN, OPN, and O&MN budget accounts for implementation as part of a Fleet modernization program or new ship construction.

(U) Related RDT&E: (U) Defense Research Sciences/Shipboard Processes (PE 61153N / 3162)
(U) Readiness, Training, and Environmental Quality/Logistics and Environmental Quality (PE 62233N)
(U) Environmental Quality and Logistics Advanced Technology/Environmental Requirements Advanced Technology (PE 63712N / 2206)

E. ACQUISITION STRATEGY:

(U) RDT&E Contracts are Competitive Procurements.

F. MAJOR PERFORMERS:

(U) NSWCCD, Bethesda, MD: Test and evaluates prototype, preproduction, and commercial shipboard environmental systems and equipment in the laboratory and onboard ship.
(U) York International Corp,York,PA: Design and build prototype and preproduction shipboard air-conditioning and refrigeration systems that operate with new, environmentally-acceptable refrigerants.
(U) Geo-Centers, Inc., Boston, MA: Design and fabricate prototype shipboard waste treatment systems and equipment for test and evaluation.

R-1 SHOPPING LIST - Line No. 62

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT PE0603721N / Environmental Protection			PROJECT NUMBER AND NAME 0401 / Shipboard Waste Management							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPFF	WMTD, Pitts, PA	14.580								14.580	14.580
Primary Hardware Development	C/CPFF	Geo-Centers, Inc,Bos.,MA	23.250	2.000	01/03	1.500	01/04	0.500		Cont	Cont	N/A
Primary Hardware Development	SS/CPFF	York Internat'l Corp,York,PA	2.700							N/A	2.700	2.700
Primary Hardware Development	SS/CPFF	York Internat'l Corp,York,PA	11.850							10.150	25.000	25.000
Primary Hardware Development	SS/CPFF	N. Res & Eng Corp,Wab.,MA	1.200							N/A	1.200	1.200
Primary Hardware Development	C/CPFF	M. Rosenblatt & Son, NY,NY	10.363	1.000	01/03	0.000		0.000		Cont	Cont	N/A
Ancillary Hardware Development	Various	Misc. Contracts	16.884	0.536	Var	1.500		0.500		N/A	N/A	N/A
Component Development											0.000	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering	C/CPFF	John J. McMullen & Son	4.487	0.600	03/03	0.000		0.000		Cont	Cont	N/A
Training Development											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			85.314	4.136		3.000		1.000		Cont	Cont	N/A
Remarks: (1) Hardware Development and Systems Engineering Tasks use CPFF Delivery Contracts for Continuing Development of Pollution Abatement Hardware and Ship Systems Engineering Analysis.												
Development Support											0.000	
Software Development	WR	SPAWARS, Charleston, SC	0.000	0.000		2.100		3.000		0.000	5.100	0.000
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		2.100		3.000		0.000	5.100	
Remarks:												

R-1 SHOPPING LIST - Line No. 62

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT PE0603721N / Environmental Protection				PROJECT NUMBER AND NAME 0401 / Shipboard Waste Management						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWCCD, Bethesda, MD	122.524	12.250		11.000		6.500		Cont	Cont	N/A
Developmental Test & Evaluation	WR	NRL,Wash,DC	25.082	2.200		2.000		1.000		Cont	Cont	N/A
Developmental Test & Evaluation	WR	SPAWARSYSCEN,SD,CA	7.810	2.000		1.500		0.500		Cont	Cont	N/A
Process Control Engineering	C/CPFF	GSA/BAH, Arlington, VA	5.322	4.000		3.000		3.000		Cont	Cont	N/A
Developmental Test & Evaluation	WR	Misc. Govt Labs	22.232	1.250		0.500		0.500		Cont	Cont	N/A
Developmental Test & Evaluation	C/CPFF	Geo-Centers, Inc,Bos.,MA	12.151	1.000	01/03	1.000	01/04	1.000	01/05	Cont	Cont	N/A
Developmental Test & Evaluation	C/CPFF	York Internat'l Corp,York,PA	12.000							0.000	12.000	12.000
Developmental Test & Evaluation	C/CPFF	Misc. Contracts	10.791	0.641	Var	0.874	Var	0.460	Var	Cont	Cont	N/A
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	N/A
Subtotal T&E			217.912	23.341		19.874		12.960		0.000	Cont	N/A
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel			0.150	0.050		0.020		0.020			Cont	
Labor (Research Personnel)											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.150	0.050		0.020		0.020		0.000	Cont	
Remarks:												
Total Cost			303.376	27.527		24.994		16.980		Cont	Cont	Cont
Remarks:												

R-1 SHOPPING LIST - Line No. 62

EXHIBIT R4, Schedule Profile | DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4**

PROGRAM ELEMENT NUMBER AND NAME: PE0603721N / Environmental Protection

PROJECT NUMBER AND NAME: 0401 / Shipboard Waste Management

Fiscal Year	2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Ozone Depleting Substances																												
Alternative (Non-Vapor-Compression) Cooling Concepts	■	■	■	■	■	■	■	■																				
Non-ODS Fire Protection Systems	■	■	■	■																								
Lubrication and Engineering Problems for HFC-236fa Air-Conditioning Plants					■	■	■	■	■	■	■	■																
Integrated Liquid Wastes																												
Uniform National Discharge Standards (UNDS) Rulemaking	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
10-gpm Oil/Water Separator Polisher (OWS-10)	■	■	■	■																								
50-gpm Oil/Water Separator Polisher (OWS-50)	■	■	■	■																								
5-gpm Oil/Water Separator Polisher (OWS-5)	■	■	■	■																								
Evaluate Commercial Non-Oily Wastewater & MPCD Treatment Systems									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Oil Pollution Abatement (OPA) System Improvements					■	■	■	■	■	■	■	■	■	■	■	■												
Solid Wastes																												
Submarine Plastics Waste Management	■	■	■	■																								
Advanced Thermal Destruction Systems	■	■	■	■	■	■	■	■																				
Commercial Thermal Destruction Systems					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Hazardous and Other Major Ship Wastes																												
Hazardous Materials Substitution/Elimination	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Pollution Prevention Equipment	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Test Reformulated Commercial Paints	■	■	■	■																								
Protected Marine Animals	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Low/No-Copper Hull Antifouling Coatings	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■								
Underwater Hull Cleaning System	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■												
Environmental Information Management System (EIMS)	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

R-1 SHOPPING LIST - Line No. 62

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT PE0603721N / Environmental Protection				PROJECT NUMBER AND NAME 0401 / Shipboard Waste Management			
Schedule Profile		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Not applicable.								

R-1 SHOPPING LIST - Line No. 62

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection				PROJECT NUMBER AND NAME 2210 / Environmental Compliance			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**2.742**	**0.758**	**0.776**	**0.811**	**1.027**	**1.070**	**0.833**
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

A. (U) Mission Description and Budget Item Justification: This project supports development and implementation of technologies which will lead to environmentally safe naval aviation operations and support; compliance with international, federal, state, and local regulations and policies; reduction of increasing compliance costs and personal liability; and enhancement of naval aviation mission readiness and effectiveness. This project will support aviation compliance and pollution prevention technologies as well as additional operational and shipboard aviation requirements previously unsupported. Specific regulatory requirements include Executive Orders 12856 (Pollution Prevention) and 12873 (Recycling & Waste Prevention), and 13148, the National Environmental Policy Act (NEPA), Clean Air Act (CAA) Title I, National Ambient Air Quality Standards (NAAQS), relating to pollutants aircraft contribute to base air emission limits (volatile organic compounds (VOCs), particulate matter (PM), oxides of nitrogen (NOx), oxides of sulfur (SOx), and unburned hydrocarbons (UHCs)), the National Emission Standards for Hazardous Air Pollutants (NESHAPs), the Clean Water Act (CWA), the Resource Conservation and Recovery Act (RCRA), as well as Occupational,Safety and Health Administration (OSHA) standards.

2210 legacy aircraft maintenance facility requirements were rebaselined to Project 0817, Pollution Abatement Ashore, beginning in FY 04.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603721N / Environmental Protection	2210 / Environmental Compliance

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		1.086	0.000	0.000
RDT&E Articles Quantity				

Alternative Maintenance Processes: Research, develop, and test alternatives to aircraft and propulsion systems maintenance processes that use toxic heavy metals, hazardous air pollutants (HAPs) and Volatile Organic Compounds (VOCs). Objectives include formulation and certification of newly developed aircraft coatings including paint primers, topcoats, cadmium and chromium electroplating replacements, high velocity oxy-fuel (HVOF), pre- and post-treatments, and anodize coatings. Additional objectives include; maintaining expertise in and execution of flight test and evaluation of low-VOC bonding, petroleum distilate (PD) solvent, conversion coatings, aluminum manganese (Al/Mn) coatings and alternative weapons materials and proce

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		1.656	0.524	0.535
RDT&E Articles Quantity				

Engine Emissions Technology: Research, develop and test low emissions technology for gas turbine engines. Objectives include test, demonstrate and validate jet fuel additives for pollution prevention and compliance, gas turbine engine particulate matter measurement and testing technology, and low emissions combustor technology.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	0.234	0.241
RDT&E Articles Quantity				

Aircraft Hazardous Materials and Shipboard Waste Reduction: Research, develop and test alternatives to aircraft and propulsion and power systems manufacture, finishing and repair processes that generate toxic heavy metals, hazardous air pollutants (HAPs) and volatile organic compounds (VOCs). Objectives include the test, demonstration and validation of aircraft structural stainless steels, long life lead and cadmium free aircraft batteries and shipboard validation of corrosion repair kits.

R-1 SHOPPING LIST - Line No. 62

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603721N / Environmental Protection	2210 / Environmental Compliance

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:	2.896	0.767	0.894
Current BES/President's Budget	2.742	0.758	0.776
Total Adjustments	-0.154	-0.009	-0.118
Summary of Adjustments			
Congressional undistributed reductions		-0.009	
SBIR/STTR Transfer	-0.083		
FY 03 BTR	-0.071		
Other program adjustments			-0.118
Congressional increases			
Subtotal	-0.154	-0.009	-0.118

Schedule:

Not applicable

Technical:

Not applicable

R-1 SHOPPING LIST - Line No. 62

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-4	PE0603721N / Environmental Protection	2210 / Environmental Compliance	

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
Related RDT&E:									
PE0603851D (Environmental Security Technology Certification Program)	0.750	0.950	0.750						
PE0602121N (Ship, Submarine and Logistics Technology)									
PE060223N (Readiness/Training/Environmental Quality)									
PE0603716D (Strategic Environmental R&D Program)									

E. ACQUISITION STRATEGY:

Technologies developed under this project are demonstrated and validated primarily through competitive procurements. Validated technology is transitioned to users through new or revised performance specifications, technical manuals or competitive procurements of subsystems, materials or processes.

F. MAJOR PERFORMERS:

R-1 SHOPPING LIST - Line No. 62

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection				PROJECT NUMBER AND NAME 0817 / Pollution Abatement			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**10.195**	**4.027**	**6.885**	**7.588**	**9.184**	**9.365**	**9.557**
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) This project develops and validates new technologies needed to address pervasive Navy shoreside environmental requirements imposed on Naval shore activities by the need to comply with environmental laws, regulations, orders, and policies. The goal of the program is to minimize personnel liabilities, operational costs, and regulatory oversight while preserving or enhancing the ability of Naval shore activities to accomplish their required missions and functions. Each project task addresses one or more of the requirements from the Navy Environmental Quality RDT&E Requirements of January 2001. Project investment is made in eight thrust areas. Thrust areas were changed in FY01 to better align the tasks with technical area needs resulting from shoreside requirements and two thrust areas were added in FY04.

(U) SHIP MAINTENANCE/REPAIR/DEACTIVATION

(U) Thus far, tasks in this thrust area have addressed environmental requirements originating at Naval shipyards. As the Navy pursues a strategy to reduce ship maintenance costs by shifting work to Ship Intermediate Maintenance Activities (SIMAs), new requirements are emerging as these processes and resulting hazardous waste streams become more decentralized. SIMAs will require technologies that are cost-effective when operated less frequently and with lower throughput. SIMA tasks have been selected based on compliance and pollution prevention studies conducted for the Naval Station Mayport SIMA as part of the Navy Environmental Leadership Program (NELP).

(U) ORDNANCE TESTING/MANUFACTURE/DISPOSAL

(U) Current tasks in this thrust address specific compliance-driven environmental requirements of Navy ordnance activities. With respect to disposal, the thrust addresses requirements for disposal of quantities typical of testing and manufacturing operations, not of the much larger quantities associated with demilitarization. Future tasks will shift much of the investment in this area to pollution prevention requirements, particularly where they also reduce compliance impacts and costs. These tasks will be selected based on the ordnance environmental requirements study conducted in partnership with the Navy's Ordnance Environmental Specialty Office (OESO).

(U) INDUSTRIAL OPERATIONS AND MAINTENANCE

(U) Tasks in this thrust address compliance and pollution prevention environmental requirements originating from the industrial operations of Navy Public Works Centers and Naval Stations. As part of an overall Navy strategy, future tasks will shift more of the investment from compliance technologies to pollution prevention technologies that are cost-effective solutions to compliance requirements. It is also expected that there will be new requirements driven by the trend towards stricter federal, state, and local air emission and wastewater regulations.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603721N / Environmental Protection	0817 / Pollution Abatement

(U) INSTALLATION RESTORATION

(U) Tasks in this thrust address requirements to reduce the Navy's cost and liabilities associated with the cleanup of contaminated sites at Naval activities. Tasks evaluate alternative site characterization, remediation, and monitoring technologies for the over 1000 Navy sites requiring cleanup and restoration under Comprehensive Environmental Response, Compensation, & Liability Act (CERCLA). Due to funding reduction, investment in this thrust area will be eliminated in FY04 with the exception of outyear tasks to reduce long term monitoring costs. The Navy will rely on demonstrations conducted by other Federal agencies, such as EPA, as well as academia to validate innovative technologies for terrestrial site cleanup.

(U) ENVIRONMENTAL EFFECTS OF UNDERWATER UXO

(U) The thrust is new for FY04 based on results of the Initiation Decision Report (IDR) completed on Environmental Effects of Underwater UXO in FY02. The tasks in this thrust support the requirements for addressing the transport, fate, and effects of underwater UXO needed to support scientifically valid decisions.

(U) AVIATION MAINTENANCE AND SUPPORT

(U) This thrust is new for FY04. The tasks in this thrust will reduce the shoreside environmental impacts of aviation operations and maintenance at air bases and depots. Specific tasks will be from transfer of shoreside efforts under Project 2210 based on a review to occur in FY03.

(U) COASTAL CONTAMINATION AND CONTAMINATED SEDIMENTS

(U) This thrust area was created in FY02. Tasks within this area address requirements for reducing the cost of environmental compliance and cleanup for coastal contamination and contaminated sediments. Navy compliance with all of the laws and regulations dealing with marine and coastal environments is complex and costly. Tasks will develop and evaluate technologies for sediment characterization and monitoring, sediment management and remediation, and marine environmental risk assessment.

(U) EMISSIONS DETECTION AND MONITORING

(U) This thrust area was created in FY02. Tasks under this thrust will address legal and policy requirements for monitoring and detection of wastewater discharges and air emissions. The detection and monitoring devices and procedures demonstrated under this thrust will improve process performance, provide mission-compatible compliance with provisions of the Clean Water Act (CWA), Clean Air Act (CAA), Resource Conservation & Recovery Act (RCRA), Toxic Substance Control Act (TSCA), State, and local regulations and reduce costs for environmental sampling analysis. In addition, Navy operational air pollution modeling capability will be developed and including hardware, software, system administration processes, and guidelines. Due to funding reduction in FY04, new tasks will be delayed to outyears.

R-1 SHOPPING LIST - Line No. 62

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603721N / Environmental Protection	0817 / Pollution Abatement

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Ship Maintenance/Repair/Pierside		0.945	0.132	0.602
RDT&E Articles Quantity				

FY 03: Complete demonstration of Coating Removal from Delicate Substrates. Continue SIMA tasks for improved painting operations.
FY 04: Complete SIMA tasks for improved painting operations. Initiate acid recycle system for pipe flushing wastes.
FY 05: Initiate dry dock best management practices. Initiate mobile surface cleaner for drydock and industrial areas. Conduct alternative solvents demonstrations for ship maintenance operations.

		FY 03	FY 04	FY 05
Ordnance Testing/Manufacture/Disposal		1.674	0.285	0.481
RDT&E Articles Quantity				

FY 03: Complete development of Exhaust Scrubber for Static Testing of Small Rocket Motors. Continue development of Confined Burn Facility (CBF) to Replace Open Burning of Ordnance and Energetics: complete construction of 80lb CBF facility. Initiate task to evaluate Navy Training Lands Sustainability and prepare Initiation Decision Report (IDR).
FY 04: Continue development of Confined Burn Facility (CBF): Complete construction and checkout and develop documentation for transition to other funding sources. Task will not be funded under Y0817 after FY04 due to funding reductions.
FY 05: Initiate Navy Training Lands Sustainability tasks, including fate and transport modeling to support Range Condition Assessments. Initiate Enhanced Recycle of Range Scrap Ordnance. Initiate task to develop Ecological Soil Screening Levels for munitions contaminants.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603721N / Environmental Protection	0817 / Pollution Abatement

B. Accomplishments/Planned Program (Cont.)

		FY 03	FY 04	FY 05
Industrial Operations and Maintenance		2.597	0.878	1.805
RDT&E Articles Quantity				

FY 03: Conduct demonstrations at IMC test facility. Complete demonstration of Catalysts for Advanced Oxidation Processes (AOP). Continue tasks for P2 of shoreside industrial operations. Conduct demonstration of Improved BMPs for Stormwater Runoff. Initiate task to evaluate cleaning solvents for 21st century.
FY 04: Complete demonstration of alternative AFFF. Complete Reduction of Solvent Based Paint task. Complete Triservice Methodology to Evaluate Alternatvie Cleaning Solvents. Continue evaluation of new cleaning solvents.
FY 05: Continue selected demonstrations of alternative solvents for industrial operations. Initiate task to evaluate fouling resistant permanent booms. Complete demonstration of technologies for optimized oil changes. Initiate demonstration of NoFoam system for fire fighting pumper trucks. Initiate task to evaluate new process for lead based paint removal.

		FY 03	FY 04	FY 05
Installation Restoration		1.013	0.000	0.000
RDT&E Articles Quantity				

FY 02: Developed protocol for assessing potential risks to amphibians at Navy sites. Initiated tasks for improving and optimizing remediation strategies including Zero Valent Iron Injection Demonstration and In Situ Abiotic Reductive Dechlorination with Bi-metallic Nanoparticles. Initiated task to develop Trace Analysis of Perchlorate in Environmental Samples.
FY 03: Complete development of in-situ sensor for MTBE. Complete and continue demonstrations efforts for improved remediation. Complete demonstration/validation of Trace Analysis of Perchlorates in Environmental Samples.
FY 04: All efforts completed.
FY 05: All efforts completed.

R-1 SHOPPING LIST - Line No. 62

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603721N / Environmental Protection	0817 / Pollution Abatement

B. Accomplishments/Planned Program (Cont.)

		FY 03	FY 04	FY 05
Coastal Contamination and Contaminated Sediments		2.714	0.403	1.003
RDT&E Articles Quantity				

FY 03: Complete development of Methods to Assess Subsurface Contaminant Migration from Coastal Landfills. Continue site-specific validation methodologies for in-place sediment management. Continue tasks for evaluations of Fate/Effect of Underwater UXO. Initiate task for evaluating Sediment Transport.
FY 04: Complete site-specific validation methodologies for in-place sediment management. Continue task for evaluating Sediment Transport. Initiated task to provide risk assessment methodology for decisions related to the longterm disposition of sefloor cables.
FY 05: Continue task for evaluating Sediment Transport. Initiate containment and monitoring strategies for contaminated sediments .

		FY 03	FY 04	FY 05
Emissions Detection and Monitoring		1.252	0.207	0.630
RDT&E Articles Quantity				

FY 03: Conduct case study simulations using Navy air modeling capability. Continue improved monitoring for stormwater assessment.
FY 04: Complete improved monitoring for stormwater assessment.
FY 05: Initiate effort to develop nonpoint source runoff coefficients. Initiate effort in fate and transport modeling to support TMDL regulations.

R-1 SHOPPING LIST - Line No. 62

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603721N / Environmental Protection	0817 / Pollution Abatement

B. Accomplishments/Planned Program (Cont.)

		FY 03	FY 04	FY 05
Environmental Effects of Underwater Ordnance		0.000	0.845	1.072
RDT&E Articles Quantity				

FY 04: The thrust is new for FY04 based on results of the Initiation Decision Report (IDR) completed on Environmental effects of Underwater UXO in FY02. The tasks in this thrust support the requirements for addressing the transport, fate, and effects of underwater UXO needed to support scientifically valid decisions. Continue toxicity and degradation studies of ordnance and explosives in marine environment. Continue UXO casing corrosion evaluation. Continue evaluation of UXO transport in marine sediments.
FY 05: Continue Toxicity and Degradation Study of Ordnance in Marine Sediments. Complete UXO Casing Corrosion. Complete UXO Transport Evaluation.

		FY 03	FY 04	FY 05
Aviation Maintenance & Support		0.000	1.277	1.292
RDT&E Articles Quantity				

FY 04: This thrust is new for FY04. Tasks will be from transfer of shoreside efforts under Project W2210 based on review to occur in FY03. Continue and complete legacy W2210 aircraft maintenance projects. Complete high velocity oxygen fuel (HVOF) evaluations for hard chrome replacements. Complete thin film sulfuric acid anodize demonstration. Continue cadmium plating alternatives evaluations. Initiate alternative sealants. Conduct demonstration of F404 drive shaft cleaning.
FY 05: Complete Non-chromated Post Treatments. Continue cadmium plating alternatives. Continue alternative sealants. Initiate demonstration for alternative solvents. Initiate radome repair task. Initiate ultra chem alternative to hard chome.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603721N / Environmental Protection	0817 / Pollution Abatement

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04 Pres Controls)	10.286	4.077	6.750
Current BES/President's Budget:	**10.195**	**4.027**	**6.885**
Total Adjustments	-0.091	-0.050	0.135
Summary of Adjustments			
Other program adjustments	-0.091	-0.050	0.135
Subtotal	-0.091	-0.050	0.135

Schedule:

Not applicable.

Technical:

Not applicable.

R-1 SHOPPING LIST - Line No. 62

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603721N / Environmental Protection	0817 / Pollution Abatement

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost

P-1 Procurement Line Item No. & Name. Not Applicable.
C-1 MILCON Project No. & Name. Not Applicable.
(U) RELATED RDT&E: This project transitions shoreside pollution abatement technologies from two Navy Science and Technology programs and the Strategic Environmental Research and Development Program (SERDP). Project funding is leveraged by transitioning technologies to the Environmental Security Technology Certification Program (ESTCP) for final certification and by providing funding for Navy participation in ESTCP projects. Execution of this project is coordinated with related Marine Corps, Army, Air Force and NASA programs through direct coordination and active participation in the Joint Group for Pollution Prevention (JG-PP).

(U) PE 0602233N, Readiness, Training, and Environmental Quality Technology Development
(U) PE 0603712N, Environmental Quality, Logistics Advanced Technology Demonstrations
(U) PE 0603716D, Strategic Environmental Research & Development Program (SERDP)
(U) PE 0603851D, Environmental Security Technology Certification Program (ESTCP)

E. ACQUISITION STRATEGY: *

(U) This project is categorized as Non-ACAT (Non Acquisition). The project delivers a broad spectrum of products that require a variety of acquisition processes to implement. Equipment products for Naval stations and other mission funded activities costing over 100K are often procured centrally through the Navy Pollution Prevention Equipment Program (PPEP) where as equipment products for Shipyards and other Navy Working Capital Fund (NWCF) activities costing over 100K are procured through their Capital Purchases Program (CPP). For both types of activities, equipment products costing less than 100K, and process changes not requiring the purchase of new equipment such as consumable material or product substitutions, are funded through the activity's operating budgets. Occasionally there is a technology that must be implemented as a specialized facility. These are acquired through the Military Construction (MCON)

F. MAJOR PERFORMERS: **

Major performers include Naval Facilities Engineering Service Center, Port Hueneme, CA; SPAWAR Systems Center, San Diego, CA; Naval Surface Warfare Center, Carderock Division, MD; Naval Surface Warfare Center, Indian Head Division, MD; and Naval Air Warfare Center, Aircraft Division, Patuxant River, MD.

*** Not required for Budget Activities 1,2,3, and 6**
**** Required for DON and OSD submit only.**

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT PE0603721N / Environmental Protection				PROJECT NUMBER AND NAME 0817 / Pollution Abatement						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Ship Maint/Repair/&Pierside Support	WR/PO	NSWC/CD	10.582	0.741	varies	0.050	varies	0.188	varies	Continuing	Continuing	N/A
Ship Maint/Repair/&Pierside Support	WR/PO	NFESC	5.040	0.204	varies	0.082	varies	0.415	varies	Continuing	Continuing	N/A
Ordnance Testing/Manufact/Disp	WR/PO	NSWC/IH	15.666	1.160	varies	0.285	varies	0.000	varies	Continuing	Continuing	N/A
Ordnance Testing/Manufact/Disp	WR/PO	NFESC	0.514	0.514	varies	0.000	varies	0.481	varies	Continuing	Continuing	
Industrial Operations & Maintenance	WR/PO	NFESC	16.558	2.598	varies	0.878	varies	1.804	varies	Continuing	Continuing	N/A
Industrial Operations & Maintenance	WR/PO	SSC/SD	7.576	0.000	varies	0.000	varies	0.000	varies	Continuing	Continuing	N/A
Installation Restoration	WR/PO	NFESC	1.013	1.013	varies	0.000	varies	0.000	varies	Continuing	Continuing	N/A
Coastal Contam/Contaminated Sed	WR/PO	SSC/SD	1.137	1.137	varies	0.378	varies	1.003	varies	Continuing	Continuing	N/A
Coastal Contam/Contaminated Sed	WR/PO	NFESC	1.576	1.576	varies	0.000	varies	0.000	varies	Continuing	Continuing	N/A
Emissions Detection/Monitoring	WR/PO	SSC/SD	0.705	0.705	varies	0.207	varies	0.000	varies	Continuing	Continuing	N/A
Emissions Detection/Monitoring	WR/PO	NFESC	0.547	0.547	varies	0.000	varies	0.630	varies	Continuing	Continuing	N/A
Env. Effects of Underwater UXO	WR/PO	NFESC		0.000	varies	0.645	varies	0.722	varies	Continuing	Continuing	N/A
Env. Effects of Underwater UXO	WR/PO	SSC/SD		0.000	varies	0.200	varies	0.350	varies	Continuing	Continuing	N/A
Aviation Maintenance and Support	WR/PO	NSWC PAX		0.000	varies	0.845	varies	1.292	varies	Continuing	Continuing	N/A
Aviation Maintenance and Support	WR/PO	NFESC		0.000	varies	0.457	varies	0.000	varies	Continuing	Continuing	N/A
Subtotal Product Development			60.914	10.195		4.027		6.885				

Remarks:
Performing Activities: Naval Surface Warfare Center, Carderock Division (NSWC/CD), Naval Facilities Engineering Service Center (NFESC), Naval Surface Warfare Center, Indian Head Division (NSWC/IH), Space and Warfare Systems Center, San Diego (SSC/SC), Naval Research Laboratory (NRL).
Total Prior Years Cost: Summation starts with FY80. Subtotal does not include performing activities from prior years that are no longer performing activities.
Award Dates: About 55% of the project is executed via contracts awarded by the performing activities.

Development Support											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	

Remarks: Included in Product Development costs.

R-1 SHOPPING LIST - Line No. 62

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT PE0603721N / Environmental Protection			PROJECT NUMBER AND NAME 0817 / Pollution Abatement						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks: Not applicable.												
Total Cost			60.914	10.195		4.027		6.885		0.000		
Remarks:												

R-1 SHOPPING LIST - Line No. 62

FY 2005 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: Feb 2004
Exhibit R-2

BA: 04 PROGRAM ELEMENT: 0603724N
PROGRAM ELEMENT TITLE: Navy Energy Program

COST: (Dollars in Thousands)

Project Number & Title	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
Total PE	14,712	4,636	1,494	1,624	1,613	1,558	1,704
0829 ENERGY CONSERVATION (ADV)	2,779	0	0	0	0	0	0
0838 MOBILITY FUELS (ADV)	2,132	1,694	1,494	1,624	1,613	1,558	1,704
2868 Proton Exchange Membrane (PEM) Fuel Cells	4,302	2,942	0	0	0	0	0
9206 Plasma Energy Pyrolysis	3,824	0	0	0	0	0	0
9207 Thermally Activiated Chiller/Heater	1,675	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program supports projects to evaluate, adapt, and demonstrate energy related technologies for Navy ships and aircraft operations to: (a) increase fuel-related weapons systems capabilities such as range and time on station; (b) reduce energy costs; (c) apply energy technologies that improve environmental compliance; (d) relax unnecessarily restrictive fuel specification requirements to reduce cost and increase availability worldwide; (e) provide guidance to fleet operators for the safe use of commercial grade or off-specification fuels when military specification fuels are unavailable or in short supply; and (f) make needed periodic changes to fuel specifications to ensure fuel quality and avoid fleet operating problems. This program, and the companion PE 0604710N, Navy Energy Program (ENG) support the achievement of legislated, White House, Department of Defense and Navy Energy Management Goals. It also responds to direction from the Office of the Secretary of Defense, the Secretary of the Navy and the Chief of Naval Operations to make up-front investment in technologies that reduce future cost of operation and ownership of the fleet and supporting infrastructure.

BA: 04 PROGRAM ELEMENT: 0603724N
PROGRAM ELEMENT TITLE: Navy Energy Program

PROGRAM CHANGE SUMMARY:

	FY 2003	FY 2004	FY 2005
FY 2004-2005 President's Budget Submission	14,975	1,713	1,880
Cong. Rescissions/Adjustments/Undist.Reductions	0	-52	0
Congressional Actions	0	2,975	0
Misc. Adjustments	-263	0	-14
Technical Adjustments	0	0	-400
FY 2005 President's Budget Submission	14,712	4,636	1,494

PROGRAM CHANGE SUMMARY EXPLANATION:

Technical: Not applicable.
Schedule: Not applicable.

BA: 04 PROGRAM ELEMENT: 0603724N PROGRAM ELEMENT TITLE: Navy Energy Program
PROJECT NUMBER: 0829 PROJECT TITLE: ENERGY CONSERVATION (ADV)

COST: (Dollars in Thousands)

Project Number & Title	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
0829 ENERGY CONSERVATION (ADV)	2,779	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project improved the energy efficiency of Navy ships and aircraft, and thereby contributed to reduced operating costs and improved fleet sustainability and performance. Major efforts included work to increase the efficiency of aircraft engines; and develop improved hull drag reducing technologies and more efficient energy conversion systems for ships.

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2003	FY 2004	FY 2005
Shipboard Energy Conservation	2,779	0	0

This effort improved the energy efficiency of Navy ships by developing more efficient shipboard machinery and electrical systems and improved hull drag reducing technologies.

FY 2003 Accomplishments:

• Completed full scale ship trials of self-polishing copper/cobiocide hull coatings.
• Completed development and testing of fuel consumption optimization algorithms for digital gas turbine engine control systems.
• Completed development and testing of variable speed drives for 2000 gallon per minute five pumps and LM2500 gas turbine engine cooling module fans.

FY 2004 Plans:

Not applicable

BA: 04 PROGRAM ELEMENT: 0603724N PROGRAM ELEMENT TITLE: Navy Energy Program
PROJECT NUMBER: 0829 PROJECT TITLE: ENERGY CONSERVATION (ADV)

FY 2005 Plans:

Not applicable

C. OTHER PROGRAM FUNDING SUMMARY:

NAVY RELATED RDT&E:
PE 0601153N (Defense Research Sciences)
PE 0602236N (Warfighter Sustainment Applied Research)
PE 0603236N (Warfighter Sustainment Advanced Technology)
PE 0603513N (Shipboard Systems Component Development)
PE 0603573N (Advanced Surface Machinery Systems)
PE 0603721N (Environmental Protection)
PE 0604710N (Navy Energy Program (ENG))

NON-NAVY RELATED RDT&E: Not applicable

D. ACQUISITION STRATEGY:

Not applicable

FY 2005 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: Feb 2004
Exhibit R-3

BA: 04 PROGRAM ELEMENT: 0603724N
PROJECT ELEMENT TITLE: NAVY ENERGY PROGRAM

Project Number: R0829
Project Title: ENERGY CONSERVATION (ADV)

A. PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 2003	FY 2004	FY 2005
a. System Development and Integration	2,779	-	-

B. BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION: Not applicable.

FY 2005 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: Feb 2004
Exhibit R-2a

BA: 04 PROGRAM ELEMENT: 0603724N PROGRAM ELEMENT TITLE: Navy Energy Program
PROJECT NUMBER: 0838 PROJECT TITLE: MOBILITY FUELS (ADV)

Project Number & Title	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
0838 MOBILITY FUELS (ADV)	2,132	1,694	1,494	1,624	1,613	1,558	1,704

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFCATION:

This project provides data through engine and fuel system tests which relate the effects of changes in Navy fuel procurement specification properties to the performance and reliability of Naval ship and aircraft engines and fuel systems. This information is required to: (a) determine the extent to which unnecessarily restrictive specification features can be relaxed to reduce cost and increase availability worldwide; (b) provide guidance to fleet operators for the safe use of off-specification or commercial grade fuels when military specification fuels are unavailable or in short supply; and (c) make needed periodic changes to fuel specifications to ensure fuel quality and avoid fleet operating problems while accommodating evolutionary changes in the fuel supply industry. Recent problems with fuel quality have adversely affected ship and aircraft system performance and reliability and resulted in degradation of fuel in storage. The resulting readiness impacts, additional maintenance costs, and the cost of lost equipment, although difficult to quantify, are many times the cost of this project. Over the next decade, the potential for fuel quality related problems will increase because of changing industry practices required to comply with new environmental regulations. This project represents the only investment designed to maintain the Navy's ability to operate as a "smart" customer for fuels that cost over $2B per year to procure, transport, store and consume and are essential to fleet operations.

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2003	FY 2004	FY 2005
Ship Fuels	1,100	980	794

Performs development, test and evaluation work for Navy ship fuels to: (a) determine the extent to which unnecessarily restrictive specification features can be relaxed to reduce cost and increase availability worldwide; (b) provide guidance to fleet operators for the safe use of off-specification or commercial grade fuels when military specification fuels are unavailable or in short supply; and (c) make needed periodic changes to fuel specifications to ensure fuel quality and avoid fleet operating problems while accommodating

evolutionary changes in the fuel supply industry.

FY 2003 Accomplishments:

• Completed testing of Navy gas turbine, high-and medium-speed diesel engine fuel injection systems, and shipboard fuel handling systems with low-lubricity ship diesel fuels. Use results to specify minimum lubricity levels and test methods to be used for fuel acceptance.
• Continued assessment of the feasibility of specifying JP-5 as the single fuel for use by all Naval Systems (ships, aircraft and ground equipment).
• Completed the evaluation of lubricity enhancing additives for use with Naval distillate fuels.
• Initiated review of F-76 Naval ship fuel specification and test requirements to determine and remove any unnecessary requirements to increase availability.
• Continued development and acceptance of a commercial fuel specification.

FY 2004 Plans:

• Complete assessment of the feasibility of specifying JP-5 as the single fuel for use by all Naval Systems (ships, aircraft and ground equipment).
• Complete F-76 specification and test requirements evaluation to determine and remove any unnecessary requirements to increase availability.
• Complete development and acceptance of commercial fuel specification.
• Initiate development of an equipment/fuel qualification procedure to evaluate utilization of synthetic and ultra clean, low sulfur fuels.

FY 2005 Plans:

• Continue development of a qualification procedure to evaluate and approve utilization of synthetic and ultra clean, low sulfur fuels.
• Initiate development of sensors and instruments to determine composition of blended marine gas oils, diesel fuels and jet fuels.
• Conduct field trial of JP-5 single fuel initiative.

BA: 04 PROGRAM ELEMENT: 0603724N PROGRAM ELEMENT TITLE: Navy Energy Program
PROJECT NUMBER: 0838 PROJECT TITLE: MOBILITY FUELS (ADV)

	FY 2003	FY 2004	FY 2005
Aircraft Fuels	1,032	714	700

Performs development, test and evaluation work on Navy aircraft fuels to: (a) determine the extent to which unnecessarily restrictive specification features can be relaxed to reduce cost and increase availability worldwide; (b) provide guidance to fleet operators for the safe use of military aircraft fuels that include new additives or are from new sources including synthetics; and (c) make needed periodic changes to fuel specifications to ensure fuel quality and avoid fleet operating problems while accommodating evolutionary changes in the fuel supply industry.

FY 2003 Accomplishments:

• Continued development and evaluation of fuel copper contamination removal system.
• Completed JP-5 specification and test method review.
• Completed JP-5 +100 high thermal stability fuel T45 field evaluation.
• Conducted shipboard trial of in-line automated fuel contamination and free water detection equipment.
• Evaluated impact of +100 additive on reducing aircraft emissions.

FY 2004 Plans:

• Field trial fuel copper contamination removal system.
• Initiate development of an equipment/fuel qualification procedure to evaluate and approve utilization of synthetic aircraft fuels.

FY 2005 Plans:

• Continue the development of a qualification procedure to evaluate and approve utilization of synthetic fuels.
• Initiate the development and evaluation of shipboard compatible stability and performance improving additives.

BA: 04 PROGRAM ELEMENT: 0603724N PROGRAM ELEMENT TITLE: Navy Energy Program
PROJECT NUMBER: 0838 PROJECT TITLE: MOBILITY FUELS (ADV)

C. OTHER PROGRAM FUNDING SUMMARY:

NAVY RELATED RDT&E:
PE 0601152N (In-House Laboratory Independent Research)
PE 0205633N (Aviation Improvements)

NON-NAVY RELATED RDT&E: Not applicable

D. ACQUISITION STRATEGY:

Not applicable

BA: 04 PROGRAM ELEMENT: 0603724N PROGRAM ELEMENT TITLE: Navy Energy Program
PROJECT NUMBER: Various PROJECT TITLE: Congressional Plus-Ups

CONGRESSIONAL PLUS-UPS:

2868	FY 2003	FY 2004
PROTON EXCHANGE MEMBRANE (PEM) FUEL CELLS	4,302	2,942

Demonstrate PEM fuel cells from domestic manufacturers at Department of the Navy installations.

9206	FY 2003	FY 2004
PLASMA ENERGY PYROLYSIS (PEPS)	3,824	0

Demonstrate plasma energy pyrolysis technology to destroy waste aboard Navy ships.

9207	FY 2003	FY 2004
THERMALLY ACTIVATED CHILLER/HEATER	1,675	0

Assess the suitability of thermally activated chiller/heater units for use at the Department of the Navy shore installations.

FY 2005 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: Feb 2004
Exhibit R-3

BA: 04 PROGRAM ELEMENT: 0603724N
PROJECT ELEMENT TITLE: NAVY ENERGY PROGRAM

Project Number: R0838
Project Title: Mobility Fuels (ADV)

A. PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 2003	FY 2004	FY 2005
a. Reliability, Maintainability and Availability	2,132	1,694	1,494

B. BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION: Not applicable.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								February 2004
Appropriation/Budget Activity **RDT&E.A BA4**				R-1 Item Nomenclature: 0603725N/ Facilities Improvement				
COST ($ in millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost		**3.276**	**1.424**	**1.621**	**1.536**	**1.832**	**1.868**	**1.906**
0995 Facilities System		**2.077**	**1.424**	**1.621**	**1.536**	**1.832**	**1.868**	**1.906**
9208 Photovoltaic Energy Park*		**1.199**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**

A. Mission Description and Budget Item Justification:

(U) This program provides the Navy with new civil engineering capabilities that are required to overcome specific performance limitations of Naval shore facilities while reducing the cost of sustaining the Naval shore infrastructure. The program focuses available resources on satisfying facility requirements where the Navy is the stakeholder. There are no test validated Commercial off the Shelf (COTS) solutions available, and a timely solution will not emerge without a Navy sponsored demonstration and validation. The program completes the development and validation of facility technologies originating in Navy Science and Technology programs, plus a variety of other sources which includes the National Science foundation (NSF) and the National Institute of Standards and Technology (NIST). Validated technologies are implemented in the Navy's Military Construction (MILCON) and Sustainment Restoration and Modernization Programs. Project 0995 is addressing three Navy facilities requirements during the fiscal years FY 2003 through FY 2006: Waterfront Facilities Repair and Upgrade, Facilities Technologies to Reduce the Cost of Sustainment, Restoration and Modernization and Modular Hybrid Pier for reducing the total ownership cost of future facilities. The execution of this program is consistent with the findings and recommendation of two National Academy of Sciences Reports: "The Role of Federal Agencies in Fostering New Technology and Innovation in Building" and "Federal Policies to Foster Innovation and Improvement in Constructed Facilities."

*Project 9208 is a Congressional add.

B. Program Change Summary:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04 Pres Controls)	3.300	1.440	1.567
Current President's Budget:	3.276	1.424	1.621
Total Adjustments	-0.024	-0.016	0.054
Summary of Adjustments			
NWCF Rates Adjustments	0.000	0.000	0.002
Other program adjustments:	-0.024	-0.016	0.052
Subtotal	-0.024	-0.016	0.054

C. Other Program Funding Summary: Provided in R-2a.

D. Acquisition Strategy: Provided in R-2a.

E. Schedule Profile: Provided in R-4.

R-1 SHOPPING LIST - Item No. 64-1 of 64-10

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603725N / Facilities Improvement				PROJECT NUMBER AND NAME 0995/ Facilities System			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**2.077**	**1.424**	**1.621**	**1.536**	**1.832**	**1.868**	**1.906**
RDT&E Articles Qty		**2**	**3**	**4**	**TBD**	**TBD**	**TBD**	**TBD**

A. Mlission Description and Budget Item Justification:

(U) This program provides the Navy with new civil engineering capabilities that are required to overcome specific performance limitations of Naval shore facilities while reducing the cost of sustaining the Naval shore infrastructure. The program focuses available resources on satisfying facility requirements where the Navy is a major stakeholder. There are no test validated Commercial off the Shelf (COTS) solutions available, and a timely solution will not emerge without a Navy sponsored demonstration and validation. The program completes the development and validation of facility technologies originating in Navy Science and Technology programs, plus a variety of other sources which includes the National Science foundation (NSF) and the National Institute of Standards and Technology (NIST). Validated technologies are implemented in the Navy's Military Construction (MILCON) and Sustainment Restoration and Modernization Programs. Project Y0995 is addressing three Navy facilities requirements during the fiscal years FY 2003 through FY 2006: Waterfront Facilities Repair and Upgrade, Facilities Technologies to Reduce the Cost of Sustainment, Restoration and Modernization and Modular Hybrid Pier. The execution of this program is consistent with the findings and recommendation of two National Academy of Sciences Reports: "The Role of Federal Agencies in Fostering New Technology and Innovation in Building" and "Federal Policies to Foster Innovation and Improvement in Constructed Facilities."

(U) WATERFRONT FACILITIES REPAIR AND UPGRADE

(U) Over 75% of the Navy's waterfront facilities are over 45 years old. They were designed for a service life of 25 years and to satisfy the mission requirements existing at that time. The over aged reinforced concrete requires costly and repetitive repairs. In addition, to accomplish more pier side ship maintenance and thus reduce drydock costs, these piers must be strengthened to support concentrated crane loads up to 140 tons when they were originally designed for no concentrated loads. This sub-project addresses new materials and design methods to extend the service life of existing waterfront facilities by an additional 15 or more years, and conventional concrete patches and composite-enhanced repairs respectively; new longer-lasting low-maintenance fendering systems that eliminate the need for the frequent replacement of timber piles, fenders, a new Impluse Load Method (ILM) for accurately and quickly determining the vertical load capacity of piers and wharves, a new Swinging Weight Defelctometer (SWD) technique to determine the lateral stability of piers for earthquake forces and docking ship's impact. In total, for $1-2M of repairs and upgrades per pier, using this new technology, $50M for demolition and replacement is avoided.

(U) FACILITY TECHNOLOGIES TO REDUCE THE COST OF SUSTAINMENT, RESTORATION AND MODERNIZATION (SRM)

(U) The costs to correct these critical facility backlog deficiencies are over $3.1B as reported in the FY 2000 Annual Inspection Summary (AIS). Current Navy SRM funding levels are insufficient to prevent the continued growth of the backlog of mission and safety critical maintenance and repairs. This effort will demonstrate and clearly validate the cost and reliability of advanced technologies in order to assure their acceptance and implementation in traditionally conservative public works and maintenance and construction industries. The effort will accelerate the validation, commercialization, and wide-spread implementation of the facility technologies urgently required to reduce the cost of correcting the deficiencies in the Navy's SRM backlog by technology to reduce the frequency of failures and repair costs. Estimated returns on these investments are better than60 to 1.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603725N / Facilities Improvement	0995/ Facilities System

(U) MODULAR HYBRID PIER (MHP)

(U) Modular Hybrid Pier started in FY 02 to achieve completions required by construction acquisition schedules.

The Navy is faced with the necessity of recapitalizing a large portion of its waterfront infrastructure over the next several decades. The Modular Hybrid pier initiative develops and validates innovative material and design technologies for a mission-flexible waterfront infrastructure characterized by significantly reduced total ownership cost and increased mission flexibility. The proceeding sub-project Waterfront Facilities Repair and Upgrade will enable the Navy to economically extend the useful service life of existing piers and wharves. While reducing the need for immediate replacement, eventual replacement will be required. This MHP sub-project provides improved technology for new piers. Emerging innovative structural and materials technologies, particularly those that will transition from the Navy's applied research and advanced development program, will provide enhanced-capability; structures that have a comparable initial cost yet have far less maintenance and repair costs. Use of advanced materials and high performance lightweight concrete will produce structures that have twice the economic service life of the conventional piers. Modular design will enable off-site fabrication in pre-cast plants that will shorten the duration and lower the cost relative to conventional on-site construction. Plant fabrication will vastly improve repair-free durability because of superior quality control and application of high performance concrete and post-tensioning technologies. The modular concept will facilitate change-out of components for modifications to increase or capacity to adapt to future in ship designs. Mobility/relocatability of barge size modules through flotation is a significant new capability option to save money and provide new military worth. An economic analysis has shown that a modular hybrid (deployable) pier will have a Net Present Value (NPV) cost that is $15M less over its service life than that for a conventional pier constructed of ordinary reinforced concrete. The MHP will have superior operational benefits to ship/port operations.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603725N / Facilities Improvement	0995 / Facilities System

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Waterfront Repair and Upgrade	0.000	0.000	0.100
RDT&E Articles Quantity	1		

FY 03: Work deferred to maximize resources allocated to Modular Hybrid Pier to achieve completion required for constrruction acquisition.
FY 04: Work deferred to maximize resources allocated to Modular Hybrid Pier to achieve completion required for constrruction acquisition.
FY 05: Complete validation testing and evaluation of Swinging Weight Deflectometer (new capability) method for determining the remaining strength of piers to resist lateral loads from berthing ships. Initiate testing of agents to reduce corrosion inducing chloride ion penetration rates.

	FY 03	FY 04	FY 05
Sustainment, Restoration & Moderization Tech Redu	0.000	0.000	0.352
RDT&E Articles Quantity			

FY 03: Work deferred to maximize resources allocated to Modular Hybrid Pier to achieve completion required for construction acquisition.
FY 04: Work deferred to maximize resources allocated to Modular Hybrid Pier to achieve completion required for construction acquisition.
FY 05: Complete field (validation) testing of high temperature pavement joint sealants. Continue testing of pile encasement to extend life of decomposing concrete. Continue testing (interim validation) of acrylic elastomeric coating of steel. Continue testing (interim validation) of flexible (non-cracking) marking paint for bituminous airfield pavements.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603725N / Facilities Improvement	0995 / Facilities System

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05
Modular Hybrid Pier	2.077	1.424	1.169
RDT&E Articles Quantity	3	2	2

FY 03: Initiated mooring design for test structure comprised of two floating modules with full scale mooring. Initiated module fabrication. Demonstrated ability to meet performance requirements for durable, high strenght lightweight concrete on large test articles.
FY 04: Complete module fabrication and ocean tow delivery to NS San Diego. Demonstrate ability to constutct modules to meet durability performance requirements. Initiate construction of test structure mooring and mooring of modules. Demonstrate ability to hold strict tolerances during module assembly and mooring integration.
FY 05: Initiate structural and hydrodynamic tests on demonstration structure (assembled modules and moorings). Install and test shore access ramp and support bearings for required strength and rotational/traditional capabilities. Install and test full scale MHP service utility mock-ups at ramp articulation points. Complete DT/OT of critical subassemblies.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME PE0603725N / Facilities Improvement	PROJECT NUMBER AND NAME 0995 / Facilities System

C. Other Program Funding Summary:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost

P-1 Procurement Line Item No. & Name. Not applicable.
C-1 MILCON Project No. & Name. Not applicable.

(U) RELATED RDT&E:
This project transitions waterfront facilities technology from applied research and advanced development programs PE0602234N, Materials, Electronics and Computer Technology, PE0602236N, Warfighter Sustainment Applied Research, and PE0603236N, Warfighter Sustainment Advanced Technology. It also transitions facility technologies developed at universities under the sponsorship of the National Science Foundation (NSF), by the Building and Fire Research Laboratory (BRL) of the National Institute of Standards and Technology (NIST), and by the Construction Engineering Research Laboratories (CERL) and Waterways Experiment Station (WES) of the U. S. Army Engineer Research and Development Center (USAERDC) when they can contribute to the solution of one of the Navy requirements being addressed by this project. The project pursues opportunities to leverage private sector investment through partnerships with private sector organizations, such as the Civil Engineering Research Foundation (CERF), the Marketing Development Alliance (MDA) of Fiberglass Reinforced Plastics Composites Industry and the Strategic Development Council of the American Concrete Institute. The project seeks to leverage and collaborate with the navy Sustainment, Restoration and efforts including Military Construction..

D. Acquisition Strategy:

(U) This project is categorized as Non-ACAT (Non Acquisition). The know-how produced from this project enables the safe and cost effective application of emerging/advanced technology concepts and products: 1) specifying or describing the performance, 2) enabling innovative design applications, 3) enabling quality control/quality assurance during constructions, 4) enabling reliability and maintainability during operations, and 5) developing lifecycle cost projections and environmental sustainability life cycle data for Navy policy guidance and criteria serving the Navy Sustainment, Restoration and Modernization and Military Construction (MILCON) programs. The data from this program enables earliest and safe utilization of advanced technology for cost avoidance in the facilities infrastructure. The technical know-how of this program is transferred to the construction industry that delivers Navy construction and maintenance through the inclusion of individual firms (using competitive selection processes) and industry organizations/associations in the development and testing activities. MILCON, Repair and Modernization are not serial

E. Major Performers:

Major performers include Naval Facilities Engineering Service Center, Port Hueneme, CA.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT PE0603725N / Facilities Improvement				PROJECT NUMBER AND NAME 0995 / Facilities System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Waterfront Facilities Repair & Upgrade	WX	NFESC, Pt Hueneme, CA	1.760					0.100	10/04	nominal varies	cont.	na
	WR	NUWC, New London, CT	0.687								0.687	
	WR	EFANW, Poulsbo, WA	0.012								0.012	
	FP	MCA Engrg, Costa Mesa, CA	0.045								0.045	
Sustainment, Restoration & Modernization Tech	WX	NFESC, Pt Hueneme, CA	3.583					0.202	10/04	nominal varies	cont.	na
	FP	CERF, Washington, DC	0.045								0.045	
	RC	LANTDIV, Norfolk, VA	0.051								0.051	
	FP	NAS Misawa, Misawa, Japan	0.028								0.028	
	WR	SWDIV, San Diego, CA	0.002								0.002	
	FP	Han Padron Inc., NY	0.019								0.019	
	FP	Atmos Anal. &Consult, Inc.	0.006								0.006	
	RC	N. State Univ. Aberdeen, MD	0.042								0.042	
	WR	PWD, NWS, Charleston, SC	0.081								0.081	
	FP	ADC, Inc.	0.021								0.021	
	FP	Weston Geophysical, MA	0.025								0.025	
	FP	Northwestern Univ., IL	0.024								0.024	
	FP	Blackledge Diving	0.010								0.010	
	FP	ABC Painting, CA	0.032								0.032	
	FP	Polyspec Corp, TX	0.060								0.060	
	FP	Abras. Blast & Coat, CA	0.030								0.030	
	MP	U. S. Army Huntsville, AL	0.100								0.100	
	RC	Contractors TBD	0.050					0.150	03/05	cont.	cont.	
Modular Hybrid Pier	WR	NFESC, Pt Hueneme, CA	0.275	0.350	10/02	0.135	10/03	0.745	10/04	nominal varies	cont.	na
	WR	SWDIV, San Diego, CA	0.000			0.142	06/04	0.024	10/04		0.166	
	FP	BergerAbam. Seattle, WA	0.581	1.727	05/03			0.100	10/04		2.408	
	FP	Contractors TBD	0.000			1.147	06/04	0.300	10/04		1.447	
			7.569	2.077		1.424		1.621		0.000	12.691	
Remarks: Total Prior Years Cost summation does not include performing activities from projects completed in prior years.												
Development Support											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks: Included in Product Development costs.												

R-1 SHOPPING LIST - Item No. 64-7 of 64-10

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT PE0603725N / Facilities improvement			PROJECT NUMBER AND NAME 0995 / Facilities System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks: Not applicable.												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks: Not applicable.												
Total Cost			7.569	2.077		1.424		1.621		0.000	12.691	
Remarks:												

R-1 SHOPPING LIST -Item Nol 64-8 of 64-10

CLASSIFICATION:

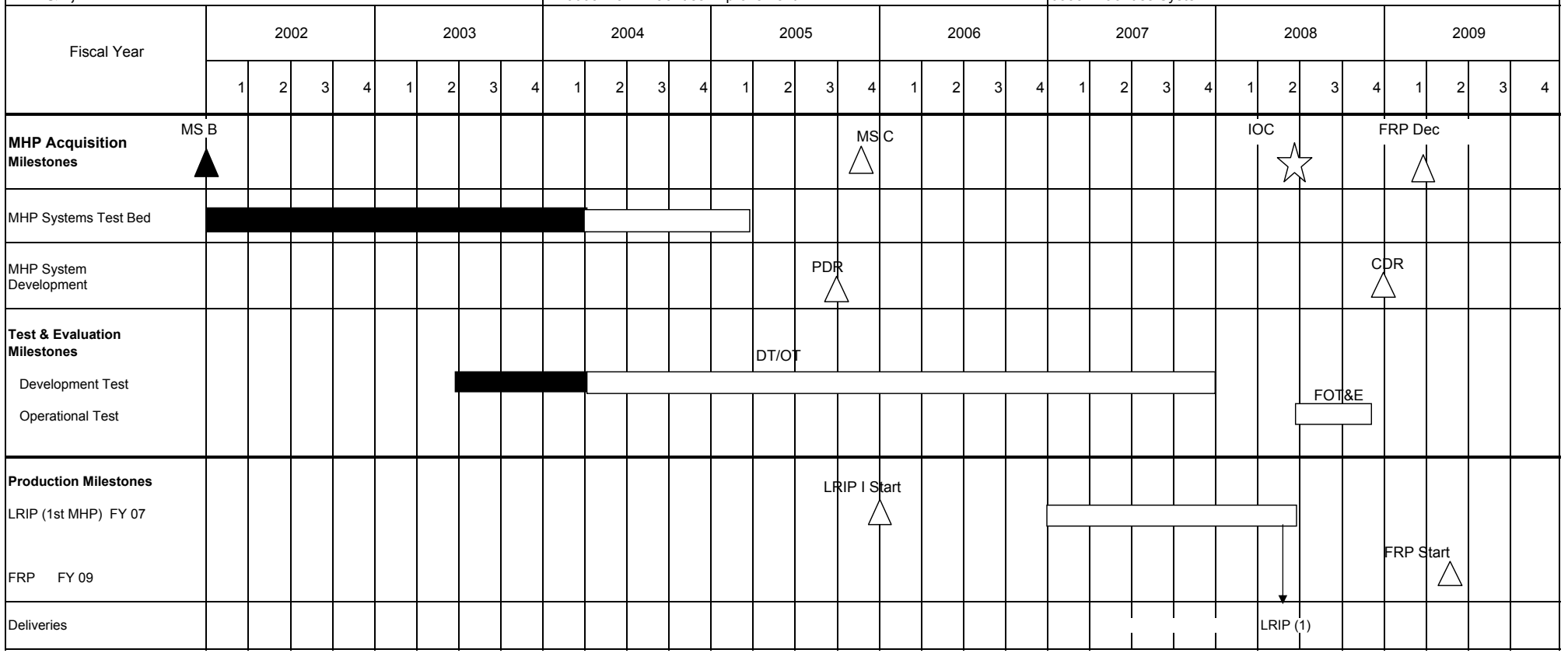
EXHIBIT R4, Schedule Profile

DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4**

PROGRAM ELEMENT NUMBER AND NAME: PE0603725N / Facilities Improvement

PROJECT NUMBER AND NAME: 0995 / Facilities System



R-4 Schedule Profile - Item No. 64-9 of 64-10

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT PE0603725N / Facililties Improvement				PROJECT NUMBER AND NAME 0995 / Facilities System			
Schedule Profile (MHP)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	
Milestone II (MSII)								
MHP Systems (Test Bed) Development	1Q-4Q	1Q-4Q	1Q					
Combined Developmental/Operational Testing (DT/OT)	3Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q			
Preliminary Design Review (PDR)			3Q					
Milestone C (MS C)			4Q					
Start Low-Rate Initial Production I (LRIP)				1Q				
Low-Rate Initial Production Delivery						2Q		
Follow-On Operational Test & Evaluation (FOT&E)						3Q-4Q		
IOC						3Q		
Critical Design Review (CDR)						4Q		
Full Rate Production (FRP) Decision							1Q	
Full Rate Production Start							2Q	

R-4 Schedule Profile - Item No 64-10 of 64-10

EXHIBIT R-2, RDT&E Budget Item Justification						DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**				R-1 ITEM NOMENCLATURE 0603739N Navy Logistic Productivity			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE0603739N Cost	**25.444**	**17.989**	**7.421**	**6.713**	**6.716**	**6.707**	**6.819**
T1886 Rapid Retargeting *	**2.672**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
T2767 Collaborative Logistics Productivity Program **	**6.492**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
T2769 Compatible Processor Upgrade Program ***	**1.909**	**5.044**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
T2920 Ordnance Management ****	**4.346**	**4.056**	**4.459**	**3.759**	**3.679**	**3.609**	**3.655**
T9358 Life Cycle Savings Through Machine Technology		**2.967**					
S2920 Ordnance Management	**4.636**						
W2955 JEDMICS	****** 3.383**	**3.450**	**2.962**	**2.954**	**3.037**	**3.098**	**3.164**
W9047 JEDMICS Enhancements	**2.006**	**2.472**					
W9048 JEDMICS Security							
Quantity of RDT&E Articles **Not Applicable**							

* Rapid Retargeting is a Congressional add executed under project unit T1886 in FYs 2000 - 2003..
** Collaborative Logistics Productivity Program (formally VSIP) is a Congressional add executed under project unit T2767 in FYs 2000 - 2003.
*** Compatible Processor Upgrade Program is a Congressional add executed under project unit T2769 in FYs 2000 - 2004.

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Ordnance Management - Covers the conversion of Naval Ammunition Logistics Center(NALC) systems to the Ordnance Information Systems(OIS). These upgrades were previously procured with Operation and Maintenance, Navy funding. Funding has been moved to RDT&E,N to comply with 28 Oct 99 OSD Comptroller and 2 Nov 99 ASN(FMC) direction clarifying use of RDT&E funds.

JEDMICS - In FY85 Congress directed the Services and Defense Logistics Agency to permanently capture, manage and control engineering data in digital format so it would be available to support competitive spares re-procurement. As of April 2000, the Joint Engineering Data Management Information & Control System (JEDMICS) program manages and controls 78,500,000 engineering images and has 32,000 authorized users responsible for over 70,000 user sessions per month. Over 2 million digital images are retrieved each month. New data and new users are added each month as DoD re-engineers its business processes to take advantage of digital data that is managed and controlled for corporate reuse. The JEDMICS system is deployed at 29 interoperable sites that service 600 locations worldwide. Data stored in JEDMICS is used for Logistics Support, Spares re-procurement, Weapons Systems procurement, Engineering, Maintenance, Distribution, Manufacturing, Air National Guard and Deployed Engineering Technical Services organizations. JEDMICS facilitates work process re-design since its brings the electronic drawings to the desktop, shop floor or flight line in real time eliminating walk, wait and slack time to retrieve drawings. Additionally, Administrative Lead Time, Repair Turn Around Time, ECP processing time, demilitarization time, and all cycle times dependent on engineering data have decreased with the real time availability of digital engineering data. JEDMICS also facilitates Electronic Commerce since it produces digital technical data packages that can be forwarded along with an electronic order. Funds are for Commercial Off The Shelf (COTS) evaluation, integration, and test and evaluation. JEDMICS funds development efforts which are required to integrate COTS upgrades.

**** The FY 2003 control was erroneously overstated by $3.4M. The correct amount is reported above.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603739N Navy Logistic Productivity			PROJECT NUMBER AND NAME T1886 Rapid Retargeting			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	2.672	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty							

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Rapid Retargeting (RRT) is a new design process which will provide the technology to eliminate obsolete components and reduce multiple electronic modules into a single, programmable design. This process will also be employed to replace many standard module types with programmable COTS components thus greatly reducing shipboard sparing requirements.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603739N Navy Logistic Productivity	PROJECT NUMBER AND NAME T1886 Rapid Retargeting	

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			
RDT&E Articles Quantity	2.672		

FY 03 funding was used to expand the FY 02 effort.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			
RDT&E Articles Quantity			

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603739N Navy Logistic Productivity	T1886 Rapid Retargeting

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Last President's Budget	2.738	0.000	0.000
Adjustments since the last President's Budget	-0.066	0.000	0.000
Current Baseline	2.672	0	0
Summary of Adjustments			
Congressional program reductions			
Congressional undistributed reductions			
Congressional rescissions			
SBIR/STTR Transfer	-0.066		
Economic Assumtions			
Reprogrammings			
Congressional increases			
Subtotal	-0.066	0.000	0.000

Schedule:

Not Applicable

Technical:

Not Applicable

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603739N Navy Logistic Productivity	T1886 Rapid Retargeting

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
Not Applicable									

E. ACQUISITION STRATEGY: *

CPFF - Titan/Visicom

F. MAJOR PERFORMERS: **

List major contractors, universities, colleges, government facilities, federally funded research and development centers, laboratories, center, or other organizations contributing to this effort through BY2 (FY 2005). Only list those who were primary recipients of funds (e.g., received 15% or over $10 million, whichever is less). Include name or titles, locations and brief description of work performed. Include actual or projected award date (month/year).

*** Not required for Budget Activities 1,2,3, and 6**
**** Required for DON and OSD submit only.**

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2004		
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT		PROJECT NUMBER AND NAME								
RDT&E, N / BA-4		0603739N Navy Logistic Productivity		T1886 Rapid Retargeting								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			0.000	0.000		0.000				0.000	0.000	
Remarks:												
Development Support Equipment											0.000	
Software Development	CPFF	TITAN/VISICOM CA		2.519	08/03						2.519	15.981
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Subtotal Support				2.519		0.000				0.000	2.519	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)						DATE: February 2004				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603739N Navy Logistic Productivity		PROJECT NUMBER AND NAME T1886 Rapid Retargeting						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation									0.000	
Operational Test & Evaluation									0.000	
Tooling									0.000	
GFE									0.000	
Subtotal T&E			0.000	0.000		0.000		0.000	0.000	
Remarks:										
Contractor Engineering Support									0.000	
Government Engineering Support									0.000	
Program Management Support	WX	NAVSUP Mechanicsburg PA		0.153	08/03				0.153	
Travel									0.000	
Labor (Research Personnel)									0.000	
Overhead									0.000	
Subtotal Management				0.153		0.000		0.000	0.153	
Remarks:										
Total Cost			0.000	2.672		0.000		0.000	2.672	

EXHIBIT R4, Schedule Profile																	DATE: February 2004											
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**					PROGRAM ELEMENT NUMBER AND NAME 0603739N Navy Logistic Productivity												PROJECT NUMBER AND NAME T1886 Rapid Retargeting											
Fiscal Year	2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																												
Developmental Testing																												
Test & Evaluation Milestones Development Test Operational Test																												
Production Milestones LRIP I FY 05 LRIPII FY 06 FRP FY 07																												
Deliveries																												

* Not required for Budget Activities 1, 2, 3, and 6

Exhibit R-4a, Schedule Detail					DATE: February 2004		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603739N Navy Logistic Productivity			PROJECT NUMBER AND NAME T1886 Rapid Retargeting			
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Prototype Phase							
System Design Review (SDR)							
Milestone II (MSII)							
Contract Preparation							
Software Specification Review (SSR)							
Preliminary Design Review (PDR)							
System Development							
Critical Design Review (CDR)							
Quality Design and Build							
Test Readiness Review (TRR)							
Developmental Testing (DT-IIA)	1Q-4Q						
Eng Dev Model (EDM) Radar Delivery - Lab							
Software Delivery 1XXSW							
Preproduction Readiness Review (PRR)							
EDM Radar Delivery - Flt Related							
Milestone C (MS C)							
Operational Testing (OT-IIA)							
Start Low-Rate Initial Production I (LRIP I)							
Software Delivery 2XXSW							
Developmental Testing (DT-IIB1)							
Developmental Testing (DT-IIB2)							
Start Low-Rate Initial Production II							
Operational Testing (OT-IIB)							
Developmental Testing (DT-IIC)							
Functional Configuration Audit (FCA)							
Low-Rate Initial Production I Delivery							
Technical Evaluation (TECHEVAL)							
Physical Configuration Audit							
Operational Evaluation (OT-IIC) (OPEVAL)							
Low-Rate Initail Production II Delivery							
IOC							
Full Rate Production (FRP) Decision							
Full Rate Production Start							
First Deployment							

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603739N Navy Logistic Productivity			PROJECT NUMBER AND NAME T2767 Collaborative Logistics Productivity Virtual Systems			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**6.492**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
RDT&E Articles Qty							

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Collaborative Logistics Productivity (CLP) is a government owned, contractor maintained, web-enabled information program providing DoD users with access to an open environment of logistics, supply chain, and engineering design interface data. Beginning in FY 02, CLP expands upon the objectives of its predecessor, the Virtual System Implementation Program, by adding logistics initiatives to the pre-existing engineering network. Given its broader purpose, CLP is designed to provide the Navy engineering and logistics infrastructure with the tools to shorten weapons system acquisition lead time, reduce equipment sparing requirements and improve equipment sustainability, while decreasing total ownership costs. Geographically dispersed users --- including DLA, the NAVICP, acquisition program managers, engineering field activities, and private industry --- will use CLP integrated data and standard tools from multiple sources to work collaboratively to develop and sustain weapons systems while leveraging existing/emerging applications for improved decision making.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-4	0603739N Navy Logistic Productivity	T2767 Collaborative Logistics Productivity Virtual Systems	

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	6.492		
RDT&E Articles Quantity			

FY 03 funding was used to expand the FY 02 effort.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			
RDT&E Articles Quantity			

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603739N Navy Logistic Productivity	T2767 Collaborative Logistics Productivity Virtual Systems

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Last President's Budget	6.648	0.000	0.000
Adjustments since the last President's Budget	-0.156	0.000	0.000
Current Baseline	6.492	0.000	0.000
Summary of Adjustments			
Congressional program reductions			
Congressional undistributed reductions			
Congressional rescissions			
SBIR/STTR Transfer			
Economic Assumtions	-0.156		
Reprogrammings			
Congressional increases			
Subtotal	-0.156	0.000	0.000

Schedule:

Not Applicable

Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603739N Navy Logistic Productivity	T2767 Collaborative Logistics Productivity Virtual Systems

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
Not Applicable									

E. ACQUISITION STRATEGY: *

CPFF - Concurrent Tech Corp

F. MAJOR PERFORMERS: **

Not Applicable

*** Not required for Budget Activities 1,2,3, and 6**
**** Required for DON and OSD submit only.**

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2004		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603739N Navy Logistic Productivity		PROJECT NUMBER AND NAME T2767 Collaborative Logistics Productivity Virtual Systems							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			0.000	0.000		0.000				0.000	0.000	
Remarks:												
Development Support Equipment											0.000	
Software Development	CPFF	Concurrent Tech Corp PA		5.965	08/03						5.965	17.773
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Subtotal Support			0.000	5.965		0.000				0.000	5.965	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)							DATE: February 2004						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603739N Navy Logistic Productivity		PROJECT NUMBER AND NAME T2767 Collaborative Logistics Productivity Virtual Systems								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Developmental Test & Evaluation											0.000		
Operational Test & Evaluation											0.000		
Tooling											0.000		
GFE											0.000		
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000		
Remarks:													
Contractor Engineering Support											0.000		
Government Engineering Support											0.000		
Program Management Support	WX	NAVSUP Mechanicsburg PA		0.527	08/03						0.527		
Travel											0.000		
Labor (Research Personnel)											0.000		
Overhead											0.000		
Subtotal Management			0.000	0.527		0.000		0.000		0.000	0.527		
Remarks:													
Total Cost			0.000	6.492		0.000				0.000	6.492		
Remarks:													

EXHIBIT R4, Schedule Profile			DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603739N Navy Logistic Productivity	PROJECT NUMBER AND NAME T2767 Collaborative Logistics Productivity Virtual Systems	

Fiscal Year	2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																												
Developmental Testing																												
Test & Evaluation Milestones																												
Development Test																												
Operational Test																												
Production Milestones																												
LRIP I FY 05																												
LRIPII FY 06																												
FRP FY 07																												
Deliveries																												

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: February 2004		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603739N Navy Logistic Productivity			PROJECT NUMBER AND NAME T2767 Collaborative Logistics Productivity Virtual Systems			
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Prototype Phase							
System Design Review (SDR)							
Milestone II (MSII)							
Contract Preparation							
Software Specification Review (SSR)							
Preliminary Design Review (PDR)							
System Development							
Critical Design Review (CDR)							
Quality Design and Build							
Test Readiness Review (TRR)							
Developmental Testing (DT-IIA)	1Q-4Q						
Eng Dev Model (EDM) Radar Delivery - Lab							
Software Delivery 1XXSW							
Preproduction Readiness Review (PRR)							
EDM Radar Delivery - Flt Related							
Milestone C (MS C)							
Operational Testing (OT-IIA)							
Start Low-Rate Initial Production I (LRIP I)							
Software Delivery 2XXSW							
Developmental Testing (DT-IIB1)							
Developmental Testing (DT-IIB2)							
Start Low-Rate Initial Production II							
Operational Testing (OT-IIB)							
Developmental Testing (DT-IIC)							
Functional Configuration Audit (FCA)							
Low-Rate Initial Production I Delivery							
Technical Evaluation (TECHEVAL)							
Physical Configuration Audit							
Operational Evaluation (OT-IIC) (OPEVAL)							
Low-Rate Initail Production II Delivery							
IOC							
Full Rate Production (FRP) Decision							
Full Rate Production Start							
First Deployment							

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAM 0603739N Navy Logistic Productivity			PROJECT NUMBER AND NAME T2769 Compatible Processor Upgrade Program			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**1.909**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
RDT&E Articles Qty							

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Compatible Processor Upgrade Program (CPUP) is a system-on-a-chip applications where specific standard processor products are used to modernize existing systems while preserving legacy software and infrastructure, adapt commercial designs for radiation environments and to optimize system designs for the best mix of performance, system size and weight, power usage and heat generation. These products are foundry technology independent and provide for long term availability. Funds are required by 1 Oct 2000. The program will be executed using a fixed price contract with CPU Technology, Inc., of Pleasanton, CA and the funds will be obligated by 30 Sep 2002. The impact of not receiving these funds as soon as possible after the fiscal year begins would be to increase support costs, adding to weapon system obsolescence and increased support problems. Response to the need for fleet upgrades of performance, function and reliability will be at great disadvantage to Navy operational readiness requirements.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603739N Navy Logistic Productivity	T2769 Compatible Processor Upgrade Program

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.909		
RDT&E Articles Quantity			

CPUP will preserve the investment in the Legacy software by inserting the latest compatible electronic technology into existing systems to increase their safety, reliability and performance while allowing that pre-existing software to function on state-of-the-art processors. Funding will be used for cost avoidance initiatives.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	0.000
RDT&E Articles Quantity			

Continue the FY 03 effort.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603739N Navy Logistic Productivity	T2769 Compatible Processor Upgrade Program

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Last President's Budget	1.955	0.000	0.000
Adjustments since the last President's Budget	-0.046	0.000	0.000
Current Baseline	1.909	0.000	0.000
Summary of Adjustments			
Congressional program reductions			
Congressional undistributed reductions			
Congressional rescissions			
SBIR/STTR Transfer	-0.046		
Economic Assumtions			
Reprogrammings			
Congressional increases			
Subtotal	-0.046	0.000	0.000

Schedule:

Not Applicable

Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-4	0603739N Navy Logistic Productivity	T2769 Compatible Processor Upgrade Program	

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
Not Applicable									

E. ACQUISITION STRATEGY: *

Not Applicable

F. MAJOR PERFORMERS: **

Not Applicable

*** Not required for Budget Activities 1,2,3, and 6**
**** Required for DON and OSD submit only.**

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1) | DATE: February 2004

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603739N Navy Logistic Productivity	T2769 Compatible Processor Upgrade Program

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			0.000	0.000		0.000				0.000	0.000	

Remarks:

Development Support Equipment											0.000	
Software Development	FP	CPU Tech CA		1.752		0.000					1.752	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Subtotal Support			0.000	1.752		0.000		0.000		0.000	1.752	

Remarks:

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2) | DATE: February 2004

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603739N Navy Logistic Productivity	T2769 Compatible Processor Upgrade Program

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Tooling											0.000	
GFE											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support	WX	NAVSUP Mechanicsburg PA		0.157			TBD				0.157	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.157		0.000		0.000		0.000	0.157	
Remarks:												
Total Cost			0.000	1.909		0.000		0.000		0.000	1.909	
Remarks:												

EXHIBIT R4, Schedule Profile																									DATE: February 2004			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**					PROGRAM ELEMENT NUMBER AND NAME 0603739N Navy Logistic Productivity												PROJECT NUMBER AND NAME T2769 Compatible Processor Upgrade Program											
Fiscal Year	2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																												
Developmental Testing																												
Test & Evaluation Milestones Development Test Operational Test																												
Production Milestones LRIP I FY 05 LRIPII FY 06 FRP FY 07																												
Deliveries																												

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: February 2004		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603739N Navy Logistic Productivity			PROJECT NUMBER AND NAME T2769 Compatible Processor Upgrade Program			
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Prototype Phase							
System Design Review (SDR)							
Milestone II (MSII)							
Contract Preparation							
Software Specification Review (SSR)							
Preliminary Design Review (PDR)							
System Development							
Critical Design Review (CDR)							
Quality Design and Build							
Test Readiness Review (TRR)							
Developmental Testing (DT-IIA)	Q1-Q4						
Eng Dev Model (EDM) Radar Delivery - Lab							
Software Delivery 1XXSW							
Preproduction Readiness Review (PRR)							
EDM Radar Delivery - Flt Related							
Milestone C (MS C)							
Operational Testing (OT-IIA)							
Start Low-Rate Initial Production I (LRIP I)							
Software Delivery 2XXSW							
Developmental Testing (DT-IIB1)							
Developmental Testing (DT-IIB2)							
Start Low-Rate Initial Production II							
Operational Testing (OT-IIB)							
Developmental Testing (DT-IIC)							
Functional Configuration Audit (FCA)							
Low-Rate Initial Production I Delivery							
Technical Evaluation (TECHEVAL)							
Physical Configuration Audit							
Operational Evaluation (OT-IIC) (OPEVAL)							
Low-Rate Initail Production II Delivery							
IOC							
Full Rate Production (FRP) Decision							
Full Rate Production Start							
First Deployment							

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAM 0603739N Navy Logistic Productivity			PROJECT NUMBER AND NAME T2920 Ordnance Management			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**4.346**	**4.056**	**4.459**	**3.758**	**3.679**	**3.609**	**3.655**
RDT&E Articles Qty							

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Naval Ammunition Logistics Center(NALC) systems conversion to the Ordnance Information Systems(OIS): The OIS is an umbrella concept that integrates approximately 12 different functions that are currently produced by "stove-pipe" systems. OIS is an integrated suite of tools that uses the latest available information technology and best commercial practices to provide timely, relevant and accurate ordnance information and global ordnance visibility. It integrates wholesale, retail, and unique ordnance decision support systems to facilitate global ordnance positioning and information sharing across the DoN ordnance community to maximize warfighter support. Without a robust ordnance information system, the Navy and Marine Corps Aviation's ability to prevail in combat is jeopardized. This degradation will increase exponentially in the joint environment and the RDT&E initiatives listed herein are designed to ensure maximum Information Technology(IT) capability.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603739N Navy Logistic Productivity	T2920 Ordnance Management

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	4.346		
RDT&E Articles Quantity			

NALC plans to use a combination of software development, training development and configuration management for the following OIS systems: Retail Ordnance Logistics Management System (ROLMS), Receipts, Storage, Stowage, and Issue (RSS&I), Demil Program Support, Ordnance Data Warehouse, and Conventional Ammunition Inventory Managent System (CAIMS). NAVSEA systems will be integrated into the OIS

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		4.056	
RDT&E Articles Quantity			

NALC plans to use a combination of software development, training development, and configuration management for the following OIS systems: Ammunition Investment Model (AIM) , Packaging, Handling, Storage & Transportation (PHS&T), Exercise Planning, Fleet Readiness, etc.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			4.459
RDT&E Articles Quantity			

NALC plans to use a combination of software development, training development, and configuration management for the following OIS systems: PHS&T, Joint Sentencing Toolkit, Weapons Maintenance Support, Explosive Safety, etc.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603739N Navy Logistic Productivity	T2920 Ordnance Management

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Last President's Budget	4.445	4.102	4.474
Adjustments since the last President's Budget	-0.099	-0.046	-0.015
Current Baseline	4.346	4.056	4.459
Summary of Adjustments			
Congressional program reductions			
Congressional undistributed reductions			
Congressional rescissions			
SBIR/STTR Transfer	-0.099		
Economic Assumptions			
Section 8094 Management Imp		-11	
Sec 8126 Efficiencies/Rev		-35	
Reprogrammings			
FY 2003 Update			-0.003
PDB 604 - Inflation			-0.012
Congressional increases			
Subtotal	-0.099	-46.000	-0.015

Schedule:

Not Applicable

Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603739N Navy Logistic Productivity	PROJECT NUMBER AND NAME T2920 Ordnance Management

D. OTHER PROGRAM FUNDING SUMMARY:

E. ACQUISITION STRATEGY: *

FY 2003
OCT 02 - OIS Software Development & Configuration Management Support
JAN 03 - OIS Training & Documentation

FY 2004
JAN 04 - RSS&I Integration
FEB 04 - Fleet Readiness
DEC 03 - Ordnance Data Warehouse
MAY 04 - ROLMS
MAY 04 - AIM

FY 2005
OCT 05 - PHS&T and Joint Sent Toolkit
JUN 05 - Weapons Maintenance Support and
JUL 05 - Explosive Safety

F. MAJOR PERFORMERS: **

Not Applicable

*** Not required for Budget Activities 1,2,3, and 6**
**** Required for DON and OSD submit only.**

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											DATE: February 2004		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603739N Navy Logistic Productivity		PROJECT NUMBER AND NAME T2920 Ordnance Management								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development				0.000		0.000		0.000		0.000	0.000	
Remarks:												
Development Support Equipment											0.000	
Software Development				3.032	10/02	2.789	10/03	3.221	10/04		9.042	
Training Development				0.249		0.287	10/03	0.224	10/04		0.760	
Integrated Logistics Support											0.000	
Configuration Management				0.206	10/02	0.246	10/03	0.179	10/04		0.631	
Technical Data											0.000	
GFE											0.000	
Subtotal Support				3.487		3.322		3.624		0.000	10.433	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)												DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603739N Navy Logistic Productivity		PROJECT NUMBER AND NAME T2920 Ordnance Management							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation				0.489		0.451	10/03	0.537	10/04		1.477	
Operational Test & Evaluation				0.266		0.200	10/03	0.268	10/04		0.734	
Tooling											0.000	
GFE											0.000	
Subtotal T&E			0.000	0.755		0.651		0.805		0.000	2.211	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support	WX	TBD		0.104		0.083	10/03	0.030	10/04		0.217	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.104		0.083		0.030		0.000	0.217	
Remarks:												
Total Cost			0.000	4.346		4.056		4.459		0.000	12.861	
Remarks:												

EXHIBIT R4, Schedule Profile			DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /**	PROGRAM ELEMENT NUMBER AND NAME 0603739N Navy Logistic Productivity	PROJECT NUMBER AND NAME T2920 Ordnance Management	

Fiscal Year	2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																												
Software Development, Testing & User Training	■	■	■	■																								
System Intergration					■	■	■	■	■	■	■	■																
Test & Evaluation Milestones																												
Development Test																												
Operational Test																												
Production Milestones																												
LRIP I FY 05																												
LRIPII FY 06																												
FRP FY 07																												
Deliveries																												

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail				DATE: February 2004			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603739N Navy Logistic Productivity			PROJECT NUMBER AND NAME T2920 Ordnance Management			
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Prototype Phase							
System Design Review (SDR)							
Milestone II (MSII)							
Contract Preparation							
Software Specification Review (SSR)							
Preliminary Design Review (PDR)							
System Development	Q1-Q4						
Critical Design Review (CDR)							
Quality Design and Build							
Test Readiness Review (TRR)							
Developmental Testing (DT-IIA)		Q1-Q4	Q1-Q4				
Eng Dev Model (EDM) Radar Delivery - Lab							
Software Delivery 1XXSW							
Preproduction Readiness Review (PRR)							
EDM Radar Delivery - Flt Related							
Milestone C (MS C)							
Operational Testing (OT-IIA)							
Start Low-Rate Initial Production I (LRIP I)							
Software Delivery 2XXSW							
Developmental Testing (DT-IIB1)							
Developmental Testing (DT-IIB2)							
Start Low-Rate Initial Production II							
Operational Testing (OT-IIB)							
Developmental Testing (DT-IIC)							
Functional Configuration Audit (FCA)							
Low-Rate Initial Production I Delivery							
Technical Evaluation (TECHEVAL)							
Physical Configuration Audit							
Operational Evaluation (OT-IIC) (OPEVAL)							
Low-Rate Initail Production II Delivery							
IOC							
Full Rate Production (FRP) Decision							
Full Rate Production Start							
First Deployment							

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603739N/Navy Logistic Productivity	PROJECT NUMBER AND NAME 2920/Advanced Technology Ordnance Surveillance	

COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**4.636**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
RDT&E Articles Qty							

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: A. (U) Joint Vision 2020 calls for a concerted, service-wide effort towards focused logistics, including real-time total asset visibility. One specific milestone in this effort is that by FY04 the services will "implement fixed and deployable automated identification technologies and information systems that provide accurate, actionable total asset visibility". Moreover, a November 1999 document issued by the Joint Chiefs of Staff outlined the 57 highest priority CSS requirements identified by Combatant CINC's and Joint Warfighters. Priority number eleven of the fifty-seven reads as follows, "Joint warfighter is looking for visibility of class V, ammunition, that is on-hand, in-transit or at the point of origin awaiting shipment. The information must be current, real-time information with projected departures and arrivals through each node of the distribution system."

For the last 4 years, the NSWC (in conjunction with a number of commercial industry RFID and MEMS manufacturers) has evaluated miniaturized RFID and MEMS devices that have the potential to resolve many of today's critical ammunition visibility and safety shortfalls. The results of these tests have led to the concept development and subsequent approval of the ATOS ACTD. Some of the more important aspects of this ACTD are:

a. The RFID tags, attached to the munitions container, will be programmed to transmit its presence in a storage facility on a regular and frequent basis. This provides near real time visibility of critical munitions while in storage (a capability not available today) and coupled with the current in-transit visibility (ITV) infrastructure, while in-transit. If proven, this capability will complete the requirement for "…accurate and actionable total asset visibility" as required in FY04 by Joint Vision 2020.

b. The MEMS sensor, when integrated into the RFID tag will facilitate the transmission of temperature and humidity readings. This data will then be stored in a centralized environmental database for use by the various weapons systems QA/QE managers. This capability has the potential of providing the warfighter with more reliable munitions and reduced ammunition accidents caused by currently unmonitored environmental extremes. Moreover, the system will provide local stores managers the benefit of automated alarms for high or low extremes in weapons storage environments.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603739N /Navy Logistic Productivity	2920/Advanced Technology Ordnance Surveillance

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.383	0.000	0.000
RDT&E Articles Quantity			

(U) Complete Component and System Level Testing of prototype deliveries

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.359	0.000	0.000
RDT&E Articles Quantity			

(U) Complete Operational Testing of final deliveries

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000
RDT&E Articles Quantity			

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603739N /Navy Logistic Productivity	2920/Advanced Technology Ordnance Surveillance

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.563	0.000	0.000
RDT&E Articles Quantity			

(U) Complete Software Interfaces with each Service AIS

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.903	0.000	0.000
RDT&E Articles Quantity			

(U) Accept Final Delivery of Hardware

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.302	0.000	0.000
RDT&E Articles Quantity			

(U) Non Recurring Engineeriing to modify COTS items and integrate into a system

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603739N /Navy Logistic Productivity	2920/Advanced Technology Ordnance Surveillance

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.070	0.000	0.000
RDT&E Articles Quantity			

(U) Military Utility Assessment

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.056	0.000	0.000
RDT&E Articles Quantity			

(U) Transition

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000
RDT&E Articles Quantity			

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603739N /Navy Logistic Productivity	2920/Advanced Technology Ordnance Surveillance

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 03 Pres Controls):	4.900	0.000	0.000
Current BES/President's Budget: (FY04 President Controls Controls)	4.636	0.000	0.000
Total Adjustments	-0.264	0.000	0.000
Summary of Adjustments			
Technical Relignment - Navsup	4.900	0.000	0.000
FY03_SBIR_5-MAY_03	-0.126	0.000	0.000
Minor Adjustments	-0.138	0.000	0.000
Subtotal	4.636	0.000	0.000

Schedule:

Not Applicable.

Technical:

Not Applicable.

Exhibit R-3 Cost Analysis (page 1)											DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603739N /Navy Logistic Productivity			PROJECT NUMBER AND NAME 2920/Advanced Technology Ordnance Surveillance						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Systems Engineering	IDIQ	TBD		0.383	10/02						0.383	
Engineering Developemnt											0.000	
											0.000	
											0.000	
Demonstration & Evaluation											0.000	
											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development				0.383						0.000	0.383	
Remarks:												
Development Support											0.000	
Software Development	IDIQ	TBD		0.359	01/03						0.359	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.359		0.000		0.000		0.000	0.359	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)

DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4**

PROGRAM ELEMENT: 0603739N /Navy Logistic Productivity

PROJECT NUMBER AND NAME: 2920/Advanced Technology Ordnance Surveillance

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	IDIQ	TBD		0.184	03/03						0.184	
Operational Test & Evaluation	IDIQ	TBD		0.178	06/03						0.178	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE	IDIQ	NAVSEA Indian Head		0.201	03/03						0.201	
Award Fees											0.000	
Subtotal T&E			0.000	0.563		0.000		0.000		0.000	0.563	

Remarks:

Contractor Engineering Support	IDIQ	TBD		0.903	01/03						0.903	
Government Engineering Support				1.302	10/02						1.302	
Program Management Support	GSA	Logmation		1.070	10/02						1.070	
Travel	GSA	Logmation		0.032	10/02						0.032	
Labor (Research Personnel)	MIPR	NAVSEA PHST		0.024	12/02						0.024	
SBIR Assessment											0.000	
Subtotal Management			0.000	3.331		0.000		0.000		0.000	3.331	

Remarks:

Total Cost			0.000	4.636		0.000		0.000		0.000	4.636	

Remarks:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603739N Navy Logistic Productivity				PROJECT NUMBER AND NAME W2955 JEDMICS			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		*** 3.383**	**3.450**	**2.962**	**2.954**	**3.037**	**3.098**	**3.164**
RDT&E Articles Qty								

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: In FY85 Congress directed the Services and Defense Logistics Agency to permanently capture, manage and control engineering data in digital format so it would be available to support competitive spares re-procurement. The Joint Engineering Data Management Information & Control System (JEDMICS) program manages and controls 77,000,000 engineering images and has 34,000 authorized users responsible for over 70,000 user sessions per month. Over 2.5 million digital images are retrieved each month. New data and new users are added each month as DoD re-engineers its business processes to take advantage of digital data that is managed and controlled for corporate reuse. The JEDMICS system is deployed at 26 interoperable sites that service 600 locations worldwide. Data stored in JEDMICS is used for Logistics Support, Spares re-procurement, Weapons Systems procurement, Engineering, Maintenance, Distribution, Manufacturing, Air National Guard and Deployed Engineering Technical Services organizations. JEDMICS facilitates work process re-design since its brings the electronic drawings to the desktop, shop floor or flight line in real time eliminating walk, wait and slack time to retrieve drawings. Additionally, Administrative Lead Time, Repair Turn Around Time, ECP processing time, demilitarization time, and all cycle times dependent on engineering data have decreased with the real time availability of digital engineering data. JEDMICS also facilitates Electronic Commerce since it produces digital technical data packages that can be forwarded along with an electronic order. Funds are for Commercial Off The Shelf (COTS) test, evaluation and integration. JEDMICS development efforts are required to integrate and test COTS upgrades.

* The FY03 control was erroneously overstated by $3.4M due to Issue 68849. The correct amount is reported above.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUD: RDT&E, N /	PROGRAM ELEMENT NUMBER AND NAME: 0603739N Navy Logistic Productivity	PROJECT NUMBER AND NAME: W2955 JEDMICS

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		2.422	2.429	2.225
RDT&E Articles Quantity				

(U) Conduct development efforts associated with COTS obsolescence of the fully deployed COTS intensive JEDMICS system. Conduct COTS requirements definition, evaluation,
integration and testing of annual baseline releases. Conduct technology insertion of the JEDMICS system that is required to protect the $21B digital data asset managed in JEDMICS.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.211	0.199	0.204
RDT&E Articles Quantity				

(U) Conduct technical evaluations and configuration control reviews of JEDMICS system.

.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.750	0.822	0.533
RDT&E Articles Quantity				

(U) Conduct test and readiness reviews and functional performance tests on JEDMICS system.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /** **BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603739N Navy Logistic Productivity	PROJECT NUMBER AND NAME W2955 JEDMICS	

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:	3.498	3.489	3.483
Current President's Budget:	3.383	3.450	2.962
Total Adjustments	-0.115	-0.039	-0.521

Summary of Adjustments			
Congressional program reductions			
Congressional undistributed reductions		-0.039	
Congressional rescissions			
SBIR/STTR Transfer	-0.081		
OSD			
Reprioritization			-0.511
Economic Assumptions			-0.010
Reprogrammings	-0.034		
Congressional increases			
Subtotal	-0.115	-0.039	-0.521

Schedule:

Not Applicable.

Technical:

Not Applicable.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAM 0603739N Navy Logistic Productivity	PROJECT NUMBER AND NAME W2955 JEDMICS

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
OPN BLI 331100, JEDMICS	11.747	6.353							18.1

E. ACQUISITION STRATEGY:

(U) Contracting is via General Services Administration schedules with various vendors and are for software maintenance and COTS evaluation and integration. Performance base reviews are conducted quarterly by the PMO.

F. MAJOR PERFORMERS:

Exhibit R-3 Cost Analysis (page 1)											DATE: February 2004		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, BA-4**			PROGRAM ELEMENT 0603739N Navy Logistic Productivity			PROJECT NUMBER AND NAME W2955 Joint Engineering Data Management Information & Control Systems						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal Product Development												
Remarks:												
Software Development	C-FFP	Northrop Grumman Informa-	2.666	2.279	12/02	2.429	12/03	2.225	12/04	14.052	23.651	23.651
		tion Technology, McLean, VA										
Software Development	C-ID/IQ		0.073	0.097	04/03						0.170	0.170
Software Development	C-FFP			0.046	06/03						0.046	0.046
Subtotal Support			2.739	2.422		2.429		2.225		14.052	23.867	23.867

Remarks: Funds are for development efforts associated with COTS obsolescence on the fully deployed COTS Intensive Joint Engineering Data Management Infomation & Control System (JEDMICS). Funds are for COTS evaulation, integration, and test and evaluation. The common baseline will be regained and obsolete COTS software and hardware will be replaced. Baseline releases will protect joint interoperability, upgrade operating systems for security patches and supportable versions, support integration to replace obsolete COTS, and upgrade the Oracle database to supportable versions.

Exhibit R-3 Cost Analysis (page 2) | DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4**

PROGRAM ELEMENT: 0603739N Navy Logistic Productivity

PROJECT NUMBER AND NAME: W2955 Joint Engineering Data Management Information & Control System (JEDMICS)

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	C-CPAF		0.353	0.397	12/02	0.462	12/03	0.469	12/04	2.992	4.673	4.673
Developmental Test & Evaluation	C-FFP		0.004								0.004	0.004
Developmental Test & Evaluation	MIPR		0.648	0.317	10/02	0.321	10/03	0.025	10/04	0.159	1.470	
Developmental Test & Evaluation	WR		0.017	0.020	10/02	0.020	10/03	0.020	10/04	0.127	0.204	
Award Fees (Performance 93%,	C-CPAF		0.016	0.016	12/02	0.019	12/03	0.019	12/04	0.121	0.191	0.191
82.5% of Fees Awarded)											0.000	
Subtotal T&E			1.038	0.750		0.822		0.533		3.399	6.542	

Remarks: Supports testing and evaluation of baseline releases in a user environment.

Government Engineering Support	MIPR		0.163	0.147	10/02	0.149	10/03	0.152	10/04	0.970	1.581	
Government Engineering Support	WR			0.014	07/03						0.014	
Program Management Support	WR		0.097	0.019	10/02	0.019	10/03	0.020	10/04	0.127	0.282	
Travel	TO			0.031	10/02	0.031	10/03	0.032	10/04	0.205	0.299	
Travel	WR		0.007								0.007	
					N/A							
Subtotal Management			0.267	0.211		0.199		0.204		1.302	2.183	

Remarks: Supports requirements management at the Prime Contractor location.

Total Cost			4.044	3.383		3.450		2.962		18.753	32.592	

Remarks:

CLASSIFICATION:

EXHIBIT R4, Schedule Profile

DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4**

PROGRAM ELEMENT NUMBER AND NAME: 0603739N Navy Logistic Productivity

PROJECT NUMBER AND NAME: W2955 Joint Engineering Data Management Information & Control System

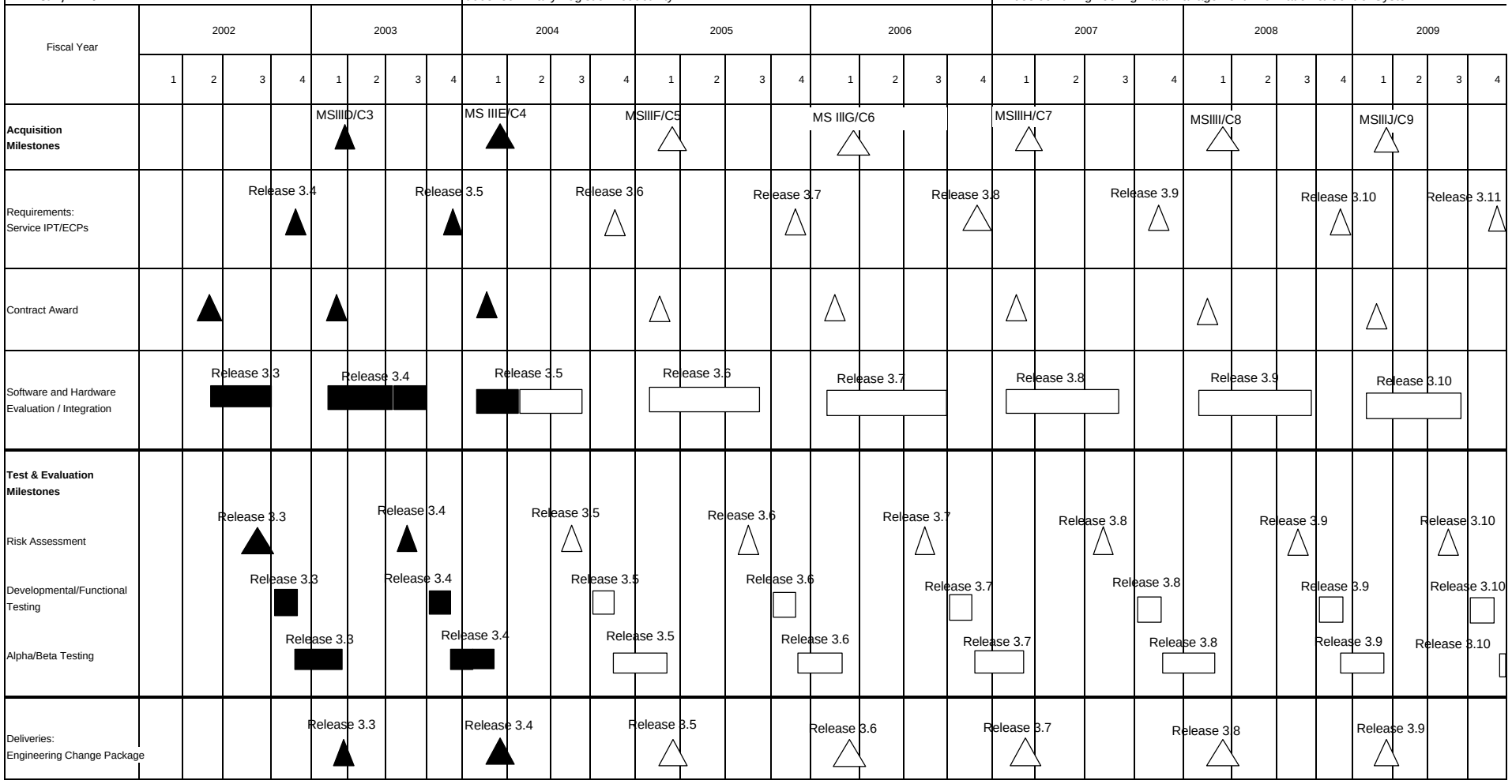


Exhibit R-4 W2955

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, BA-4**	PROGRAM ELEMENT 0603739N Navy Logistic Productivity				PROJECT NUMBER AND NAME W2955 JEDMICS			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Contract Award	2Q							
Software Hardware Evaluation/Integration Release 3.3	2Q-3Q							
Risk Assessment Release 3.3	3Q							
Developmental/Functional Testing Release 3.3	4Q							
Service IPT/ECPs Release 3.4	4Q							
Alpha/Beta Testing Release 3.3	4Q	1Q						
Engineering Change Package Release 3.3		1Q						
Milestone lllD or C3 (MSlllD/C3) Release 3.3		1Q						
Contract Award		1Q						
Software Hardware Evaluation/Integration Release 3.4		1Q-3Q						
Risk Assessment Release 3.4		3Q						
Developmental/Functional Testing Release 3.4		4Q						
Service IPT/ECPs Release 3.5		4Q						
Alpha/Beta Testing Release 3.4		4Q	1Q					
Engineering Change Package Release 3.4			1Q					
Milestone lllE or C4 (MSlllE/C4) release 3.4			1Q					
Contract Award			1Q					
Software Hardware Evaluation/Integration Release 3.5			1Q-3Q					
Risk Assessment Release 3.5			3Q					
Developmental/Functional Testing Release 3.5			4Q					
Service IPT/ECPs Release 3.6			4Q					
Alpha/Beta Testing Release 3.5			4Q	1Q				
Engineering Change Package Release 3.5				1Q				
Milestone lllF or C5 (MSlllF/C5) Release 3.5				1Q				
Contract Award				1Q				
Software Hardware Evaluation/Integration Release 3.6				1Q-3Q				
Risk Assessment Release 3.6				3Q				
Developmental/Functional Testing Release 3.6				4Q				
Service IPT/ECPs Release 3.7				4Q				
Alpha/Beta Testing Release 3.6				4Q	1Q			
Engineering Change Package Release 3.6					1Q			
Milestone lllG or C6 (MSlllG/C6) Release 3.6					1Q			
Contract Award					1Q			
Software Hardware Evaluation/Integration Release 3.7					1Q-3Q			
Risk Assessment Release 3.7					3Q			

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BU **RDT&E, BA-4**	PROGRAM ELEMENT 0603739N Navy Logistic Productivity				PROJECT NUMBER AND NAME W2955 JEDMICS			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Developmental/Functional Testing Release 3.7					4Q			
Service IPT/ECPs Release 3.8					4Q			
Alpha/Beta Testing Release 3.7					4Q	1Q		
Engineering Change Package Release 3.7						1Q		
Milestone IIIH or C7 (MSIIIH/C7) Release 3.7						1Q		
Contract Award						1Q		
Software Hardware Evaluation/Integration Release 3.8						1Q-3Q		
Risk Assessment Release 3.8						3Q		
Developmental/Functional Testing Release 3.8						4Q		
Service IPT/ECPs Release 3.9						4Q		
Alpha/Beta Testing Release 3.8						4Q	1Q	
Engineering Change Package Release 3.8							1Q	
Milestone IIII or C8 (MSIIII/C8) release 3.8							1Q	
Contract Award							1Q	
Software Hardware Evaluation/Integration Release 3.9							1Q-3Q	
Risk Assessment Release 3.9							3Q	
Developmental/Functional Testing Release 3.9							4Q	
Service IPT/ECPs Release 3.10							4Q	
Alpha/Beta Testing Release 3.9							4Q	1Q
Engineering Change Package Release 3.9								1Q
Milestone IIIJ or C9 (MSIIIJ/C9) Release 3.9								1Q
Contract Award								1Q
Software Hardware Evaluation/Integration Release 3.10								1Q-3Q
Risk Assessment Release 3.10								3Q
Developmental/Functional Testing Release 3.10								4Q
Service IPT/ECPs Release 3.11								4Q
Alpha/Beta Testing Release 3.10								4Q

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, BA-4**	PROGRAM ELEMENT NUMBER AND NAM 0603739N Navy Logistic Productivity				PROJECT NUMBER AND NAME W9047 JEDMICS Enhancements			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**2.006**	**2.472**					
RDT&E Articles Qty								

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: In FY85 Congress directed the Services and Defense Logistics Agency to permanently capture, manage and control engineering data in digital format so it would be available to support competitive spares re-procurement. The Joint Engineering Data Management Information & Control System (JEDMICS) program manages and controls 77,000,000 engineering images and has 34,000 authorized users responsible for over 70,000 user sessions per month. Over 2.5 million digital images are retrieved each month. New data and new users are added each month as DoD re-engineers its business processes to take advantage of digital data that is managed and controlled for corporate reuse. The JEDMICS system is deployed at 26 interoperable sites that service 600 locations worldwide. Data stored in JEDMICS is used for Logistics Support, Spares re-procurement, Weapons Systems procurement, Engineering, Maintenance, Distribution, Manufacturing, Air National Guard and Deployed Engineering Technical Services organizations. JEDMICS facilitates work process re-design since its brings the electronic drawings to the desktop, shop floor or flight line in real time eliminating walk, wait and slack time to retrieve drawings. Additionally, Administrative Lead Time, Repair Turn Around Time, ECP processing time, demilitarization time, and all cycle times dependent on engineering data have decreased with the real time availability of digital engineering data. JEDMICS also facilitates Electronic Commerce since it produces digital technical data packages that can be forwarded along with an electronic order. Funds are for Commercial Off The Shelf (COTS) test, evaluation and integration. JEDMICS development efforts are required to integrate and test COTS upgrades.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BU **RDT&E, N /**	PROGRAM ELEMENT NUMBER AND NAME 0603739N Navy Logistic Productivity	PROJECT NUMBER AND NAME W9047 JEDMICS

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		2.006	2.472	
RDT&E Articles Quantity				

(U) Complied with Congressional direction for JEDMICS WEB Interface and Technical Data Management Enhancements.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BU	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /	0603739N Navy Logistic Productivity	W9047 JEDMICS

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		2.006	2.472	
RDT&E Articles Quantity				

(U) Complied with Congressional direction for JEDMICS WEB Interface and Technical Data Management Enhancements.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /** **BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603739N Navy Logistic Productivity	PROJECT NUMBER AND NAME W9047 JEDMICS	

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
FY04 President's Budget:	2.054	0.000	
FY05 DON Budget Submit	2.006	2.472	
Total Adjustments	-0.048	2.472	0.000
Summary of Adjustments			
Congressional program reductions			
Congressional undistributed reductions		-0.028	
Congressional rescissions			
SBIR/STTR Transfer	-0.048		
OSD			
Navy (FMB/Sponsor/NAVAIR)			
Economic Assumptions			
Reprogrammings			
Congressional increases		2.500	
Subtotal	-0.048	2.472	0.000

Schedule:

Not Applicable

Technical:

Not Applicable

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603739N Navy Logistic Productivity	PROJECT NUMBER AND NAME W9047 JEDMICS

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
OPN BLI 331100, JEDMICS	11.747	6.353							18.1

E. ACQUISITION STRATEGY:

(U) Contracting is via General Services Administration schedules with various vendors and are for software maintenance and COTS evaluation and integration. Performance base reviews are conducted quarterly by the PMO.

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2004				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, BA-4**		PROGRAM ELEMENT 0603739N Navy Logistic Productivity			PROJECT NUMBER AND NAME W9047 JEDMICS							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal Product Development												
Remarks:												
Software Development	C-FFP	Northrop Grumman Infor	2.932	1.906	07/03	2.472	03/04				7.310	7.310
		tion Technology, Mclean, VA										
Software Development	C-ID/IQ	Lockheed Martin, Oweg	1.733								1.733	1.733
Studies & Analyses	SS-FFP			0.100	07/03						0.100	0.100
Subtotal Support			4.665	2.006		2.472					9.143	9.143

Remarks: FY 2003 funds are used to web enable the digital data delivery, data integrity and output functions of JEDMICS and to provide data to the desktop in web accessible formats. These efforts reduce the number of JEDMICS related desktop applications and retain data accessibility and interoperability across the Services as the Navy transitions to a single intranet. FY 2004 funds are used for development and test efforts to enhance WebJEDMICS for data access and retrieval via web portals. The efforts also enable native support within JEDMICS for the storage and manipulation of complex data formats.

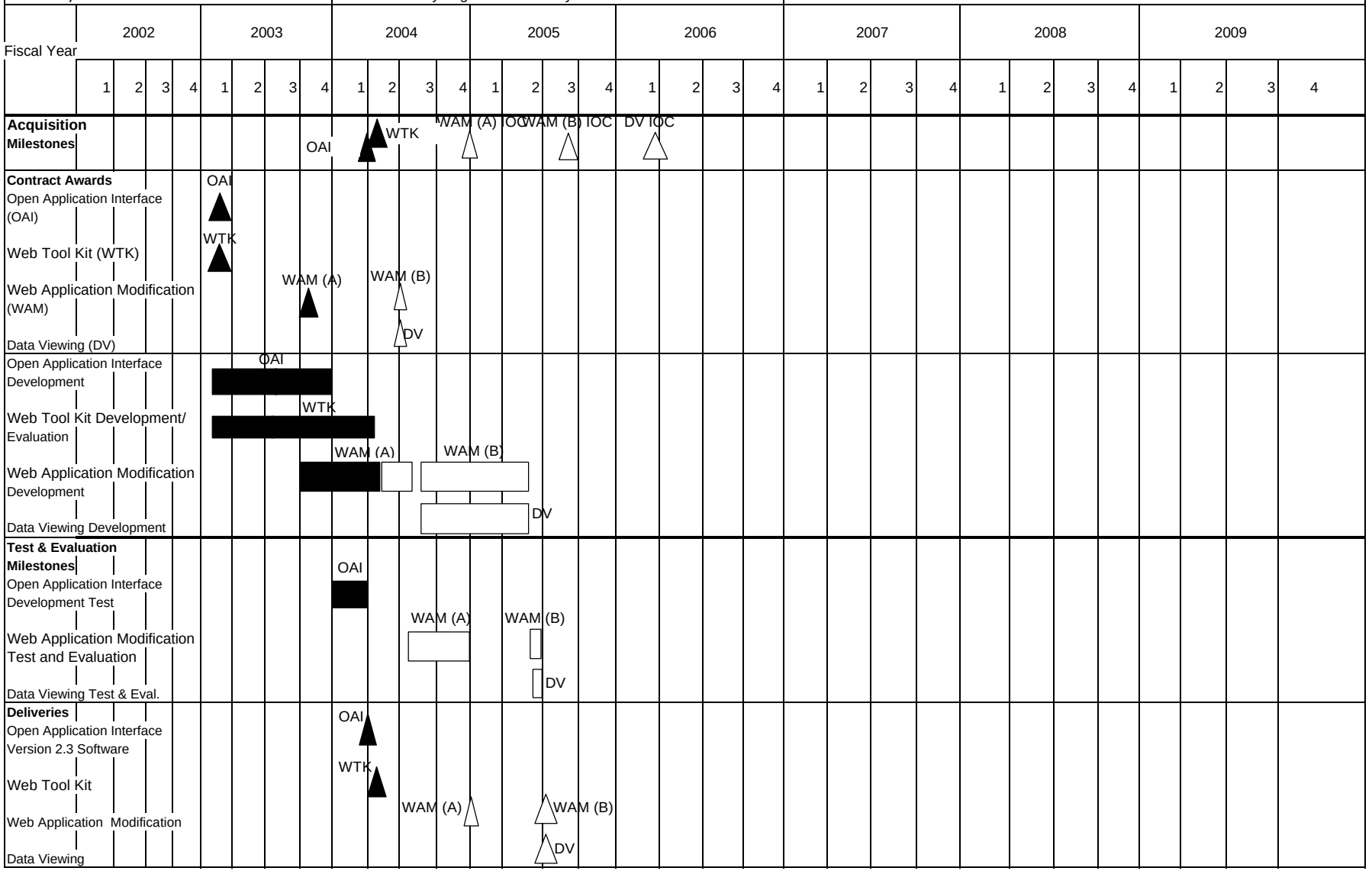
Exhibit R-3 Cost Analysis (page 2)									DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, BA-4**		PROGRAM ELEMENT 0603739N Navy Logistic Productivity				PROJECT NUMBER AND NAME W9047 JEDMICS						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000								0.000	
Remarks:												
Government Engineerin	WR		0.060								0.060	
Subtotal Management			0.060								0.060	
Remarks:												
Total Cost			4.725	2.006		2.472					9.203	
Remarks:												

EXHIBIT R4, Schedule Profile | DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, BA-4**

PROGRAM ELEMENT NUMBER AND NAME: 0603739N Navy Logistic Productivity

PROJECT NUMBER AND NAME: W9047 JEDMICS Enhancements



APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NUMBER AND NAME
RDT&E BA-4	0603739N Navy Logistic Productivity	W9047 JEDMICS Enhancements

Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Open Application Interface Contract Award		1Q						
Web Tool Kit Contract Award		1Q						
Open Application Interface Development		1Q-4Q						
Web Tool Kit Development/Evaluation		1Q-4Q	1Q-2Q					
Open Application Interface Development Test			1Q					
Open Application Interface Version 2.3 Software Delivery			1Q					
Open Application Interface Initial Operating Capability			1Q					
Web Tool Kit Delivery			2Q					
Web Tool Kit Initial Operating Capability			2Q					
Web Application Modification (A) Contract Award		4Q						
Web Application Modification (A) Development		4Q	1Q-3Q					
Web Application Modification (A) Test and Evaluation			3Q-4Q					
Web Application Modification (A) Delivery			4Q					
Web Application Modification (B) Contract Award			2Q					
Web Application Modification (B) Development			3Q-4Q	1Q-2Q				
Web Application Modification (B) Test and Evaluation				2Q				
Web Application Modification (B) Delivery				3Q				
Data Viewing Contract Award			2Q					
Data Viewing Development			3Q-4Q	1Q-2Q				
Data Viewing Test and Evaluation				2Q				
Data Viewing Delivery				3Q				

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**					R-1 ITEM NOMENCLATURE 0603755N/SHIP SELF DEFENSE			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost		**9.101**	**9.625**	**9.493**	**9.595**	**10.874**	**11.041**	**11.210**
2133/QRCC/RAWG		**1.920**	**4.267**	**3.619**	**3.580**	**3.545**	**3.568**	**3.601**
2184/(9050*) Force AAW Coord. Tech. (FACT)		**7.181**	**5.358**	**5.874**	**6.015**	**7.329**	**7.473**	**7.609**

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This program incorporates efforts dedicated to the enhancement of ship self defense against Anti-Air Warfare (AAW) threats. Its primary focus is on the development of technologies, systems, and procedures necessary to defeat the evolving Anti-Ship Cruise Missile (ASCM) threat. These projects focus on ship defense improvements through the development of advanced concepts and capabilities that will enhance both defense in depth of ships in a force and self defense of individual ships in a littoral war-fighting environment. Quick Reaction Combat Capability (QRCC), Project 2133, provides advanced concepts and technology developments for the multi-sensor integration of ship detection equipment, integration and coordination of ship self defense weapons, and coordination of hardkill and softkill assets to improve individual ship self defense capabilities against the ASCM threat. Beginning in FY02, the Requirements and Analysis Working Group (RAWG) provides independent analysis for a variety of combat system trade-offs, ship class performance studies, and force protection strategic plan development. Force Anti-Air Warfare Coordination Technology (FACT), Project 2184, demonstrates AAW concepts and capabilities that will enhance the AAW warfighting ability of ships and aircraft and enable the coupling of the Force into a single, distributed AAW weapon system through more effective use of tactical data, and force sensors and weapons

R-1 SHOPPING LIST - Item No. 70

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603755N/SHIP SELF DEFENSE				PROJECT NUMBER AND NAME 2133/Quick Reaction Combat Capability/Req and Analysis W/G			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**1.920**	**4.267**	**3.619**	**3.580**	**3.545**	**3.568**	**3.601**
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Quick Reaction Combat Capability (QRCC) provides advanced concepts and technology developments for the multi-sensor integration of ship detection equipment, integration and coordination of ship self defense weapons, and coordination of hardkill and softkill assets to improve individual ship self defense capabilities against the Anti-Ship Cruise Missile (ASCM) threat. The funding for the Self Defense Test Ship is for the dry-docking and overhaul of the Self Defense Test Ship to extend the service life for another 4 years. The Requirements and Analysis Working Group (RAWG) provides independent analysis for a variety of combat system trade-offs, ship class performance studies, and force protection strategic plan development.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603755N/SHIP SELF DEFENSE	2133/Quick Reaction Combat Capability/Requirements and Analysis Working Grp

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	1.920	0.000	0.000	
RDT&E Articles Quantity				

The Requirement Analysis Working Group (RAWG) provided POM/PR process analysis, ship class and component systems capabilities for Ship Self Defense (SSD). These analyses are supported by N76 and various PEO's involved in Ship Self Defense (SSD). The RAWG provided analysis for a variety of combat systems trade-off and force protection strategic development.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	0.000	4.267	0.000	
RDT&E Articles Quantity				

RAWG will assume leadership and management of the Common Anti Ship Cruise Missile (ASCM) Threat Characterization process for PEO IWS. The RAWG will provide support to the POM 06 Analysis for N76 staff and analyze threat D and its impact on the various ship combat systems. The RAWG will continue to respond to the PEO and OPNAV sponsors emergent tasking and participate and attend Probability of Raid Annihilation (PRA) working group meetings.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	3.619	
RDT&E Articles Quantity				

The RAWG will provide POM/PR process analysis, ship class, and component systems capabilities in support of Resource Manager's POM /PR budget process. The RAWG will provide analysis for a variety of combat systems trade-off and force protection strategic development. The Requirements and Analysis Working Group (RAWG) will continue leadership and management of the Common ASCM Threat Characterization process for PEO IWS. The RAWG will continue to respond to the PEO and OPNAV sponsors emergent tasking and participate and attend PRA working group meetings.

R-1 SHOPPING LIST - Item No. 70

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603755N/SHIP SELF DEFENSE	2133 Quick Reaction Combat Capability/Requirements and Analysis Working Group

C. PROGRAM CHANGE SUMMARY:

Funding:	**FY 2003**	**FY 2004**	**FY 2005**
Previous President's Budget: (FY 04-05 Pres Budget)	2.009	4.315	4.693
Current BES/President's Budget: (FY05 OSD)	1.920	4.267	3.619
Total Adjustments	-0.089	-0.048	-1.074
Summary of Adjustments			
21511 RAWG			-1.000
Issue 67769 NSWC Rates			-0.062
Issue 68849 FY 03Update	-0.066		
Issue 66642 BSO Adjustments	-0.005		
Issue 66556 FY 03 SBIR	-0.018		
Minor Pricing Adjustments		-0.048	-0.012
Subtotal	-0.089	-0.048	-1.074

Schedule:

N/A

Technical:

N/A

R-1 SHOPPING LIST - Item No. 70

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603755N/SHIP SELF DEFENSE	2133 Quick Reaction Combat Capability/Requirements and Analysis Working Group

D. OTHER PROGRAM FUNDING SUMMARY: Not Applicable

E. ACQUISITION STRATEGY: **Not Applicable**

F. MAJOR PERFORMERS:

Dahlgren/ NSWCDD - Responsible for overall combat systems performance analysis for Navy ship classes.

R-1 SHOPPING LIST - Item No. 70

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603755N/SHIP SELF DEFENSE			PROJECT NUMBER AND NAME 2133 Quick Reaction Combat Capability/Requirements and Analysis Working Group							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Component Development											0.000	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering	WX	Dahlgren, NSWC DD	4.955	1.920	10/02	4.267	10/03	3.619	10/04	Continuing	Continuing	
Training Development											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			4.955	1.920		4.267		3.619		Continuing	Continuing	
Remarks:												
Development Support											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

R-1 SHOPPING LIST - Item No. 70

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603755N/SHIP SELF DEFENSE			PROJECT NUMBER AND NAME 2133 Quick Reaction Combat Capability/Requirements and Analysis Working Group						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	Dahlgren NSWC DD	9.725								9.725	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			9.725	0.000		0.000		0.000		0.000	9.725	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			14.680	1.920		4.267		3.619		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 70

CLASSIFICATION:

EXHIBIT R4, Schedule Profile: **NOT APPLICABLE**																															DATE: **Febraury 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**									PROGRAM ELEMENT NUMBER AND NAME 0603755N/SHIP SELF DEFENSE														PROJECT NUMBER AND NAME 2133 QRCC/RAWG									
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																																
Test & Evaluation Milestones																																
Production Milestones																																
Deliveries																																

R-1 SHOPPING LIST - Item No. 70

CLASSIFICATION:

Exhibit R-4a, Schedule Detail **NOT APPLICABLE**					DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603755N/SHIP SELF DEFENSE			PROJECT NUMBER AND NAME 2133 Quick Reaction Combat Cap/Req & Analysis Working Grp				
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Prototype Phase								
System Design Review (SDR)								
Milestone II (MSII)								
Contract Preparation								
Software Specification Review (SSR)								
Preliminary Design Review (PDR)								
System Development								
Critical Design Review (CDR)								
Quality Design and Build								
Test Readiness Review (TRR)								
Developmental Testing (DT-IIA)								
Eng Dev Model (EDM) Radar Delivery - Lab								
Software Delivery 1XXSW								
Preproduction Readiness Review (PRR)								
EDM Radar Delivery - Flt Related								
Milestone C (MS C)								
Operational Testing (OT-IIA)								
Start Low-Rate Initial Production I (LRIP I)								
Software Delivery 2XXSW								
Developmental Testing (DT-IIB1)								
Developmental Testing (DT-IIB2)								
Start Low-Rate Initial Production II								
Operational Testing (OT-IIB)								
Developmental Testing (DT-IIC)								
Functional Configuration Audit (FCA)								
Low-Rate Initial Production I Delivery								
Technical Evaluation (TECHEVAL)								
Physical Configuration Audit								
Operational Evaluation (OT-IIC) (OPEVAL)								
Low-Rate Initail Production II Delivery								
IOC								
Full Rate Production (FRP) Decision								
Full Rate Production Start								
First Deployment								

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **FEBRUARY 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603755N/SHIP SELF DEFENSE				PROJECT NUMBER AND NAME 2184 Force AAW Coordination Technology			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**7.181**	**5.358**	**5.874**	**6.015**	**7.329**	**7.473**	**7.609**
RDT&E Articles Qty		**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Force Anti-Air Warfare Technology (FACT) Program is an advanced development effort designed to demonstrate Force Anti-Air Warfare (AAW) concepts and capabilities that will significantly improve our Force defense in depth, including both local area and self defense capabilities against current and future AAW threats. FACT improvements are designed to enhance the AAW warfighting ability of ships and aircraft and to enable coupling of the Force into a single, distributed AAW weapon system and towards more effective use of tactical data and the cooperative use of all the force sensors and weapons. These capabilities will provide the ship defense flexibility needed to meet the threat brought about by increasing numbers of highly sophisticated weapons held by potentially hostile third world countries. FACT defines requirements and develops prototype systems or modifications to existing systems to test new concepts for the coordination of Force AAW operations. Some examples of prototype systems now in production are AN/SPS-48C Detection Data Converter, AN/SPS-48E Environmental Control Feature, Shipboard Gridlock System Automatic Correlation (SGS/AC) and Dial-a-Track Link-11 Quality Selection. Other FACT developments nearing production stages are the Automatic Identification System (Auto-ID) and the Multi-Frequency Link-11 capability; Dual Net Multi-Frequency Line (DNMFL); Force Threat Evaluation Weapons Assignment (FTEWA); and the prototype Area Air Defense Commander (AADC) capability. Short and long term objectives will be phased in to produce higher degrees of ship defense and battle coordination and effectiveness.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603755N/SHIP SELF DEFENSE	2184 Force AAW Coordination Technology

B. Accomplishments/Planned Program

	FY03	FY04	FY05	FY06
Accomplishments/Effort/Subtotal Cost	6.271	4.754	5.389	5.546
RDT&E Articles Quantity				

On going development of Joint Targeting Attack & Assessment Capability (JTAAC)/demonstrations at sea and ashore, and support Navy's transition of JTAAC to a production program.

	FY03	FY04	FY05	FY06
Accomplishments/Effort/Subtotal Cost	0.760	0.454	0.335	0.319
RDT&E Articles Quantity				

Support land based and at sea experiments of Advanced Command and Control Systems, conduct analysis to evaluate air defense concepts and capabilities including Multi-TADIL operations and air defense operations.

	FY03	FY04	FY05	FY06
Accomplishments/Effort/Subtotal Cost	0.150	0.150	0.150	0.150
RDT&E Articles Quantity				

Provide top level programmatic support, technical analysis and assist in the development processes, procedures and documentation that impact the execution of the FACT program requirements.

R-1 SHOPPING LIST - Item No. 70

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603755N/SHIP SELF DEFENSE	2184Force AAW Coordination Technology

B. Accomplishments/Planned Program (Cont.)

	FY03	FY04	FY05	FY06
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				

Develop the genesis for major improved functionality in Navy and Joint Defense.

	FY03	FY04	FY05	FY06
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				

Transportable Anti-Intrusion Pontoon Barrier System.

R-1 SHOPPING LIST - Item No. 70

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603755N/SHIP SELF DEFENSE	2184 Force AAW Coordination Technology

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04 Pres Controls)	3.876	5.418	5.912
Current BES/President's Budget: (FY05 Pres Controls)	7.181	5.358	5.874
Total Adjustments	3.305	-0.060	-0.038
Summary of Adjustments			
Business Process Reform	-0.015		
Economic Assuptions	-0.022		
IT Cost Growth	-0.007		
Inflation Savings	-0.041	-0.060	-0.019
SBIR	-0.101		
BSO Adjustments	-0.010		
Manpower			-0.019
FY03 UPDATE	3.501		
Subtotal	3.305	-0.060	-0.038

Schedule:

Not Applicable.

Technical:

Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603755N/SHIP SELF DEFENSE	2184/K9050 Force AAW Coordination Technology

D. OTHER PROGRAM FUNDING SUMMARY: Not Applicable

E. ACQUISITION STRATEGY: Not Applicable

F. MAJOR PERFORMERS: APL/Laurel, MD 11/02

R-1 SHOPPING LIST - Item No. 70

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: FEBRUARY 2004				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603755N/SHIP SELF DEFENSE			PROJECT NUMBER AND NAME 2184 Force AAW Coordination Technology							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	CPFF	APL/Laurel, MD	74.407	6.271	11/02	4.754	11/03	5.389	11/04	CONT	CONT	
Systems Engineering		SPAWAR, S.D.	0.150								0.150	
Systems Engineering		SPAWAR NORFOLK	0.417								0.417	
Systems Engineering		PUGET SOUND BOSTON	0.029								0.029	
Systems Engineering	GSA	GRCI	0.204								0.204	
Miscellaneous		Unknown	0.187								0.187	
Pontoon Barrier		Unknown	0.961								0.961	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			76.355	6.271		4.754		5.389		CONT	CONT	
Remarks:												
Development Support											0.000	
Software Development											0.000	
Integrated Logistics Support		NSWC/PHD	0.175								0.175	
Integrated Logistics Support		NSLC Mech, PA	0.005								0.005	
Integrated Logistics Support	GSA	AMERIND	0.111								0.111	
Technical Data		NSWC/DD/ Dahlgren, VA	0.150								0.150	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.441	0.000		0.000		0.000		0.000	0.441	
Remarks:												

R-1 SHOPPING LIST - Item No. 70

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **FEBRUARY 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603755N/SHIP SELF DEFENSE			PROJECT NUMBER AND NAME 2184/K9050 Force AAW Coordination Technology						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation	CPFF	APL/Laurel, MD	1.415	0.760	11/02	0.454	11/02	0.335	11/02	CONT	CONT	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			1.415	0.760		0.454		0.335		CONT	CONT	
Remarks:												
Contractor Engineering Support	CPAF	RGE, SPRINGFIELD, VA	0.006								0.006	
Contractor Engineering Support	CPFF	SPA,FAIRFAX, VA	0.100								0.100	
Contractor Engineering Support	CPFF	LOGICON, FALLS CHUR, VA	0.060									
Contractor Engineering Support	GSA	STRATEGIC INSIGHT, VA	0.189									
Program Management Support	GSA	DSR, FAIRFAX, VA	0.440	0.150	11/02						0.590	
Program Management Support	GSA	DELTA ARLINGTON VA	0.000	0.000		0.150	11/03	0.150	11/04	CONT	CONT	
Travel											0.000	
Labor (Research Personnel)											0.000	
Subtotal Management			0.795	0.150		0.150		0.150		CONT	CONT	
Remarks:												
Total Cost			79.006	7.181		5.358		5.874		CONT	CONT	
Remarks:												

R-1 SHOPPING LIST - Item No. 70

CLASSIFICATION:

EXHIBIT R4, Schedule Profile:																																DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**									PROGRAM ELEMENT NUMBER AND NAME 0603755N/SHIP SELF DEFENSE												PROJECT NUMBER AND NAME 2184 Force AAW Coordination Technology											
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
CHART NOT APPLICABLE																																

R-1 SHOPPING LIST - Item No. 70

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail: **NOT APPLICABLE**					DATE: **FEBRUARY 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603755N/SHIP SELF DEFENSE				PROJECT NUMBER AND NAME 2184 Force AAW Coordination Technology			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
CHART NOT APPLICABLE								

R-1 SHOPPING LIST - Item No. 70

FY 2005 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: Feb 2004
Exhibit R-2

BA: 04 PROGRAM ELEMENT: 0603790N
PROGRAM ELEMENT TITLE: NATO Research and Development

COST: (Dollars in Thousands)

Project Number & Title	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
R2293 NATO Cooperative R & D	12,804	11,338	10,151	10,345	10,533	10,734	10,853
Totals	12,804	11,338	10,151	10,345	10,533	10,734	10,853

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: In accordance with Title 10 U.S. Code Section 2350a, this PE provides funding for research and development projects with approved allies under international agreements. These funds can only be applied to work efforts in the U.S., and the Under Secretary of Defense, Acquisition and Technology (USD,A&T) must approve each international agreement. The program provides funds for multiple projects under separately approved international agreements as well as funds that support the establishment of such agreements. Each international agreement is summarized in a separate Summary Statement of Intent (SSOI) which also states why the project serves to increase the conventional defense capabilities of the U.S.

FY 2005 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: Feb 2004
Exhibit R-2

BA: 04 PROGRAM ELEMENT: 0603790N
PROGRAM ELEMENT TITLE: NATO Research and Development

PROGRAM CHANGE SUMMARY:

	FY 2003	FY 2004	FY 2005
FY 2004-2005 President's Budget Submission	11,326	11,469	11,955
Administrative adjustment	-16	0	0
Cong. Rescissions/Adjustments/Undist.Reductions	0	-127	0
FY03 BTR	1,684	0	0
Inflation Savings	0	0	-33
Rate Adjustments	0	-4	-19
SBIR Assessment	-190	0	0
Technical Adjustments	0	0	-1,752
FY 2005 President's Budget Submission	12,804	11,338	10,151

PROGRAM CHANGE SUMMARY EXPLANATION:
Technical: Not applicable
Schedule: Not applicable

BA: 04 PROGRAM ELEMENT: 0603790N
PROJECT ELEMENT TITLE: NATO Research and Development

Project Number: R2293
Project Title: NATO Cooperative R&D

COST: (Dollars in Thousands)

Project Number & Title	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
R2293 NATO Cooperative R & D	12,804	11,338	10,151	10,345	10,533	10,734	10,853

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: In accordance with Title 10 U.S. Code Section 2350a, this project provides funding for research and development projects with approved allies under international agreements. These funds can only be applied to work efforts in the U.S., and the Under Secretary of Defense, Acquisition and Technology (USD,A&T) must approve each international agreement. The program provides funds for multiple projects under separately approved international agreements as well as funds that support the establishment of such agreements. Each international agreement is summarized in a separate SSOI which also states why the project serves to increase the conventional defense capabilities of the U.S.

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2003	FY 2004	FY 2005
Cooperative Projects	12,804	11,338	10,151

FY 2003 Accomplishments:

• Supported the Multilateral Memorandum of Understanding (MOU) for Interoperable Networks for Secure Communication.
• Supported on-going efforts on the Multilateral MOU for LW-155 Howitzer.
• Supported the Naval Combat Systems Interoperability Technology cooperative project between the U.S. and the United Kingdom.
• Supported the Common Operational Picture Interoperability for Coalition Warfare cooperative project between the U.S. and France.
• Supported the Dynamic Failure Prediction of Joints in Composite Sandwich Structures cooperative project between the U.S. and the Netherlands.

BA: 04 PROGRAM ELEMENT: 0603790N
PROJECT ELEMENT TITLE: NATO Research and Development

Project Number: R2293
Project Title: NATO Cooperative R&D

• Supported the Six (6) Degrees of Freedom Ship Roll cooperative project between the U.S. and Italy.
• Supported the Software Radio cooperative project between the U.S. and Japan.
• Supported the Vulnerability of Torpedo to Underwater Explosions cooperative project between the U.S. and Germany.
• Supported the Unmanned Undersea Vehicle for Mine Countermeasures cooperative project between the U.S. and the United Kingdom.
• Supported the Advanced Hull Materials & Structures Technology (AHM&ST) cooperative project between the U.S. and Japan.
• Supported the Advance Radar Technology Integrated System Testbed cooperative project between the U.S. and the United Kingdom.
• Supported the Component Research for Ballistic Missile Defense cooperative project between the U.S. and Japan.
• Supported the Mechanisms and Prediction of Surface Ship Radiated Flow-Noise cooperative project between the U.S. and the Netherlands.
• Supported the Unmanned Undersea Vehicles (UUV) Intelligence, Surveillance and Reconnaissance (ISR) and Anti-Submarine Warfare (ASW) cooperative program between the U.S. and the United Kingdom.
• Supported the U.S. and United Kingdom Naval Fires project under the Naval Combat Systems Interoperability Technology cooperative project.

FY 2004 Plans:

• Support the Six (6) Degrees of Freedom Ship Roll cooperative project between the U.S. and Italy.
• Support the Advance Radar Technology Integrated System Testbed cooperative project between the U.S. and the United Kingdom.
• Support the Common Operational Picture Interoperability for Coalition Warfare cooperative project between the U.S. and France.
• Support the Homing Sonar for Supercavitating Vehicles cooperative project between the U.S. and Germany.
• Support the Multilateral MOU for Interoperable Networks for Secure Communication.
• Support the Mechanisms and Prediction of Surface Ship Radiated Flow-Noise cooperative project between the U.S. and the Netherlands.
• Support the Submarine Sonar Advanced Processing Build - Acoustic Rapid COTS Insertion (APB-ARCI) cooperative project between the U.S. and the United Kingdom.
• Support the relationship between Acoustic Array Gain Variability and Shelf/Shelf Break Fluid Processes cooperative project between the U.S. and the Republic of Korea.

BA: 04 PROGRAM ELEMENT: 0603790N
PROJECT ELEMENT TITLE: NATO Research and Development

Project Number: R2293
Project Title: NATO Cooperative R&D

• Support the UUV ISR and ASW cooperative program between the U.S. and the United Kingdom.
• Support the Software Radio cooperative project between the U.S. and Japan.
• Support the AHM&ST cooperative project between the U.S. and Japan.
• Support the Multilateral cooperative project concerning Coalition Maritime Missile Defense Battle Management Command, Control, Communications, Computers and Intelligence (BMC4I) Architecture Definition.
• Support the Standoff Sensors cooperative program between the U.S. and the United Kingdom.
• Support the Dynamic Failure Prediction of Joints in Composite Sandwich Structures cooperative project between the U.S. and the Netherlands.
• Support the Modeling and Simulation cooperative project between the U.S and the United Kingdom.
• Support the Multilateral MOU for Standard Missile.
• Support the U.S. and United Kingdom Naval Fires project under the Naval Combat Systems Interoperability Technology cooperative project.
• Support the Enhanced Undersea Weapons Effectiveness and Ship Survivability through the Application of Validated Computer Codes cooperative project between the U.S. and Germany.

FY 2005 Plans:

• Continue to provide support for the identification and development of MOUs with one or more approved major allies for the purpose of conducting cooperative research and development projects on defense equipment and munitions. These international agreements (MOUs) are approved by USD,A&T and are summarized in separate SSOIs.

C. OTHER PROGRAM FUNDING SUMMARY:
NAVY RELATED RDT&E:
PE 0605853N (Management, Technical and International Support)

NON-NAVY RELATED RDT&E:
PE 0605130D (Foreign Comparative Testing)

D. ACQUISITION STRATEGY: Not applicable

BA: 04 PROGRAM ELEMENT: 0603790N
PROJECT ELEMENT TITLE: NATO Research and Development

Project Number: R2293
Project Title: NATO Cooperative R&D

A. PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 2003	FY 2004	FY 2005
a. Cooperative Research and Development	12,804	11,338	10,151

B. BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION:

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	FY 2003 Budget	FY 2004 Budget	FY 2005 Budget	To Complete	Total Program
Product Development									
NAVSEA	PD				1,650	4,300		CONT.	CONT.
NSWC	WX				1,295	550		CONT.	CONT.
NUWC	WX				500	0		CONT.	CONT.
SPAWAR	PD				1,500	300		CONT.	CONT.
PEO(LMW)	PD				1,000	2,500			
PEO(IWS)	PD				0	310			
Miscellaneous					6,859	3,378	10,151	CONT.	CONT.

BA: 04 PROGRAM ELEMENT: 0603790N
PROJECT ELEMENT TITLE: NATO Research and Development

Project Number: R2293
Project Title: NATO Cooperative R&D

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	FY 2003 Budget	FY 2004 Budget	FY 2005 Budget	To Complete	Total Program
Support and Management									

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	FY 2003 Budget	FY 2004 Budget	FY 2005 Budget	To Complete	Total Program
Test and Evaluation									

GOVERNMENT FURNISHED PROPERTY: Not applicable.

	FY 2003 Budget	FY 2004 Budget	FY 2005 Budget	To Complete	Total Program
Subtotal Product Development	12,804	11,338	10,151	CONT.	CONT.
Subtotal Support and Management	0	0		CONT.	CONT.
Subtotal Test and Evaluation	0	0		0	0
Total Project	12,804	11,338	10,151	CONT.	CONT.

EXHIBIT R-2, RDT&E Budget Item Justification						DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-4**				R-1 ITEM NOMENCLATURE **0603795N/Land Attack Technology**			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost	**122.032**	**119.684**	**82.049**	**18.432**	**15.636**	**9.955**	**9.216**
2156/Naval Surface Fire Support (NSFS)[2]	**48.233**	**42.155**	**38.345**	**6.516**	**5.469**	**6.652**	**6.773**
9051/Advance Medium Caliber Gun Demonstrator (AMCGD)[1,2]	**3.236**	**3.362**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9052/Autonomous Naval Support Round (ANSR)[1,2]	**4.045**	**16.811**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
2325/Naval Fires Control System (NFCS)	**23.443**	**6.001**	**6.135**	**3.351**	**2.384**	**1.459**	**1.727**
2927/2871/Naval Fires Network (NFN)[1,2]	**31.517**	**15.557**	**8.663**	**8.565**	**7.783**	**1.844**	**0.716**
9053/Integrated Deepwater System (IDS)[1]	**10.511**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9209/Semi-Automated Imagery Intelligence Processor (SAIP)[1]	**1.047**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9359/Affordable Weapon System (AWS)[2]	**0.000**	**27.688**	**28.906**	**0.000**	**0.000**	**0.000**	**0.000**
9360/Hardened Precision Sensors For Missiles & Projectiles (HPSFMP)[2]	**0.000**	**2.769**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9361/Local Situational Assessment Segment Adjunct To TES-N(LSASATT)[2]	**0.000**	**2.472**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9362/Millennium Gun System (MGS)[2]	**0.000**	**1.187**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9363/TES-N And P-3 Ground Station (TP3GS)[2]	**0.000**	**1.682**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Quantity of RDT&E Articles & Cost (see attached projects)							

[1] Funding includes the following FY03 Adds: NFN Project 2871 - $7.138M, ANSR Project 9052 - $4.045M, AMCGD Project 9051 - $3.236, SAIP Project 9209 - $1.047M, IDS Project 9053 - $10.511M (Earmark)

[2] Funding includes the following FY04 Adds: Extended Range Munition (ERM) Project 2156 - $10M, NFN Project 2871 - $.988M, ANSR Project 9052 - $16.811M, AMCGD Project 9051 - $3.362M, AWS Project 9359 - $27.688M, HPSFMP Project 9360 - $2.769M, LSASATT Project 9361 - $2.472M, MGS Project 9362 - $1.187M, TP3GS - Project 9363 - $1.682M

A. (U) Mission Description and Budget Item Justification: The Land Attack Technology program element supports the Naval Surface Fire Support (NSFS) mission. In order to meet the United States Marine Corp (USMC) requirements for NSFS in support of Operational Maneuver from the Sea (OMFTS), the Navy is developing a variety of weapons systems including both gun and missile systems that can provide the required range, lethality, accuracy, and responsiveness. The NSFS program (**Project 2156**) develops gun systems including the 5"/62 gun (a modification of the existing 5"/54 gun); a 5" Extended Range Guided Munition (ERGM) with a coupled internal Global Positioning System (GPS) and Inertial Navigation System (INS) capable of delivering a payload to a range in excess of current capability; demonstration of a Low Cost Guidance and Electronic Unit (LCGEU); and associated propelling charge improvements. The program is currently being restructured to provide a robust NSFS capability within existing resources. The funding profile also supports the development of an Extended Range Munition (ERM) for use in MK45 Mod2/4 guns. The Autonomous Naval Support Round (ANSR) **(Project 9052)** is a rolling airframe platform used to demonstrate/advance gun-launched guided projectile technologies. The Advanced Medium Caliber Gun System (AMCGD) **(Project 9051)** is a Phase III SBIR designed to demonstrate an advanced gun design encompassing modularity, scalability, compactness, and long range. The Naval Fires Network (NFN) **(Project 2927)** is a system which will automate, coordinate, and correlate, in a real time fashion, the processing of multiple tactical data streams from various surveillance/intelligence sources to provide time-critical fire control solutions for advanced weapon systems and sensors. The automation/correlation provided by NFN will provide the Navy an ability to quickly target and re-target precision weapons, greatly enhancing their effectiveness and lethality. The Semi-Automated Imagery Intelligence (IMINT) Processor (SAIP)**(Project 9209)** will provide an integrated suite of tools designed to provide the tactical field commander with more comprehensive and timely battlefield awareness, derived from high-volume imagery intelligence (IMINT). The Naval Fires Control System (NFCS) (**Project 2325**) develops systems that will support mission planning for 5"/62, ERGM and Land Attack Missiles. It will automate shipboard land attack battle management duties to be interoperable and consistent with joint C4ISR systems. These shipboard weapon systems will significantly improve the Navy's ability to support OMFTS. The Land Attack Technology program element also includes the transition of Advance Technology Demonstrations (ATDs) and Pre-Planned Product Improvements (P3Is) into the NSFS program. The Integrated Deepwater System**(Project 9053)** supports USN evaluation of Intermediate Caliber Gun Systems and associated munitions for Anti-Surface Warfare mission area capability in USN Surface Combatants and USCG Cutters. Hardened Precision Sensors for Missiles and Projectiles **(Project 9360)** compliments an ongoing Phase II SBIR to develop a Miniature Electromechanical System (MEMS) Annular Rotating Sensor (MARS). It will conduct hardware prototyping and evaluate gun hardening approaches for a potential very low cost, high performance guidance and control unit.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY BA-4**	R-1 ITEM NOMENCLATURE **0603795N/Land Attack Technology**

The Affordable Weapons System (AWS) **(Project 9359)** is a COTS based Land Attack and Strike missions missile that can loiter and be directed to the target by the shooter or a Forward Observer (FO/FAC). The Millennium Gun System (MGS) **(Project 9362)** supports the investigation of a 35mm minor caliber gun mount and associated munitions for ship self defense mission area capability in USN Surface Ships.

NFN Project 9361 - $2.472M; NFN Project 9363 - $1.682M

R-1 SHOPPING LIST - Item No. 74

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**				PROJECT NUMBER AND NAME 2156/9051/9052/9360Naval Surface Fire Support			
COST ($ in Millions)	FY 2003*	FY 2004**	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**55.514**	**65.097**	**38.345**	**6.516**	**5.469**	**6.652**	**6.773**
RDT&E Articles Qty					**80**		

*Funding includes FY 2003 Congressional Adds for NSFS: ANSR Project 9052 - $4.045M; AMCGD Project 9051 - $3.236M

**Funding includes FY 2004 Congressional Adds for NSFS: ERM Project 2156 - $10M, ANSR Project 9052 - $16.811M, AMCGD Project 9051 - $3.362M, HPSFMP Project 9360 - $2.769M
Project 2156 includes funding for ERM: FY 2004 - $10M; FY 2005 - $25M

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

These funds provide for the development of a 5" MK 45 gun modification which strengthens the gun to accommodate higher firing loads to fire extended range munitions; a demonstration of a Low Cost Guidance and Electronic Unit (LCGEU); gun fire control system which updates the MK 160 MOD 6 to a MOD 8 providing direct digital interface with the gun; and an upgraded propelling charge to provide the higher gun firing energy required to launch ERGM. This project also includes the demonstration and the advancement of gun-launched guided projectile technologies such as MARS, the demonstration and advancement of long-range modular scalable gun designs, the transition of ATDs and Pre-Planned Product Improvements (P3Is), and installation of ERGM compatibilty upgrades into the NSFS envelope. The funds also provide for the development of the Extended Range Munition (ERM) for use in MK45 Mod 2/4 guns. The Autonomous Naval Support Round (ANSR) is a rolling airframe platform used to demonstrate gun launched guided projectile technology including a LCGEU guidance package.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603795N/Land Attack Technology	2156/9051/9052/9360Naval Surface Fire Support

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	35.815	28.079	11.266
RDT&E Articles Quantity			

Continue ERGM development. In FY03, completed ERGM CDR and start component Qualification and Land-Based Flight Tests. Review and maintain Technical Data Package. During FY06, complete Qualification and Land Based flight tests. Complete Shipboard DT (FY07) and OT (FY08). Implement production cost reduction intiatives and performance upgrades (post IOC: FY09 and out).

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.719	0.000	0.000
RDT&E Articles Quantity			

Complete final test report for LCGEU in the ERGM airframe. Guided flight tests completed 1st quarter FY04.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	4.045	16.811	0.000
RDT&E Articles Quantity			

Complete final test report of the demonstration of the LCGEU in the ANSR airframe. Guided flight tests completed by the end of FY03. In FY04, continue technology development and testing of the ANSR concept.

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603795N/Land Attack Technology	2156/9051/9052/9360Naval Surface Fire Support

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	10.000	25.000
RDT&E Articles Quantity			

Award contract(s) via a broad agency announcement during the 2nd quarter FY04 for the Extended Range Munition (ERM) demonstration The ERM guided projectile will be capable of operation in the MK 45 Mod 4 (required) and the Mod 2 (desired). A shoot-off (trade-off analysis) with ERGM will be conducted at the end of the 20 month ERM demonstration effort (Oct 05).

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.822	0.909	0.333
RDT&E Articles Quantity			

Complete development of the EX-167 Propelling Charge (FY04). Complete Technical Data Package, qualification efforts, and initiate technical activities supporting production efforts (FY06).

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	8.968	3.000	1.300
RDT&E Articles Quantity			

Continue development and testing of 5”/62 MK 45 modification and GFM preparation. Continue test firing of the modification (including Level III Mod4 drawings, installation and manufacturing of hardware for the extended range munitions Ships, Hot Gun Predicator Updates, and Gun Barrel Wear). Continue development and test firing of the modification leading up to achieve extended range munition IOC.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603795N/Land Attack Technology	2156/9051/9052/9360Naval Surface Fire Support

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.909	0.167	0.446
RDT&E Articles Quantity			

Complete development and testing of the Gun Fire Control Modification and required interfaces to achieve ERGM IOC.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	3.236	3.362	0.000
RDT&E Articles Quantity			

Continue fabrication and development of AMCGD gun. Begin testing of the 5" version of the Advance Modular, Scalable, Compact, Long-Range Gun Design.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	2.769	0.000
RDT&E Articles Quantity			

Begin hardware prototyping for gun hardening and evaluation of manufacturing processes for high yield MEMS devices

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603795N/Land Attack Technology	2156/9051/9052/9360Naval Surface Fire Support

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04 Pres Controls)	55.441	42.630	42.186
Current BES/PRES Budget: (FY 05 Pres Controls)	55.514	65.097	38.345
Total Adjustments	0.073	22.467	-3.841
Summary of Adjustments			
Program Adjustments	1.178	0.000	-0.047
SBIR	-1.105	0.000	0.000
NWCF Rate Adjustment	0.000	0.000	-0.294
Section 8094-Man Impr	0.000	-0.174	0.000
Sec. 8126 - Efficiencies/Revis	0.000	-0.559	0.000
ANSR Add	0.000	17.000	0.000
AMCGD Add	0.000	3.400	0.000
HPSFMP Add	0.000	2.800	0.000
Long Range Convention Round	0.000	0.000	-10.000
Fact of Life Adjustment for ERGM	0.000	0.000	6.500
Subtotal	0.073	22.467	-3.841

The Land Attack Technology PE comprises multiple programs to provide a Naval Surface Fire Support capability. The challenge is the coordinated delivery of the Mk 45 Mod 4 Gun System, the Extended Range Guided Munition, the Mk 160 Fire Control upgrades, the Propelling Charge upgrade and the Naval Fires Control System that together provide a significant enhancement to Naval Surface Fire Support. The ERGM program was restructured in FY02 to reflect a requirements change to a unitary warhead. A major contract modification was also signed supporting the program revision. The contractor began the ERGM LBFT series in FY04. Guided flight tests of the LCGEU have been conducted on the ERGM and ANSR airframes. Final reports will be complete 2nd quarter FY04. Award contract(s) via a broad agency announcement during the 2nd quarter FY04 for the Extended range Munition (ERM) demonstration. A shoot-off (trade-off analysis) will be conducted at the end of the 20 month ERM demonstration effort (Oct 05). AMCGD continues fabrication and begins testing.

Technical:

N/A

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 2156/9051/9052/9360Naval Surface Fire Support

D. OTHER PROGRAM FUNDING SUMMARY:

	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	Complete	Cost
PAN,MC BL, 025300	0.000	3.748	0.500	0.044	33.104	43.945	154.710		
WPN BLI:4217, E5004	1.800	34.434	5.490	5.175	7.210	7.159	11.162		
SCN BLI 212200	0	0	0	0	0	0	0		

E. ACQUISITION STRATEGY:

The ERGM development contract was awarded to Texas Instruments (now Raytheon Missile Systems) as a result of a competitive acquisition process. TI provided a corporate investment of $55M that was applied to development. When full rate production commences in FY09, a competitive procurement will be awarded under a fixed price contract. The gun is being developed under a sole source arrangement with United Defense, the sole source manufacturer of the 5" MK 45 Gun Mount. The Fire Control (MK 160) is being developed by the Naval Surface Warfare Center, Dahlgren and the propelling charge is being developed by the Naval Surface Warfare Center, Indian Head since these system changes are modifications to current government owned/supplied equipment. The Technology demonstrations for both ANSR and the LCGEU are being executed under a BAA contract award to Draper Laboratory. The AMCGD demonstration will be awarded to AOT. The Hardened Precision Sensors prototyping will be awarded to Archangel Systems. The ERM demonstration via a BAA contract award is a 20 month effort. A shoot-off /trade-off analysis between ERM and ERGM will be conducted at the end of the demonstration in Oct 05.

F. MAJOR PERFORMERS:

Prime Contractor for ERGM development: Raytheon Missile Systems located in Tucson, AZ. Contract awarded to Texas Instruments (TI) in September 1996. Raytheon subsequently purchased TI and moved operations to Tucson location.

Prime Contractor for Gun development: United Defense Limited Partnership (UDLP) located in Minneapolis, MN. Contract awarded to UDLP in February 1996 to modify the existing 5"/54 gun to a 5"/62 Gun to accomodate handling, loading, and firing the ERGM round.

Prime Contractor for LCGEU and ANSR development: Draper Laboratory located in Cambridge, MA. LCGEU contract awarded to Draper in November 2000 to develop the LCGEU to be demonstrated in the ERGM airframe. Additionally, Draper Laboratory was awarded a contract in December 2002 to demonstrate the LCGEU in the ANSR.

Prime Contractor for ERM development: TBD

Prime Contractor for AMCGD development: AOT located in Waldorf, MD.

Prime Contractor for HPSFMP development: Archangel Systems located in Auburn, AL.

Primary Navy Warfare Center: Naval Surface Warfare Center (NSWC) located in Dahlgren, VA. Serve as the Technical Direction Agent, program management for the Integrated Product Team Leaders, and responsible for all Land Based Flight testing and evaluation. NSWC, Indian Head is development activity for ERGM Propelling Charge.

R-1 SHOPPING LIST - Item No. 74

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2004		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603795N/Land Attack Technology				PROJECT NUMBER AND NAME 2156/9051/9052/9360Naval Surface Fire Support						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Privatization	CPAF	UDLP, Louisville, KY	3.908									
Primary Hardware Development	CPIF/FF	UDLP, Minneapolis, MN (C5223)	58.738	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	59.657
	CPFF	UDLP, Minneapolis, MN (C4101)	0.754	6.200	11/02	2.000	11/03	0.800	11/04	CONT	CONT	48.414
	CPAF/IF	Raytheon, Tucson, AZ	135.779	24.665	11/02	13.600	11/03	3.400	11/04	CONT	CONT	182.862
	WR	NSWC Dahlgren, VA	56.867									N/A
	WR	NSWC Indian Head, MD	15.088									N/A
	WR	NSWC Port Hue., CA	25.386									N/A
LRIP	CPAF/IF	Raytheon, Tucson, AZ	0.000	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	0.000
LCGEU	CPFF	Draper, Cambridge, MA	12.276	1.335	11/02	0.000	N/A	0.000	N/A	CONT	CONT	13.611
	CPAF/IF	Raytheon, Tucson, AZ	1.442	0.050	11/02	0.000	N/A	0.000	N/A	CONT	CONT	1.492
	WX/WR	NSWC	2.925	0.334	N/A	0.000	N/A	0.000	N/A	CONT	CONT	N/A
	VAR	Miscellaneous	0.734	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	N/A
ANSR Demonstration	CPFF	Draper, Cambridge, MA	8.616	1.707	11/02	0.000	N/A	0.000	N/A	CONT	CONT	10.323
	TBD	TBD	0.000	0.000	N/A	12.600	N/A	0.000	N/A	CONT	CONT	12.600
	WX/WR	NSWC	1.217	1.818	N/A	0.000	N/A	0.000	N/A	CONT	CONT	N/A
	SS/CPAF	JHU/APL	0.000	0.430	8/03	0.000	N/A	0.000	N/A	CONT	CONT	N/A
	VAR	Miscellaneous	0.000	0.090	N/A	4.211	N/A	0.000	N/A	CONT	CONT	N/A
ERM Demonstration	TBD	TBD	0.000	0.000	N/A	9.150	TBD	22.880	TBD	CONT	CONT	TBD
AMCGD Demonstration	CPFF	AOT, Waldorf, MD	2.494	2.774	11/02	3.362	03/04	0.000	N/A	CONT	CONT	8.630
	WX/WR	NSWC	0.000	0.275	N/A	0.000	N/A	0.000	N/A	CONT	CONT	N/A
	VAR	Miscellaneous	0.000	0.187	N/A	0.000	N/A	0.000	N/A	CONT	CONT	N/A
Hardened Precision Sensor	CPFF	Archangel Systems, Auburn	0.000	0.000	N/A	2.069	03/04	0.000	N/A	CONT	CONT	2.069
	VAR	Miscellaneous	0.000	0.000	N/A	0.700	N/A	0.000	N/A	CONT	CONT	N/A
MEMS	VAR	Miscellaneous	2.000									N/A
Systems Engineering	WX/WR	NSWC	13.397	1.265	N/A	1.466	11/03	0.612	11/04	CONT	CONT	N/A
Systems Engineering	VAR	Miscellaneous	33.281	0.000	N/A	0.000	11/03	0.000	N/A	CONT	CONT	N/A
Award Fees	CPAF/IF	Raytheon, Tucson, AZ	2.230	1.185	11/02	0.700	11/03	0.800	11/04	CONT	CONT	4.915
Subtotal Product Development			377.132	42.315		49.858		28.492		CONT	CONT	CONT
Development Support Equipment												
Software Development												
Training Development												
Integrated Logistics Support	WR/WX	NSWC	6.357	1.338	11/02	1.545	11/03	1.061		CONT	CONT	N/A
Configuration Management												
Technical Data												
GFE												
Subtotal Support			6.357	1.338		1.545		1.061		CONT	CONT	CONT

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2) | DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4** | PROGRAM ELEMENT: 0603795N/Land Attack Technology | PROJECT NUMBER AND NAME: 2156/9051/9052/9360Naval Surface Fire Support

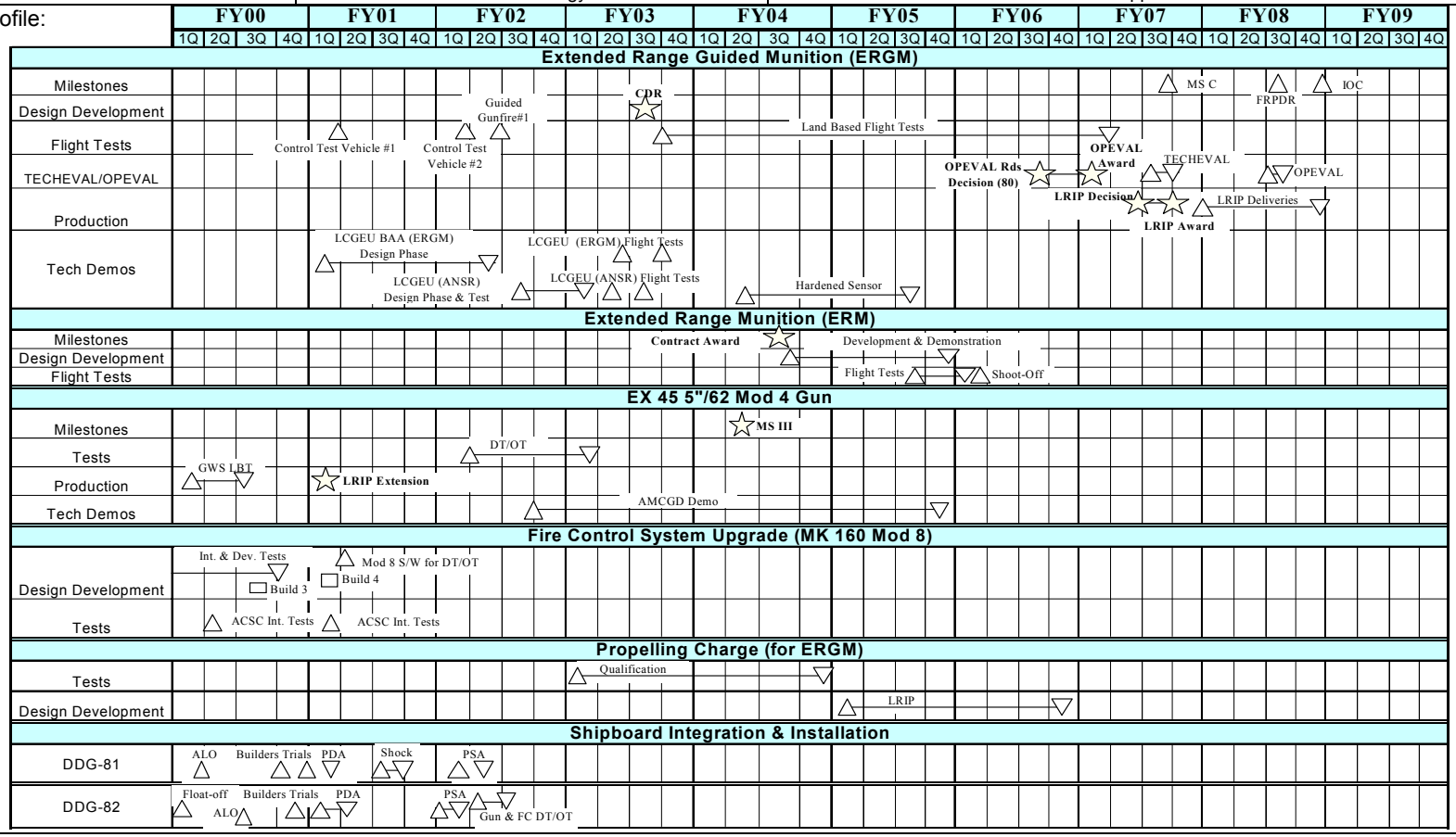
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR/WX	NSWC	22.186	5.265	11/02	8.451	11/03	4.188	11/04	CONT	CONT	N/A
Operational Test & Evaluation												
Tooling												
GFE												
Subtotal T&E			22.186	5.265		8.451		4.188		CONT	CONT	N/A
Contractor Engineering Support												
Government Engineering Support	WR/WX	NSWC	12.918	2.631	11/02	1.726	11/03	1.066	11/04	CONT	CONT	N/A
Project Engineering Support	WR/WX	NSWC	3.012	2.857	11/02	1.132	11/03	1.073	11/04	CONT	CONT	N/A
Program Management Support	WR/WX	Various	9.118	1.008	11/02	2.285	11/03	2.365	11/04	CONT	CONT	N/A
Travel	PD	NAVSEA HQ	0.828	0.100	VAR	0.100	VAR	0.100	VAR	CONT	CONT	N/A
Labor (Research Personnel)												
Overhead												
Subtotal Management			25.876	6.596		5.243		4.604		CONT	CONT	N/A
Total Cost			431.551	55.514		65.097		38.345		CONT	CONT	CONT

Remarks:

R-1 SHOPPING LIST - Item No. 74

EXHIBIT R-4, Schedule Profile		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NAME AND NUMBER 0603795N/Land Attack Technology	PROJECT NAME AND NUMBER 2156/9051/9052/9360Naval Surface Fire Support

D. (U) Schedule Profile:



R-1 SHOPPING LIST - ITEM 74

Exhibit R-4a, Schedule Detail					DATE: February 2004		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603795N/Land Attack Technology			PROJECT NUMBER AND NAME 2156/9051/9052/9360Naval Surface Fire Su			
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
ERGM							
Control Test Vehicle #2							
Guided Gun Fire #1							
Land Based Flight Test Series	3Q-4Q	1Q-4Q					
Critical Design Review (CDR)	3Q						
Unitary Warhead Flight Test		2Q					
Component & All-Up Round Qualifications	4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q		
Pre-Production Round Decision				3Q-4Q			
Pre-Production Round Award					1Q		
Technical Evaluation (TECHEVAL)					3Q		
Operational Evaluation (OPEVAL)						2Q	
LRIP Deliveries						1Q-4Q	
LRIP Decision/MS C					3Q		
IOC						4Q	
ERM							
Contract Award		2Q					
Demonstration		2Q-4Q	1Q-4Q	1Q			
Flight Tests			3Q-4Q	1Q			
Shoot Off / Trade-Off Analysis				1Q			
LCGEU BAA (ERGM)							
Design Phase							
Flight Tests	3Q	1Q					
ANSR							
Design Phase	1Q						
Flight Tests	4Q	1Q					
EX 45 5"/62 Mod 4							
Developmental Testing (DT)	1Q						
Operational Test (OT)	1Q						
MS III		2Q					
AMCGD							
Demonstration Phase	1Q-4Q	1Q-4Q	1Q-4Q				
Hardened Precision Sensor							
Prototyping Phase			2Q-4Q	1Q-3Q			
Propelling Charge (for ERGM)							
Qualification Tests	1Q-4Q	1Q-4Q					
LRIP Deliveries				3Q-4Q			
Shipboard Integration & Installation							
DDG-81 PSA							
DDG-82 PSA							
DDG-82 Fun & FC DT							
DDG-82 Fun & FC OT							

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603795N /Land Attack Technology				PROJECT NUMBER AND NAME 2325/Naval Fires Control System			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	
Project Cost	**23.443**	**6.001**	**6.135**	**3.351**	**2.384**	**1.459**	**1.727**	
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

A. (U) Mission Description and Budget Item Justification: Naval Fires Control System (NFCS) covers the mission planning and coordination for future Naval Surface Fire Support system requirements. NFCS will plan, coordinate and manage the firing of the new Naval Surface Fires Support (NSFS) weapon systems including the 5"/62 caliber gun and Conventional Munitions. It will be available to amphibious ships, command ships, and the DD-X program if selected by the full service contractor. The NFCS phase 1 will be integrated with the Advanced TOMAHAWK Weapons Control Systems (ATWCS) in 2003 and with Tactical TOMAHAWK Weapons Control Systems (TTWCS) in FY04. Prototyping, demonstrations and developments were conducted during FY00 thru FY02. Developmental testing will be conducted in FY03 and Operational testing will be conducted in FY04.

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 2325/Naval Fires Control System

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	9.429	2.093	2.135
RDT&E Articles Quantity			

Funding provides software and system engineering analysis and development, reuse and integration of government and commercial computer programs to support extended range munitions and other naval weapon applications.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	3.560	0.400	0.400
RDT&E Articles Quantity			

Funding support hardware configuration to support NFCS implementation. Support DT validation.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	4.605	0.808	0.900
RDT&E Articles Quantity			

Funding provides Technical Direction Agent support, joint requirements investigation, Concept of Operations (CONOPs) scenario development.

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 2325/Naval Fires Control System

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.657	0.400	0.400
RDT&E Articles Quantity			

Funding provides C4I and combat system interface investigation and analysis to include BFTT, Link 16, TTWCS and other developing C4I system and technology.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	2.516	0.300	0.300
RDT&E Articles Quantity			

Funding supports developmental test and evaluation, and logistics support elements development.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.676	2.000	2.000
RDT&E Articles Quantity			

Funding supports operational test and evaluation, and logistics support elements development.

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA4**	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	2325/Naval Fires Control System

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04 Pres Controls)	24.327	6.071	6.243
Current Pres Budget: (FY 05 PresBud Controls)	23.443	6.001	6.135
Total Adjustments	-0.884	-0.070	-0.108
Summary of Adjustments			
FY03 BTR (Apr-03)	-0.281	0.000	0.000
FY03 UPDATE	-0.001		
SPAWAR Service Cost Center Adj.		-0.002	-0.002
NWCF Rates - SPAWAR, NSWC, & NUWC			-0.103
Management Improvements		-0.016	
Efficiencies/Revisions		-0.052	
Other Adjustments	-0.602	0.000	-0.003
Subtotal	-0.884	-0.070	-0.108

Schedule:

NFCS milestone III and IOC scheduled adjustment from first quarter FY04 to 3rd quarter FY04 due to test ship availability for TECHEVAL and OPEVAL and software development delay.

.

Technical:

N/A

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 2325/Naval Fires Control System

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
O&MN 1D4D, 070812N	1.861	2.697	2.366	2.408	2.580	2.775	2.889	17.576	
OPN BL, 511200	5.463	4.129	2.849	6.071	5.003	4.736	4.079	32.330	

E. ACQUISITION STRATEGY:

A sole source contract has been awarded to GDIS for Phase 1. Phase 1 is being executed in 2 steps. Step 1 is to integrate the NFCS Phase 1 with ATWCS and Step 2 is to integrate NFCS Phase 1 with TTWCS.

F. MAJOR PERFORMERS:

NSWC/DD - Technical Direction Agent, Software Developent Agent and Systems Engineering Lead.
NUWC/KP - Hardward Deisgn Agent and Hardware Developer.
NSWC/PHD - Test and Evaluation Agent and Integrated Logistics Support Agent.
SPAWARSYSCEN, San Diego - Common Operating Environment (COE) and Adjunct Processor Developer.

R-1 SHOPPING LIST - Item No. 74

Exhibit R-3 Cost Analysis (page 1)

DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4**

PROGRAM ELEMENT: 0603795N/Land Attack Technology

PROJECT NUMBER AND NAME: 2325/Naval Fires Control System

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Software Development	SS/CPAF	GDIS, Arlington, VA	27.517	0.000		0.000		0.000		CONT	CONT	TBD
	SS/CPAF	LM/MDS, Valley Forge, PA	18.952	0.127	11/02	0.000		0.000		CONT	CONT	
	WR/WX	NSWC, Dahlgren, VA	2.300	4.480	10/02	1.700	10/03	1.700	10/04	CONT	CONT	
	VAR	VARIOUS	1.119							CONT	CONT	
	WR/WX	SSC/SD	2.375	1.461	10/02	0.400	10/03	0.400	10/04	CONT	CONT	
Systems Engineering	WR	SSC/SD	2.951							CONT	CONT	
	WR/WX	NSWC, Dahlgren, VA	12.405	4.200	10/02	0.500	10/03	0.585	10/04	CONT	CONT	
	SS/CP	VITRO/BAE	0.670	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	VAR	VARIOUS	1.304							CONT	CONT	
Ancillary Hardware Development	WR/WX	NUWC, Keyport Division	8.613	1.461	10/02	0.400	10/03	0.400	10/04	CONT	CONT	
	WR/WX	NSWC/PT HUE, CA	3.874	0.858	10/02	0.403	10/03	0.403	10/04	CONT	CONT	
	VAR	PMFATDS	1.587	1.949	10/02	0.000	N/A	0.000	N/A	CONT	CONT	
	SS/CPAF	JHU/APL	1.070	0.292	11/02	0.000	N/A	0.000	N/A	CONT	CONT	
	WR	NSWC, Dahlgren, VA	2.100	0.136	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	VAR	VARIOUS	1.541	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
LAM FC Hardware/Software Dev	SS/CPFF	LM/Baltimore, MD	4.181								4.181	
TERMINATED	SS/CPAF	LM/MDS, Valley Forge, PA	12.131								12.131	
	SS/CPFF	UDLP	0.455								0.455	
	WR	NSWC, Dahlgren, VA	1.162								1.162	
	WR	SSC/SD	0.486								0.486	
LAM FC Systems Engineering	SS/CPFF	JHU/APL	0.386								0.386	
TERMINATED	WR	NSWC/PT HUE, CA	0.361								0.361	
Award Fees			3.979								3.979	
Subtotal Product Development			111.519	14.964		3.403		3.488		CONT	CONT	

Remarks:

Development Support Equipment												
Software Development		NSWC, Panama City	0.049									
Training Development	VAR	VARIOUS		0.487		0.000		0.000				
Integrated Logistics Support	VAR	VARIOUS	3.208	1.352	Various	0.105	Various	0.105	Various	CONT	CONT	
Configuration Management												
Technical Data												
GFE												
Subtotal Support			3.257	1.839		0.105		0.105		CONT	CONT	

Remarks:

CLASSIFICATION:

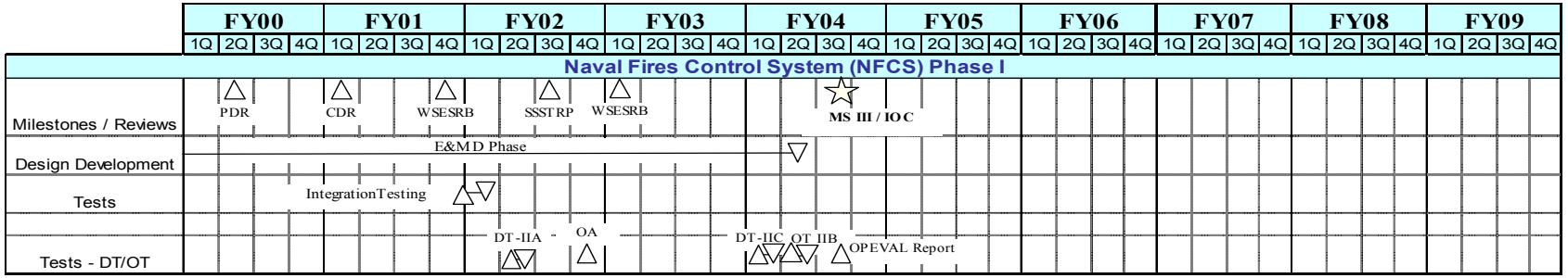
Exhibit R-3 Cost Analysis (page 2)					DATE: **February 2004**							
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603795N/Land Attack Technology			PROJECT NUMBER AND NAME 2325/Naval Fires Control System							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR/WX	NSWC/PT HUE, CA	2.800	2.515	10/02	0.300	10/03	0.300	10/04	CONT	CONT	
	VAR	Various	1.500									
Operational Test & Evaluation	VAR	Various	1.000	1.948	10/02	2.000	10/03	2.000	10/04	CONT	CONT	
Live Fire Test & Evaluation												
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			5.300	4.463		2.300		2.300				
Remarks:												
BTR			0.000									
Contractor Engineering Support												
Government Engineering Support												
Program Management Support	VAR	VARIOUS	2.272	2.077	Various	0.143	Various	0.192	Various	CONT	CONT	
Travel	PD	NAVSEA HQ	0.305	0.100	Various	0.050	Various	0.050	Various	CONT	CONT	
Labor (Research Personnel)												
SBIR Assessment												
Subtotal Management			2.577	2.177		0.193		0.242		CONT	CONT	
Remarks:												
Total Cost			122.653	23.443		6.001		6.135		CONT	CONT	
Remarks:												

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

EXHIBIT R-4		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N BA-4**	PROGRAM ELEMENT NAME AND NUMBER 0603795N/Land Attack Technology	PROJECT NAME AND NUMBER 2325/Naval Fires Control System

D. (U) Schedule Profile:



CLASSIFICATION:

Exhibit R-4a, Schedule Detail				DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N BA-4**				PROJECT NUMBER AND NAME 2325/Naval Fires Control System			
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
NFCS							
Engineering & Manufacturing Development	1Q-4Q	1Q-2Q					
Integration Tests							
Developmental Testing (DT-IIA)	1Q-4Q						
SSSTRP	4Q						
Operational Assessment (DT-IIB/OA)							
Technical Evaluation (TECHEVAL / DT-IIC))		1Q					
Operational Evaluation (OPEVAL / OT-IIB)		2Q					
OPEVAL Report		3Q					
Milestone III / IOC		3Q					

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology				PROJECT NUMBER AND NAME 9053/Integrated Deepwater System			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	
Project Cost	**10.511**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: These funds provide for evaluation of NDI Intermediate Caliber Gun Systems and interfacing fire control system for application in USCG Cutters in the Deepwater Program. The evaluation effort will include operability/maintainability demonstrations, engineering design assessment on selected intermediate caliber gun systems and conduct of technical safety testing and qualification of the intermediate caliber gun system and appropriate ammunition along with engineering evaluation of interfacing fire control and support systems in preparation for fleet introduction.

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 9053/Integrated Deepwater System

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05	FY 06
Accomplishments/Effort/Subtotal Cost	0.200	0.000	0.000	0.000
RDT&E Articles Quantity				

Funding supports system architecture and design.

	FY 03	FY 04	FY 05	FY 06
Accomplishments/Effort/Subtotal Cost	0.300	0.000	0.000	0.000
RDT&E Articles Quantity				

Funding supports the Intermediate Calibur gun system operability/maintainability demonstrations.

	FY 03	FY 04	FY 05	FY 06
Accomplishments/Effort/Subtotal Cost	0.500	0.000	0.000	0.000
RDT&E Articles Quantity				

Funding provides for engineering design assessment.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603795N/Land Attack Technology	9053/Integrated Deepwater System

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05	FY 06
Accomplishments/Effort/Subtotal Cost	0.500	0.000	0.000	0.000
RDT&E Articles Quantity				

Funding supports qualification planning including review of NDI gun/ammo international test results.

	FY 03	FY 04	FY 05	FY 06
Accomplishments/Effort/Subtotal Cost	6.200	0.000	0.000	0.000
RDT&E Articles Quantity				

Funding provides for Gun/Ammo qualification test and procurement of 57mm Ammo.

	FY 03	FY 04	FY 05	FY 06
Accomplishments/Effort/Subtotal Cost	2.811	0.000	0.000	0.000
RDT&E Articles Quantity				

Funding provides for program management and the procurement of additional 57mm Ammo for qualification testing.

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603795N/Land Attack Technology	9053/Integrated Deepwater System

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005	FY 2006
Previous President's Budget: (FY 04 Pres Controls)	11.000	0.000	0.000	0.000
Current BES/President's Budget (FY 05 DON Controls)	10.511	0.000	0.000	0.000
Total Adjustments	-0.489	0.000	0.000	0.000
Summary of Adjustments				
BSO Adjustments	-0.489	0.000	0.000	0.000
Subtotal	-0.489	0.000	0.000	0.000

Schedule:

N/A

Technical:

N/A

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603795N/Land Attack Technology	9053/Integrated Deepwater System

D. OTHER PROGRAM FUNDING SUMMARY: **N/A**

E. ACQUISITION STRATEGY:

The Naval Surface Warfare Center, Dahlgren Division, is the lead agency for conducting the gun/ammo evaluation and is to develop an evaluation plan with operability /maintainability demonstrations and engineering assessment activity. The operability/maintainability demonstration is to be conducted at the NSWC Louisville facility. NSWC Dahlgren facility will develop a qualification plan for the selected gun and ammo including an assessment of international naval testing of the selected gun system and interface requirements. Upon completion of the government conducted evaluation process and architectural design assessment, the USN will recommend the appropriate ICGS for application in USCG ships. The ICGS evaluation is to be conducted by NSWC since they are responsible for all USN gunnery. The program will include Technical Qualificaton of the gun and selected ammo in accordance with USN safety standards

F. MAJOR PERFORMERS:

NSWC Dahlgren - Integrated Deepwater System Demonstration
NSWC Louisville - Integrated Deepwater System Demonstration

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)												DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603795N/Land Attack Technology			PROJECT NUMBER AND NAME 9053/Integrated Deepwater System									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	Cost to Complete	Total Cost	Target Value of Contract
IDS Demonstration	WR	NSWC Louisville	0.865	1.500		0.000		0.000				0.000	2.365	
	WX	NSWC Dahlgren	1.196	7.109		0.000		0.000				0.000	8.305	
Primary Hardware Development													0.000	
Ancillary Hardware Development													0.000	
Component Development													0.000	
Ship Integration													0.000	
Systems Engineering													0.000	
Training Development													0.000	
Licenses													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Product Development			2.061	8.609		0.000		0.000		0.000		0.000	10.670	
Remarks:														
Development Support													0.000	
Software Development													0.000	
Training Development													0.000	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
Technical Data													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Support			0.000	0.000		0.000		0.000				0.000	0.000	
Remarks:														

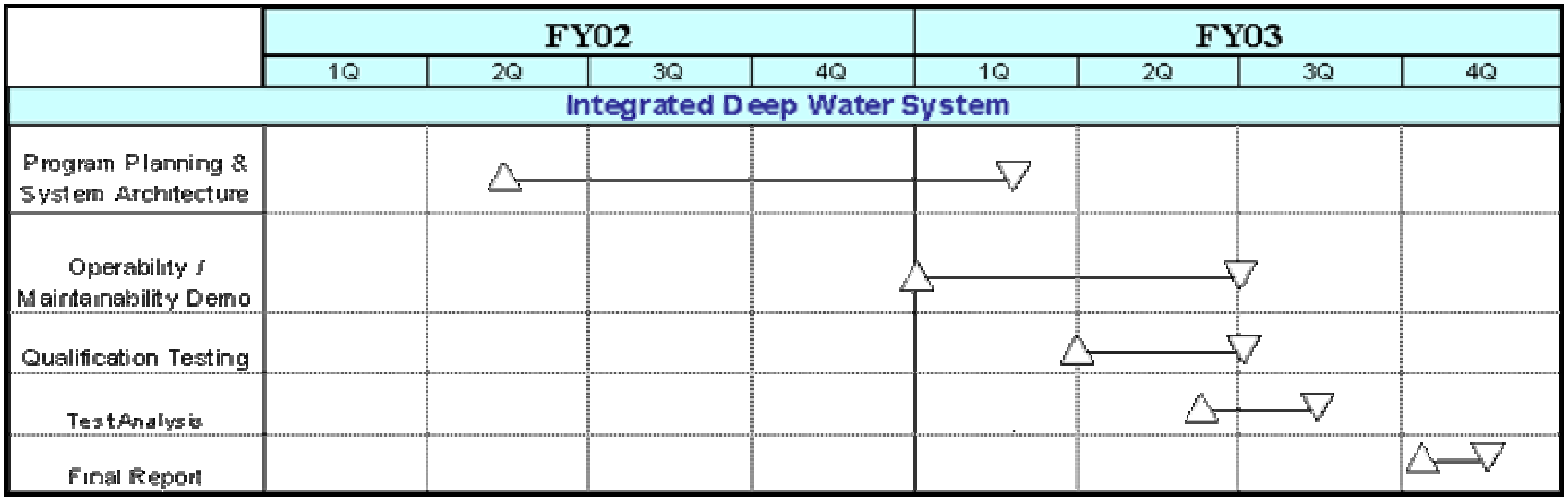
R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603795N/Land Attack Technology			PROJECT NUMBER AND NAME 9053/Integrated Deepwater System									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation													0.000	
Operational Test & Evaluation													0.000	
Live Fire Test & Evaluation													0.000	
Test Assets													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
Contractor Engineering Support													0.000	
Government Engineering Support													0.000	
Program Management Support				1.902									1.902	
Travel			0.010										0.010	
Labor (Research Personnel)													0.000	
SBIR Assessment													0.000	
Subtotal Management			0.010	1.902		0.000		0.000		0.000		0.000	1.912	
Remarks:														
Total Cost			2.071	10.511		0.000		0.000		0.000		0.000	12.582	
Remarks:														

R-1 SHOPPING LIST - Item No. 74

EXHIBIT R4, Schedule Profile		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603795N/Land Attack Technology	9053/Integrated Deepwater System



R-1 SHOPPING LIST - Item No.74

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603795N/Land Attack Technology				PROJECT NUMBER AND NAME 9053/Integrated Deepwater System			
Schedule Profile		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Prototype Phase		1Q-3Q						
System Design Review (SDR)								
Milestone II (MSII)								
Contract Preparation								
Software Specification Review (SSR)								
Preliminary Design Review (PDR)								
System Development		1Q-3Q						
Critical Design Review (CDR)								
Quality Design and Build								
Test Readiness Review (TRR)			1Q					
Developmental Testing (DT-IIA)			1Q-3Q					
Eng Dev Model (EDM) Radar Delivery - Lab								
Software Delivery 1XXSW								
Preproduction Readiness Review (PRR)								
EDM Radar Delivery - Flt Related								
Milestone C (MS C)								
Operational Testing (OT-IIA)								
Start Low-Rate Initial Production I (LRIP I)								
Software Delivery 2XXSW								
Developmental Testing (DT-IIB1)								
Developmental Testing (DT-IIB2)								
Start Low-Rate Initial Production II								
Operational Testing (OT-IIB)								
Developmental Testing (DT-IIC)								
Functional Configuration Audit (FCA)								
Low-Rate Initial Production I Delivery								
Technical Evaluation (TECHEVAL)								
Physical Configuration Audit								
Operational Evaluation (OT-IIC) (OPEVAL)								
Low-Rate Initial Production II Delivery								
IOC								
Full Rate Production (FRP) Decision								
Full Rate Production Start								
First Deployment								

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology				PROJECT NUMBER AND NAME 9359/Affordable Weapon System			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**0.000**	**27.688**	**28.906**	**0.000**	**0.000**	**0.000**	**0.000**
RDT&E Articles Qty								

* FY 2004 Congressional Add - $27.688

A. MISSION DESRCIPTION AND BUDGET ITEM JUSTIFIACTION:

The Affordable Weapons System (AWS) is a COTS based Land Attack and Strike missions missile that can loiter and be directed to the target by the shooter or a Forward Observer (FO/FAC).

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 9359/Affordable Weapon System

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	7.110	3.000
RDT&E Articles Quantity				

Production Engineering/Production Tooling

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	5.900	5.800
RDT&E Articles Quantity				

Missile Fabrication and Assembly

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	3.160	0.800
RDT&E Articles Quantity				

Launcher Design, Fabrication and Test

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 9359/Affordable Weapon System	

B. Accomplishments/Planned Program

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	2.370	1.800
RDT&E Articles Quantity				

Missile Design Maturation and Systems Engineering,

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.250	0.000
RDT&E Articles Quantity				

AWS Military Utility/Lethality Effectiveness Analysis; Warhard Design & Assessment; Safety Evaluation & Analysis; Safety Plan & WSESRB suppor

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	2.760	1.300
RDT&E Articles Quantity				

Test Demonstration and Evaluation

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 9359/Affordable Weapon System	

B. Accomplishments/Planned Program

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	3.500	2.000
RDT&E Articles Quantity				

Warhead design and assessment

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	3.100
RDT&E Articles Quantity				

Hazard Assessment & Insensitive Munitions testing

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	9.056
RDT&E Articles Quantity				

Test Ranges, Support, missile component testing , and Facilities including E3/HERO, PHST & Ship compatibility, and developmental testing

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 9359/Affordable Weapon System	

B. Accomplishments/Planned Program

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.700	1.200
RDT&E Articles Quantity				

Safety Engineering, System Engineering, and Missile/Launcher Engineering

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.938	0.850
RDT&E Articles Quantity				

Program Management

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000
RDT&E Articles Quantity				

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603795N/Land Attack Technology	9359/Affordable Weapon System

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04 Pres Controls)	0.000	0.000	0.000
FY05 President's Budget	0.000	27.688	28.906
Total Adjustments	0.000	27.688	28.906

(U) Summary of Adjustments			
Cong Add		28.000	0.000
NWCF Rate Adjustment			0.000
Misc Minor Adjustment		-0.312	0.000
Manpower			0.000
Inflation			-0.094
SBIR	0.000		
Reprogramming (PBD)	0.000		29.000
Total	0.000	27.688	28.906

Schedule:

None

Technical:

None

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603795N/Land Attack Technology	9359/Affordable Weapon System

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

E. ACQUISITION STRATEGY:

N/A

F. MAJOR PERFORMERS:

Titan Corp - Primary hardware development & fabrication
Various Naval Actys - Warhead design & assessment, Engineering Support
- NSWC Dah Div, VA

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **Februay 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603795N/Land Attack Technology			PROJECT NUMBER AND NAME 9359/Affordable Weapon System							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Missile Fabrication & Assy	SS	Titan Corp, San Diego CA	0.000	0.000	N/A	5.900	02/04	5.800	11/04	0.000	11.700	N/A
Launcher Design, Fab & Test	SS	Titan Corp, San Diego CA	0.000	0.000	N/A	3.160	02/04	0.800	11/04	0.000	3.960	N/A
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			0.000	0.000		9.060		6.600		0.000	15.660	
Remarks:												
Missile Maturation & System Eng	SS	Titan Corp, San Diego CA	0.000	0.000	N/A	2.370	02/04	1.800	11/04	0.000	4.170	N/A
Warhead Design & Assessment	WX	TBD	0.000	0.000	N/A	3.500	02/04	2.000	10/04	0.000	5.500	N/A
Safety/Sys/Missile/Laucher Eng	WX	Var.	0.000	0.000	N/A	0.700	02/04	1.200	10/04	0.000	1.900	N/A
System Analysis	WX	Var.	0.000	0.000	N/A	1.250	02/04	0.000	N/A	0.000	1.250	N/A
Hazard Assessment & Insensitive Mu	WX	TBD	0.000	0.000	N/A	0.000	N/A	3.100	10/04	0.000	3.100	N/A
Production Engineering & Tooling	SS	Titan Corp, San Diego CA	0.000	0.000	N/A	7.110	02/04	3.000	11/04	0.000	10.110	N/A
											0.000	
											0.000	
Subtotal Support			0.000	0.000		14.930		11.100		0.000	26.030	
Remarks:												

CLASSIFICATION:

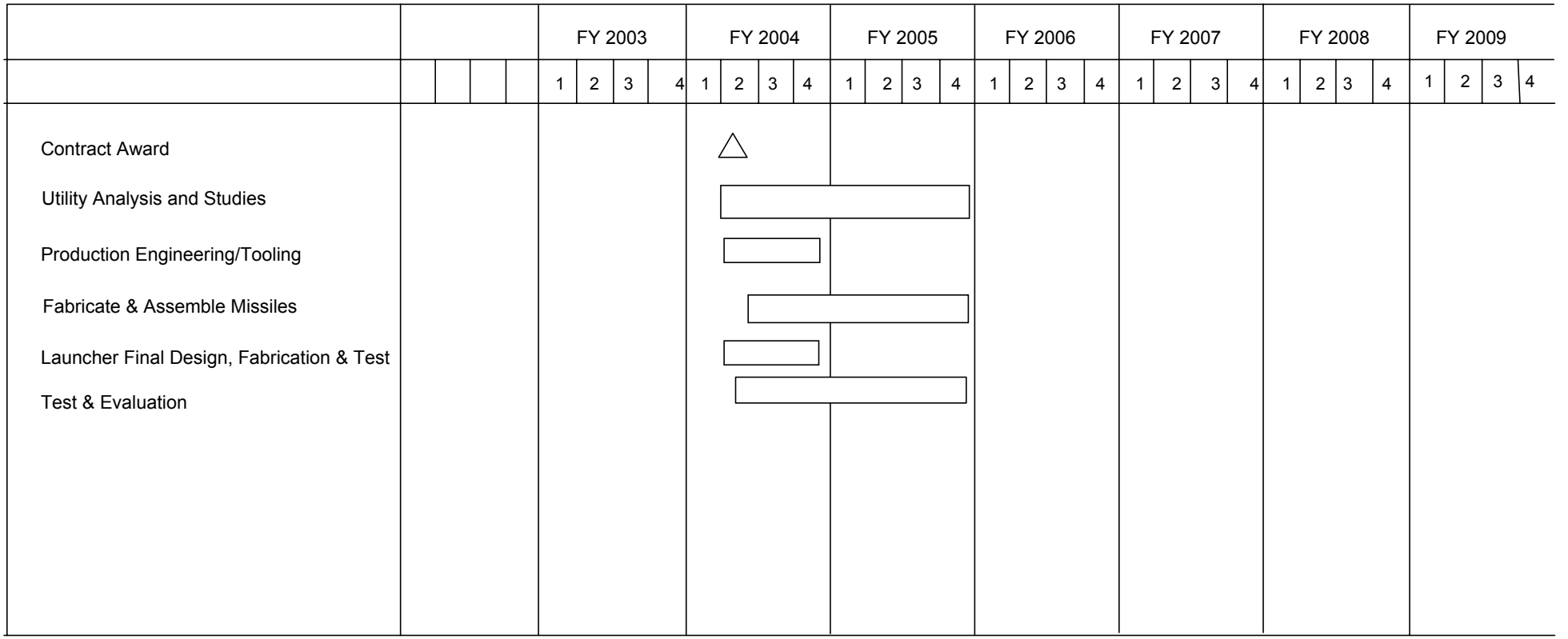
Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603795N/Land Attack Technology			PROJECT NUMBER AND NAME 9359/Affordable Weapon System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
T&E	SS	Titan Corp, San Diego CA	0.000	0.000	N/A	2.760	02/04	1.300	11/04	0.000	4.060	N/A
Missile Component testing (FTS)	WX	TBD	0.000	0.000	N/A	0.000	N/A	0.500	10/04	0.000	0.500	N/A
Test Ranges, Support & Facilities	WX	TBD	0.000	0.000	N/A	0.000	N/A	8.556	10/04	0.000	8.556	N/A
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		2.760		10.356		0.000	13.116	
Remarks:												
Program Management Support		Var.	0.000	0.000	N/A	0.938	Var.	0.850	Var.	0.000	1.788	N/A
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			0.000	0.000		0.938		0.850		0.000	1.788	
Remarks:												
Total Cost			0.000	0.000		27.688		28.906		0.000	56.594	
Remarks:												

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

EXHIBIT R-4, Schedule Profile		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E, N/BA-4	0603795N/Land Attack Technology	9359/Affordable Weapon System

Affordable Weapons Systems (AWS)



R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&BA-4**	PROGRAM ELEMENT 0603795N/Land Attack Technology				PROJECT NUMBER AND NAME 9359/Affordable Weapon System			
Schedule Profile: Affordable Weapon System		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Contract Award			2Q					
Utility Analysis and Studies			2Q-4Q	1Q-4Q				
Production Engineering			2Q-4Q					
Fabricate & Assy (Missiles)			3Q-4Q	1Q-4Q				
Launcher Design, Fabrication & Test			2Q-4Q					
Delivery			3Q-4Q	1Q-4Q				

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology				PROJECT NUMBER AND NAME 9362/Millennium Gun System			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**0.000**	**1.187**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
RDT&E Articles Qty			**1000**					

* FY 2004 Millenium Gun System Program Add - $1.187

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

These funds provide for the initial review of the 35mm Millennium Gun and ammunition development process and planning for successful weapon suitability. It also supports the Weapon System Explosives Safety Review Board (WSESRB) review, testing and certification process as well as required logistics support analyses and planning. The gun is a candidate system for future USN ship classes. □

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROJECT NUMBER AND NAME 9362/Millennium Gun System

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	1.187	0.000
RDT&E Articles Quantity		1000	

Conduct basic research, planning, safety and logistics investigations for the 35mm Millennium Gun Mount for the manufacture of the first article test rounds.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			
RDT&E Articles Quantity			

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			
RDT&E Articles Quantity			

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603795N/Land Attack Technology	9362/Millennium Gun System

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04 Pres Controls)	0.000	0.000	0.000
Current BES/President's Budget (FY 05 President Controls)	0.000	1.187	0.000
Total Adjustments	0.000	1.187	0.000
Summary of Adjustments			
Millennium Gun System Program Add	0.000	1.200	0.000
Minor Pricing Adjustments	0.000	-0.013	0.000
Subtotal	0.000	1.187	0.000

Millennium Gun Mount Program comprises of research, logistics elements, testing and engineering necessary to qualify the 35mm Millennium Gun Mount for USN/USCG use. The contractor has currently completed some basic planning and research into this effort and this will be reviewed by NSWC and continued. Any additional T&E and ISEA efforts for this project will be planned in FY-04 with possible continuation in FY-05

Technical:

N/A

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603795N/Land Attack Technology	9362/Millennium Gun System

D. OTHER PROGRAM FUNDING SUMMARY:

N/A

FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	Complete	Cost

E. ACQUISITION STRATEGY:

The Millennium Gun Program will procure components and munitions necessary for the test and evaluation as well as support of the Millennium Gun Mount. The gun is developed by Oerlikon (Switzerland) and is licensed for manufacture and sale by Lockheed Martin in the United States. This system is a candidate gun mount for HSV class ships as well as other future ships for the USN. Work will be conducted by the NSWC centers at Louisville and Dahlgren in support of WSESRB certification, T&E, logistics planning and preparation for initial operational capability for HSV type ships or other surface ships as necessary. Provisions will be made for zero cost bailments of equipment for T&E as necessary.

F. MAJOR PERFORMERS:

Millennium Gun Mount: Prime Contractor for Millennium Gun is Lockheed Martin, Akron, Ohio.

Primary Navy Warfare Center: Naval Surface Warfare Center, Louisville will provide program and acquisition management. NSWC Dahlgren will support in WSESRB research and T&E functions.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603795N/Land Attack Technology				PROJECT NUMBER AND NAME 9362/Millennium Gun System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Millennium Gun Mount Demonstration	WX	NSWC PHD Louisville, KY	0.000	0.000		0.831		0.000		CONT	CONT	
	TBD	Lockheed Martin, Akron, OH	0.000	0.000		0.356		0.000		CONT	CONT	
Subtotal Product Development			0.000	0.000		1.187		0.000		CONT	CONT	
Development Support Equipment												
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
GFE												
Subtotal Support			0.000	0.000		0.000		0.000		CONT	CONT	

Remarks:

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603795N/Land Attack Technology			PROJECT NUMBER AND NAME 9362/Millennium Gun System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation												
Operational Test & Evaluation												
Tooling												
GFE												
Subtotal T&E												
Contractor Engineering Support												
Government Engineering Support												
Project Engineering Support												
Program Management Support												
Travel												
Labor (Research Personnel)												
Overhead												
Subtotal Management												
Total Cost			0.000	0.000		1.187		0.000		CONT	CONT	CONT

Remarks:

R-1 SHOPPING LIST - Item No. 74

EXHIBIT R-4, Schedule Profile		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NAME AND NUMBER 0603795N/Land Attack Technology	PROJECT NAME AND NUMBER 9362/Millennium Gun System

D. (U) Schedule Profile:

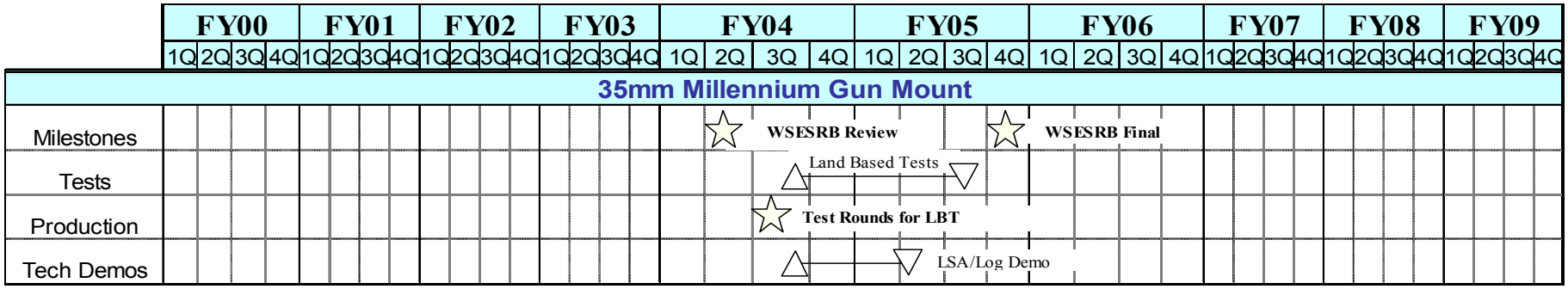


Exhibit R-4a, Schedule Detail						DATE: February 2004		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603795N/Land Attack Technology				PROJECT NUMBER AND NAME 9362/Millennium Gun System			
Schedule Profile		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Millennium Gun Program								
WSESRB Review			2Q					
WSESRB Final				4Q				
Test Rounds for LBT			3Q					
Land Based Tests			3Q-4Q	1Q-3Q				
LSA/Log Demo			3Q-4Q	1Q-2Q				

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology			PROJECT NUMBER AND NAME 2927/2871/9361/9363/9209 Naval Fires Network			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**32.564**	**19.711**	**8.663**	**8.565**	**7.783**	**1.844**	**0.716**
RDT&E Articles Qty							

*Funding includes FY 2003 Congressional Adds for NFN Project 2871 - $7.138M; SAIP Project 9209 - $1.047M
**Funding includes FY2004 Congressional Adds for NFN Project 2871 - $.988M; NFN Project 9361 - $2.472M; NFN Project 9363 - $1.682M

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Joint Fires Network (JFN) is a system which will automate, coordinate, and correlate, in real time, the processing of multiple tactical data streams from various surveillance/intelligence sources to provide time-critical fire control solutions for advanced weapon systems and sensors. The automation/correlation provided by JFN will provide the Navy an ability to quickly target and re-target precision weapons, greatly enhancing their effectiveness and lethality. The Semi-Automated Imagery Intelligence (IMINT) Processing Program (SAIP) will make imagery a more responsive surce in providing the commander with dominant battlefield awareness.

R-1 SHOPPING LIST - Item N 74

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603795N/Land Attack Technology	2927/2871/9361/9363/9209 Naval Fires Network

B. Accomplishments/Planned Program

	FY03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.360	2.472	0.000
RDT&E Articles Quantity			

Development of hardware for NFN.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.659	0.000	0.000
RDT&E Articles Quantity			

Development of software for NFN.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.345	0.000	0.000
RDT&E Articles Quantity			

Testing of on-board and land-based facilities.

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603795N/Land Attack Technology	2927/2871/9361/9363/9209 Naval Fires Network

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	2.800	0.988	0.000
RDT&E Articles Quantity			

Development of Tactical Dissmeination Module (TDM).

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.034	1.010	0.250
RDT&E Articles Quantity			

Acquistion Planning/ DoD Documentation.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	15.219	5.893	0.000
RDT&E Articles Quantity			

Support hardware/software, GFE buy, installation and upgrades for existing interfaces and communications.

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 2927/2871/9361/9363/9209 Naval Fires Network

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.600	0.000	0.000
RDT&E Articles Quantity			

Training /Training System Development.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.550	0.000	1.780
RDT&E Articles Quantity			

P3I and future Limited Objective Experiments/ Fleet Battle Experiments. (LOE/FBE)

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.245	0.000	0.000
RDT&E Articles Quantity			

X, Ku, Phased Array Antenna System Development.

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603795N/Land Attack Technology	2927/2871/9361/9363/9209 Naval Fires Network

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.700	0.825	0.900
RDT&E Articles Quantity			

Program Management Support.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.950	1.120
RDT&E Articles Quantity			

DT/OT&E.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	2.398	0.000
RDT&E Articles Quantity			

Spiral Development

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 2927/2871/9361/9363/9209 Naval Fires Network

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	2.100	0.950	1.148
RDT&E Articles Quantity			

Acquisition Strategy, AoA, TEMP and other required Acquisition Documentation, Technical Data Collectior

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000
RDT&E Articles Quantity			

Portion of extramural program reserved for Small Business Innovation. Research assessment in Accordance with 15 USC 638.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	2.100	0.000	0.000
RDT&E Articles Quantity			

Provides onboard ship and integrated logistics support

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603795N/Land Attack Technology	2927/2871/9361/9363/9209 Naval Fires Network

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.805	4.225	3.465
RDT&E Articles Quantity			

Rqmts Definition - System Eng, Config Mgt, Architecture Support

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.047	0.000	0.000
RDT&E Articles Quantity			

Begin software development of a Semi-Automated Imagery Intelligence (IMINT) Processing Program design.

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603795N/Land Attack Technology	2927/2871/9361/9363/9209 Naval Fires Network

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04 Pres Controls)	44.374	14.733	8.712
Current BES/President's Budget (FY 05 President Controls)	32.564	19.711	8.663
Total Adjustments	-11.810	4.978	-0.049
Summary of Adjustments			
SBIR Withholds	-0.990		
BTR	-0.222		
BSO Adjustment	0.402		
NWCF Rates			-0.035
Management Improvements		-0.053	
Effeciency Revisions		-0.169	
PBD 430 WCF			0.004
PBD 426 Rates			0.010
PBD 604 Inflation			-0.028
P-3 Ground Station Congressional Add		1.700	
Integrated Deepwater System Earmark	-11.000		
LSAS Adjunct to TES-N Congressional Add		2.500	
TDM Congressional Add		1.000	
Subtotal	-11.810	4.978	-0.049

Schedule:

N/A

Technical:

N/A

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603795N/Land Attack Technology	2927/2871/9361/9363/9209 Naval Fires Network

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
Naval Fires Control System/ 511200	0	24.0	4.8	4.9	4.9	28.0	23.1	CONT	89.7
Littoral Surveillance System/812000	13.7								

E. ACQUISITION STRATEGY:

The Joint Fires Network (JFN) program will utilize contracting vehicles already in place for the existing Army Tactical Exploitation System (TES) program. The Navy plan is to adapt Army TES for use in JFN support of Navy Network Centric Warfare Time Critical Targeting. □

F. MAJOR PERFORMERS:

HQ/SAF - Develop and Build Naval Fires Network System Hardware/Software

Naval Air Warfare Center (China Lake) - Systems Engineering and Interface Development/Test

Northrup Grumman Corporation (NGC), Electronic Sensors and Systems Division (ESSD), of Baltimore, Maryland

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603795N/Land Attack Technology				PROJECT NUMBER AND NAME 2927/2871/9361/9363/9209 Naval Fires Network						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	IP	SAF/FMB/OLE (Air Force)	26.604	15.579	11/02	2.472	11/03			0.000	44.655	
Ancillary Hardware Development	WX	NAWC, China Lake, CA	8.800	2.800	11/02	0.988	11/03			0.000	12.588	
Component Development	VAR	VARIOUS		1.245	11/02	5.893	11/03			0.000	7.138	
Ship Integration	WR	NSWC PHD, Pt. Hueneme, CA	1.270							0.000	1.270	
Ship Suitability												
Systems Engineering	WX	VARIOUS		2.355	11/02	4.225	11/03	3.465	11/04	Continuing	Continuing	
Training Development	WX	VARIOUS	1.100	1.600	11/02					0.000	2.700	
Licenses												
Tooling												
GFE	IP	SAF/FMB/OLE (Air Force)	2.000							0.000	2.000	
Award Fees												
Subtotal Product Development			39.774	23.579		13.578		3.465		Continuing	Continuing	
Remarks:												
Development Support	MIPR	Various		1.034	11/02	1.010	11/03	0.250	11/04	Continuing	Continuing	
Software Development	VAR	Various	2.100	1.659	11/02	2.398	11/03			0.000	6.157	
Software Development (SAIP)	IP	SAF/FMB/OLE (Air Force)	0.000	1.047	03/03					0.000	1.047	
Training Development	VAR	Various	2.830							0.000	2.830	
Integrated Logistics Support	WX/IP	Various		2.100	11/02					0.000	2.100	
Configuration Management												
Technical Data	WX/MIPR	Various	0.950	2.100	11/02	0.950	11/03	1.148	11/04	Continuing	Continuing	
GFE	VAR	Various	0.600							0.000	0.600	
Award Fees												
Subtotal Support			6.480	7.940		4.358		1.398		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603795N/Land Attack Technology				PROJECT NUMBER AND NAME 2927/2871/9361/9363/9209 Naval Fires Network						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX/MIPR	VAR	0.350			0.475	11/03	0.560	11/04	Continuing	Continuing	
Operational Test & Evaluation	WX/MIPR	VAR				0.475	11/03	0.560	11/04	Continuing	Continuing	
Live Fire Test & Evaluation	WX/MIPR	VAR	5.266	0.345	02/03			1.780	11/04	Continuing	Continuing	
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			5.616	0.345		0.950		2.900		Continuing	Continuing	
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support	IP	VAR , VA	1.992	0.700	11/02	0.825	11/03	0.900	11/04	Continuing	Continuing	
Travel	PD	NAVSEA HQ	0.350							0.000	0.350	
Labor (Research Personnel)												
SBIR Assessment												
Subtotal Management			2.342	0.700		0.825		0.900		Continuing	Continuing	
Remarks:												
Total Cost			54.212	32.564		19.711		8.663		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/ERF,D**		PROGRAM ELEMENT 0603795N/Land Attack Technology				PROJECT NUMBER AND NAME 3090/1010 Naval Fires Network						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR/MIPR	SAF/FMB/OLE (Air Force)	27.498							0.000	27.498	
Ancillary Hardware Development	WR	NAWC China Lake	3.000							0.000	3.000	
Aircraft Integration												
Ship Integration	WR	NSWC PHD, Pt. Hueneme, CA	5.793							0.000	5.793	
Ship Suitability												
Systems Engineering												
Training Development												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			36.291	0.000		0.000		0.000		0.000	36.291	

Remarks:

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/ERF,D**		PROGRAM ELEMENT 0603795N/Land Attack Technology			PROJECT NUMBER AND NAME 3090/1010 Naval Fires Network							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support												
Software Development	WR/MIPR	SAF/FMB/OLE (Air Force)	2.000							0.000	2.000	
Integrated Logistics Support												
Configuration Management												
Technical Data												
Studies & Analyses	WR	NSWC Dahlgren, VA	2.028							0.000	2.028	
GFE												
Award Fees												
Subtotal Support			4.028	0.000		0.000		0.000		0.000	4.028	

Remarks:

R-1 SHOPPING LIST - Item No. 74

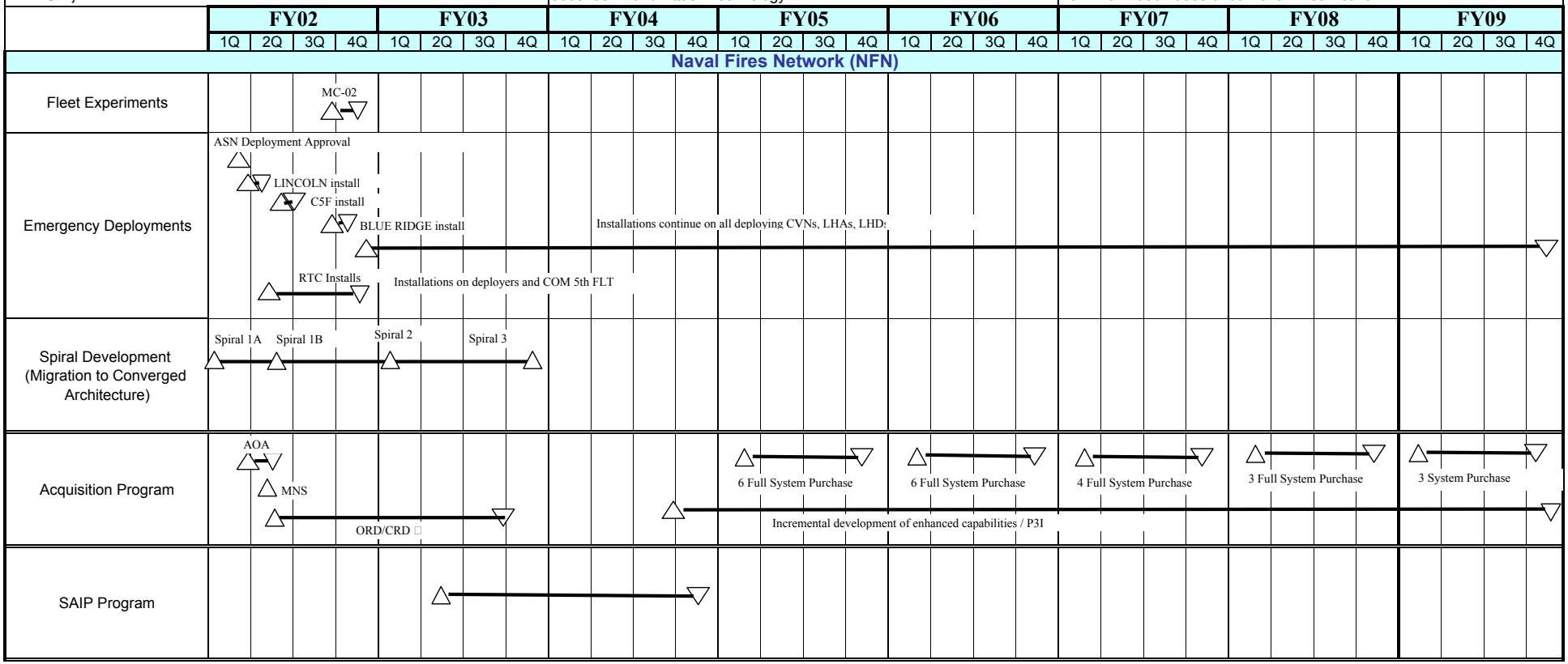
CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/ERF,D**		PROGRAM ELEMENT 0603795N/Land Attack Technology			PROJECT NUMBER AND NAME 3090/1010 Naval Fires Network							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation												
Operational Test & Evaluation		Various	13.133							0.000	13.133	
Live Fire Test & Evaluation	CPFF/IF/AF	Various	2.551							0.000	2.551	
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			15.684	0.000		0.000		0.000		0.000	15.684	
Remarks:												
Contractor Engineering Support			13.683							0.000	13.683	
Government Engineering Support			0.260							0.000	0.260	
Program Management Support			3.514							0.000	3.514	
Travel												
Transportation												
SBIR Assessment												
Subtotal Management			17.457	0.000		0.000		0.000		0.000	17.457	
Remarks:												
Total Cost			73.460	0.000		0.000		0.000		0.000	73.460	
Remarks:												

R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

EXHIBIT R4, Schedule Profile			DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 2927/2871/9361/9363/9209 Naval Fires Network	



R-1 SHOPPING LIST - Item No. 74

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603795N/Land Attack Technology				PROJECT NUMBER AND NAME 2927/2871/9361/9363/9209 Naval Fires Networl		
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Fleet Experiments							
Millenium Challenge '02 (MC02)							
Emergency Deployments							
ASN Deployment Approval							
LINCOLN Install							
COMFIFTHFLT Install							
BLUE RIDGE Install							
Continuing Installs on all Deploying CVN, LHA, LHD	1Q-4Q	1Q					
RTC installations on deployers							
Spiral development (Migrationto Converged Architecture)							
Spiral 1A							
Spiral 1B							
Spiral 2	1Q-3Q						
Spiral 3	4Q						
Acquisition Program							
Mission Needs Statement (MNS)							
ORD/CRD	1Q-3Q						
Incremental Development of Enhanced Capabilitys/P3I		3Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-2Q	

R-1 SHOPPING LIST - Item No. 74

EXHIBIT R-2a, RDT&E Project Justification					DATE: February 2004				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Adv Comp Dev & Prototypes**	PROGRAM ELEMENT NUMBER AND NAME **0603851M Non-Lethal Warfare DEM/VAL**				PROJECT NUMBER AND NAME **C2319 Non-Lethal Weapons Program**				
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost	**24.797**	**43.929**	**43.321**	**43.943**	**44.434**	**45.071**	**45.669**	**Cont**	**Cont**
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project covers non-lethal weapon (NLW) systems which are those systems that by their design, do not inflict fatal or permanent injuries. Instead, these systems are designed to stun, incapacitate, or hinder movement of individuals, crowds, or equipment. The availability of NLWs allows commanders less than lethal options, particularly in urban warfare and military operations other than war, i.e., peacekeeping, humanitarian assistance and disaster relief, as well as special operations.

(U) B. ACCOMPLISHMENTS/PLANNED PROGRAM:

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**1.400**	**1.430**	**1.550**
RDT&E Articles Qty			

Execution oversight, administration and support of the Joint NLW Program and technologies database.

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.400**	**0.645**	**0.645**
RDT&E Articles Qty			

Evaluation of NLWs by Service warfighting laboratories and Joint Forces Command (JFCOM) for direct user feedback of various NL technologies and munitions.

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**1.080**	**1.612**	**1.612**
RDT&E Articles Qty			

Modeling and simulation (M&S) of NLWs in warfighter training/wargaming models and performance effects data collection/population to demonstrate/analyze NL effects and optimize training.

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.400**	**1.040**	**1.040**
RDT&E Articles Qty			

Pursuit of new technology through open competition of industry, academia and government laboratory sources for NL capabilities.

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.430**	**1.075**	**1.505**
RDT&E Articles Qty			

Objective Individual Combat Weapons (OICW) – Continue development of NL munitions for the “next generation” combat weapon that will exploit the ability to air burst munitions with NL payloads at longer ranges with existing systems.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Adv Comp Dev & Prototypes**	PROGRAM ELEMENT NUMBER AND NAME **0603851M Non-Lethal Warfare DEM/VAL**	PROJECT NUMBER AND NAME **C2319 Non-Lethal Weapons Program**

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**1.100**	**1.129**	**1.149**
RDT&E Articles Qty			

Program support for each service's coordination and oversight of the Joint NLW Program.

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.860**	**1.075**	**1.075**
RDT&E Articles Qty			

NL Mortar – Continue development of NL mortar casing devises for delivery of NL payloads at extended ranges..

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.800**	**0.000**	**0.000**
RDT&E Articles Qty			

Mk19 NL Munition - Development of a NL munition for the 40mm Mk19 Grenade Machine Gun.

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**1.288**	**0.500**	**0.500**
RDT&E Articles Qty			

Non-lethal technology innovation initiative to allow pursuit of new NL materials and technologies through a network of academic institutions.

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**5.800**	**4.518**	**4.857**
RDT&E Articles Qty			

Active Denial System (ADS) Advanced Concept Technology Demonstration (ACTD) - Jointly sponsored effort that continues the development of a demo asset for evaluation, testing and target assessment of a High Mobility Multipurpose Wheeled Vehicle (HMMWV) mounted directed energy system.

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**1.612**	**1.612**	**0.538**
RDT&E Articles Qty			

Advanced Tactical Laser (ATL) Advanced Concept Technology Demonstration (ACTD) - Jointly sponsored effort to demonstrate technology concepts to satisfy the critical mission needs for an ultra-precision strike capability.

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**1.200**	**0.810**	**0.000**
RDT&E Articles Qty			

Clear A Space Device - Currently in Technology Development, pending Milestone B Decision in late FY04 to advance downselects into System Development and Demonstration (SDD).

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Adv Comp Dev & Prototypes**	PROGRAM ELEMENT NUMBER AND NAME **0603851M Non-Lethal Warfare DEM/VAL**	PROJECT NUMBER AND NAME **C2319 Non-Lethal Weapons Program**

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.000**	**1.000**	**0.000**
RDT&E Articles Qty			

Non-Lethal Technology Research, Marine Corps Research University - This Congressional plus-up is intended to assist in the cross-comparison of technology, human effects and long term programmatics of several new initiatives and the independent technical assessment of Joint NLWs.

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**1.500**	**1.106**	**0.140**
RDT&E Articles Qty			

Mobility Denial System (MDS) - Joint evauation, analysis and testing of anti-traction material and delivery methods/volumnes.

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**1.234**	**5.346**	**6.117**
RDT&E Articles Qty			

Studies and Analysis – Medical and NL casualty data research and collection; human effects assessments; acceptability analysis; and technical studies/analysis of emerging technologies for possible NL application.

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**3.113**	**5.884**	**6.090**
RDT&E Articles Qty			

Concept Exploration Program – Explore and evaluate technical NL solutions for crowd control, area denial to personnel, vehicles and boats to satisfy critical joint mission tasks.

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.000**	**10.259**	**11.548**
RDT&E Articles Qty			

System development and design of technology development downselected items to proceed into the acquisition cycle to provide NL technology solutions to critical joint mission tasks.

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.000**	**1.500**	**1.300**
RDT&E Articles Qty			

Develop/expand the NATO Measures of Effectivess (MOE) efforts, chaired by the U.S. to provide input for Defense Capabilities Initiative (DCI) and NATO assessment of NLW in the Defense planning process. Expanded interaction with COCOM staffs to identify emerging NLW capabilities and their utility in theater operations and Homeland Security missions.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Adv Comp Dev & Prototypes**	PROGRAM ELEMENT NUMBER AND NAME **0603851M Non-Lethal Warfare DEM/VAL**	PROJECT NUMBER AND NAME **C2319 Non-Lethal Weapons Program**

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**2.150**	**2.958**	**3.225**
RDT&E Articles Qty			

Pulsed Energy Projectile (PEP) – Explore the development of laser hardware and extensive human effects characterization research and to continue refinement of bio-effects characterization and optimization of lasers as a NL capability.

COST ($ in Millions)	FY 2003	FY 2004	FY 2005
Accomplishment/Effort Subtotal Cost	**0.430**	**0.430**	**0.430**
RDT&E Articles Qty			

Joint Integration Program (JIP) - Select and test commercial products that will meet the Joint Services' requirements for specific NL capability set common items.

(U) Total $	**24.797**	**43.929**	**43.321**

(U) PROJECT CHANGE SUMMARY:

	FY2003	FY2004	FY2005
(U) FY 2004 President's Budget:	**25.866**	**43.445**	**43.492**
(U) Adjustments from the President's Budget:			
(U) Congressional/OSD Program Reductions			
(U) Congressional Rescissions			
(U) Congressional Increases		1	
(U) Reprogrammings			
(U) SBIR/STTR Transfer	-0.598		
(U) Minor Affordability Adjustment	-0.471	-0.516	-0.171
(U) FY 2005 OSD Budget:	**24.797**	**43.929**	**43.321**

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
(U) PAN,MC BLI 162800, Non-Lethal Munitions	2.321	3.644	1.145	3.421	4.112	4.708	5.305	Continuing	Continuing
(U) PMC BLI 237100, Operations Other Than War	0.998	1.339	1.509	1.534	1.563	1.618	1.651	Continuing	Continuing

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Adv Comp Dev & Prototypes**	PROGRAM ELEMENT NUMBER AND NAME **0603851M Non-Lethal Warfare DEM/VAL**	PROJECT NUMBER AND NAME **C2319 Non-Lethal Weapons Program**

(U) Related RDT&E: Not Applicable.

(U) D. ACQUISITION STRATEGY:

The JNLW Program strategy is to continue to pursue the fielding of NLW systems through modifying Commercial-Off-The-Shelf (COTS) products for near term capabilities and the development of new technology NLW systems in various stages of acquisition. These are balanced with efforts in modeling and simulation, experimentation, and state-of-the-art technology investment. The acquisition strategy for each weapon system is largely lead service dependent.

(U) E. MAJOR PERFORMERS:

FY03-FY05 - ARDEC, Picatinny Arsenal, NJ. Development and evaluation of the Objective Individual Combat Weapons (OICW) program, the Non-Lethal (NL) Mortar program, and the Mk19 Grenade Machine Gun NL Munition program.

FY03-FY05 - Raytheon Company, Rancho Cucamonga, CA. Working with the Air Force Research Laboratory at Kirtland Air Force Base, NM on the Active Denial System (ADS) Advanced Concept Technology Demonstration (ACTD) to continue the evaluation, testing and target assessment of a HMMWV mounted directed energy system.

(U) SCHEDULE PROFILE: Not Applicable.

Exhibit R-3 Cost Analysis						DATE: February 2004						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Adv Comp Dev & Prototypes**		PROGRAM ELEMENT **0603851M Non-Lethal Warfare DEM/VAL**				PROJECT NUMBER AND NAME **C2319 Non-Lethal Weapons Program**						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Product Development	MIPR	USAIC, Ft. Benning, GA	3.399	0.000		0.000		0.000		Cont.	Cont.	
Product Development	MIPR	SMDC, Huntsville, AL	1.400	0.000		0.000		0.000		Cont.	Cont.	
Product Development	MIPR	ARDEC, Picatinny, NJ	49.382	3.705	10/02	7.531	10/03	7.810	10/04	Cont.	Cont.	
Product Development	MIPR	SOCOM, McDill AFB, FL	1.500	1.500	03/03	1.500	12/03	0.500	12/04	Cont.	Cont.	
Product Development	WR	NSWC, Various	11.875	0.540	Various	1.152	Various	1.478	Various	Cont.	Cont.	
Product Development	MIPR	Kirtland AFB, NM	27.406	5.827	02/03	3.873	12/03	3.942	12/04	Cont.	Cont.	
Product Development	MIPR	JWCF, Ft. Monroe, VA	1.169	0.400	02/03	0.645	02/04	0.645	02/05	Cont.	Cont.	
Product Development	MIPR	Brooks AFB, TX	5.223	0.800	02/03	5.055	02/04	5.325	02/05	Cont.	Cont.	
Product Development	WR/RCP	MCSC, Quantico,VA	15.044	3.935	11/02	5.658	11/03	4.207	11/04	Cont.	Cont.	
Product Development	MIPR	NSMA,Arlington, VA	3.659	2.160	01/03	2.958	01/04	3.225	01/05	Cont.	Cont.	
Product Development	RCP	MCLB, Albany,GA	1.054	0.300	01/03	1.300	01/04	0.300	01/05	Cont.	Cont.	
Product Development	MIPR	Various (M&S)	1.343	1.080	Various	1.613	Various	1.613	Various	Cont.	Cont.	
Product Development	MIPR	Various (TIP)	4.085	0.540	Various	0.540	Various	0.540	Various	Cont.	Cont.	
Product Development	MIPR	Various (Services)	8.492	2.231	Various	8.909	Various	10.452	Various	Cont.	Cont.	
Subtotal Product Dev			135.031	23.018		40.734		40.037		Cont.	Cont.	
Remarks:												

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Support Cost	WR	MCSC, Quantico, VA	3.109	0.430	11/02	0.430	11/03	0.430	11/04	Cont.	Cont.	
Support Cost	WR	NSWC, Dahlgren, VA	1.853	0.420	10/02	0.420	10/03	0.420	10/04	Cont.	Cont.	
Support Cost	RCP	CTQMSC, Quantico, VA	5.569	0.440	12/02	0.470	12/03	0.570	12/04	Cont.	Cont.	
Support Cost	Various	Various	4.294	0.489	Various	1.875	Various	1.864	Various	Cont.	Cont.	
Subtotal Support			14.825	1.779		3.195		3.284		Cont.	Cont.	
Remarks:												

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost				24.797		43.929		43.321		Cont.	Cont.	

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**						R-1 ITEM NOMENCLATURE 0603857N - Joint Combat Identification Evaluation Team (JCIET)					
COST ($ in Millions)	Prior Years Cost	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009		Cost to Complete	Total Program
Total PE Cost		**13.715**	**14.886**	**13.626**	**15.739**	**16.820**	**17.159**	**17.506**		**Continuing**	**Continuing**
2691 - Joint Combat Identification Evaluation Team		**13.715**	**14.886**	**13.626**	**15.739**	**16.820**	**17.159**	**17.506**		**Continuing**	**Continuing**
											0.000
											0.000
											0.000
											0.000
											0.000
Quantity of RDT&E Articles											**0**

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: JCIET conducts assessments and evaluations of combat identification capabilities in order to reduce the risk of fratricide and other friendly fire incidents. These JCIET events support the U.S. JFCOM mission of joint concept development and experimentation as directed in the Secretary of Defense's (SECDEF's) Defense Planning Guidance. JCIET event's are also an integral part of fulfilling JFCOM's responsibility outlined in the SECDEF's Transformation Planning Guidance (TPC) to measure transformation progress through experimentation and evaluation of findings. Capabilities assessments and evaluations of combat identification during these field evaluations are conducted in the following combat mission areas: surface-to-surface, air-to-surface, surface-to-air, and air-to-air. These mission areas may be evaluated at a single exercise or at several different venues during the year. Venue selection and evaluation of a specific mission area is dependant on force availability within a particular exercise. Evaluation of each specific mission area requires full instrumentation of all participants influencing execution of missions within that mission area. All participants both Blue Forces and Opposing Forces (OPFOR) including aircraft, ships and land based assets to included individual soldiers and Marines are fully instrumented. Instrumentation provides time, space, position information and shot pairing for real-time data collection and subsequent detailed analysis. This detailed analysis is required to support findings and recommendations that in turn provide solutions to Combatant Commander's identified combat identification deficiencies. Contractor support is required for instrumentation installation and operation as well as follow-on analysis of the data. A realistic OPFFOR is required within each mission area to generate valid combat identification scenarios. This OPFOR consisting of ground, air and naval forces will be real Former Soviet Union (FSU) equipment whenever practical and will be leased and transported from their home base to the various exercise venues.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under DEMONSTRATION AND VALIDATION because it includes efforts to evaluate integrated technologies in a realistic operational environment to assess the performance potential of current Tactics, Techniques, and Procedures (TTP), weapons systems, and helps expedite technologies that meet joint warfighters' needs.

R-1 SHOPPING LIST - Item No. 76

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603857N - Joint Combat Identification Evaluation Team	2691 - Joint Combat Identification Evaluation Team (JCIET)

(U) B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05	FY06
Field Evaluations	3.866	4.380	2.569	
RDT&E Articles Quantity				

JCIET conducts assessments and evaluations of combat identification capabilities in order to reduce the risk of fratricide and other friendly fire incidents. Capabilities assessments and evaluations of combat identification during these field evaluations are conducted in accordance with and in support of the Defense Planning Guidance and Transformation Planning Guidance. Evaluations are conducted in the following combat mission areas: surface-to-surface, air-to-surface, surface-to-air, and air-to-air. These mission areas may be evaluated at a single exercise or at several different venues during the year. Venue selection and evaluation of a specific mission area is dependant on force availability within a particular exercise. Evaluation of each specific mission area requires full instrumentation of all participants influencing execution of missions within that mission area. All participants both Blue Forces and Opposing Forces (OPFOR) including aircraft, ships and land based assets to included individual soldiers and Marines are fully instrumented. Instrumentation provides time, space, position information and shot pairing for real-time data collection and subsequent detailed analysis. This detailed analysis is required to support findings and recommendations that in turn provide solutions to Combatant Commander's identified combat identification deficiencies. Contractor support is required for instrumentation installation and operation as well as follow-on analysis of the data. A realistic OPFFOR is required within each mission area as per direction outlined in Director, Force Transformation directive to generate valid combat identification scenarios. This OPFOR consisting of ground, air and naval forces will be real Former Soviet Union (FSU) equipment whenever practical and will be leased and transported from their home base to the various exercise venues.

FY 2003 Accomplishments: JCIET conducted a Joint Combat Identification Exercise (JCIDEX) in August of 2003 to continue our efforts in identifying combat identification and interoperability shortfalls and developing recommendations for their resolution. These recommendations were formulated into Transformation Change Proposals (TCPs) and forwarded to JFCOM for action. In addition, JCIET participated in the planning and execution of the Coalition Combat Identification Advanced Combat Technology Demonstration (CCID ACTD) field test and is conducting analysis of data collected during that event.

FY 2004 Planned: The JCIET Evaluation will be conducted in conjunction with USJFCOM sponsored enhanced category II training exercise Combined Joint Task Forces Exercise (CJTFEX) 04-2. CJTFEX 04-2 will be many times larger than any previous JCIET events and will be conducted at various geographically separated areas to include the Joint Training, Analysis, and Simulation Center (JTASC) in Suffolk VA, Camp Lejune NC, Shaw Air Force Base SC, and the Virginia Capes. The Evaluation will provide a realistic, joint task force combat scenario in a littoral battlespace. JCIET's evaluation will require full instrumentation of ground maneuver mounted and dismounted elements, airborne platforms, ships at sea and an opposing force (OPFOR) air and ground force. Instrumentation provides time, space, position information and shot pairing for real time casualty assessment and kill removal and for post-mission and post-evaluation analysis. Data collected from the instrumentation will point to solutions to combat ID deficiencies. In accordance with OSD Director of Force Transformation policy guidance a realistic OPFOR will be employed in support of the exercise.

FY 2005 Planned: JCIET will conduct combat identification and interoperability evaluations in conjunction with JFCOM enhanced category II training exercises and Joint National Training Capability (JNTC) events in the areas of surface-to-surface, air-to-surface, surface-to-air, and air-to-air. JCIET is tasked to support Roving Sands 2005 at Ft Bliss and the White Sands Missile Range and a CCID ACTD experiment to be conducted in Europe. JCIET is also reviewing feasibility of supporting additional JNTC events in 2005 as tasked by JFCOM. JCIET operation will continue to require full instrumentation of all blue force and opposing force participants. All platforms including aircraft, ships at sea and land based assets will be fully instrumented.

	FY 03	FY 04	FY 05	
JCIET Support	1.200	1.270	1.343	
RDT&E Articles Quantity				

JCIET is a tenant at Eglin AFB and requires base support to include: utilities, cleaning, communications, printing, shipping and vehicles. JCIET maintains and upgrades analytical capabilities with software and hardware improvements. The following major documents are published in preparation for and as a result of Field Evaluations: Evaluation Plan, Spin-Up Plan, BLUFOR and OPFOR Playbooks, National Technical Means Assessment, Redeployment Plan, Quick Look Report, and the Final Report. Briefings on findings and recommendations are prepared and made available for presentation to the Joint Staff, the Services and the Combatant Commanders. JCIET contracts for Technical and Acquisition Management Support through a Host Base contract vehicle.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603857N - Joint Combat Identification Evaluation Team	2691 - Joint Combat Identification Evaluation Team (JCIET)

(U) B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05	
Annual Support Contracts	8.349	8.836	9.289	
RDT&E Articles Quantity				

JCIET technical and support manpower for planning, execution, analysis and reporting for combat identification capabilities assessment, findings and recommendations is provided through various Advisory and Assistance Support contracts. JCIET events are developed to mirror real world joint combat operations. JCIET analyzes participant command and control systems, tactical displays, voice and data link communications, identification systems and engagement decisions to determine causes of fratricide and assist in developing findings and recommended solutions. Overall combat effectiveness to include target engagements, lost shot opportunities and missed targets are also evaluated and analyzed. A white force (evaluation control) network is designed and constructed for real-time mission monitoring of evaluation execution. A classified network is also designed and constructed to support participants at different geographical locations in the conduct and debrief of the daily missions at the SECRET level to allow participants the opportunity to discover, learn, and adjust Tactice, Techniques and Procedures (TTP) and systems performance for the subsequent mission.

	FY 03	FY 04	FY 05	
Travel and Conferences	0.300	0.400	0.425	
RDT&E Articles Quantity				

JCIET hosts or attends numerous planning conferences to include Airspace, OPFOR, Initial Planning, Mid-Planning and Final Planning. Warfighter participants are an integral part of the planning process including scenario development and preparation for interoperability between the services. Site visits required to prepare for events will be conducted as necessary. The JCIET staff also provides technical and operational support to forums dealing with combat ID and friendly fire issues.

R-1 SHOPPING LIST - Item No. 76

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603857N - Joint Combat Identification Evaluation Team	2691 - Joint Combat Identification Evaluation Team (JCIET)

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
FY04 President's Budget	14.084	16.765	15.218
FY05 President's Budget	13.715	14.886	13.626
Total Adjustments	-0.369	-1.879	-1.592
Summary of Adjustments			
FY03 SBIR Assessment	-0.369		
Sec. 8094: Management Improvements		-0.040	
Sec. 8029: FFRDC Reduction		-0.011	
Sec 8126: Efficiencies/Rev Con Asumptions		-0.128	
Congressional adjustment - Insufficient Justification		-1.700	
Funding repriorization			-1.585
Non purchase inflation			-0.007
Subtotal	-0.369	-1.879	-1.592

(U) Schedule:

Not Applicable

(U) Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603857N - Joint Combat Identification Evaluation Team	2691 - Joint Combat Identification Evaluation Team (JCIET)

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Complete	To Cost	Total
Not Applicable										

(U) E. ACQUISITION STRATEGY: *

FY 2003-05. Five-year sole-source (one-year basic with four one-year options) contracts were awarded to SAIC and BAE SYSTEMS on 1 April 2002 (MEVATEC was bought by BAE in April 03, resulting in name change only). The first year option was award on 1 April 2003 for both contracts. A two-year sole-source contract was awarded, on 16 May 03, to Applied Data Trends, Inc. (ADTi), to provide computer-generated graphic display (Tactical Office software) support. A contract was awarded to Airborne Tactical Advantage Company (ATAC), on 12 May 03, to provide four foreign fighter-type aircraft to support JCIET August 2003 event at Gulfport, MS. JCIET will continue to utilize competitive and sole-source contract procedures, to include looking at Government agencies, to determine the best vendor to meet JCIET requirements, at the best value.

*** Not required for Budget Activities 1,2,3, and 6**

CLASSIFICATION:

Exhibit R-3, Project Cost Analysis								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603857N - Joint Combat Identification Evaluation Team			PROJECT NUMBER AND NAME 2691 - Joint Combat Identification Evaluation Team (JCIET)							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Aircraft Integration											0.000	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering											0.000	
Training Development											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Development Support											0.000	
Software Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
Studies & Analyses											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

CLASSIFICATION:

Exhibit R-3, Project Cost Analysis								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603857N - Joint Combat Identification Evaluation Team			PROJECT NUMBER AND NAME 2691 - Joint Combat Identification Evaluation Team (JCIET)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation	SS/T&M	SAIC - Eglin AFB	13.676	5.391	04/03	5.483	04/04	5.589	04/04	Continuing	Continuing	Continuing
Developmental Test & Evaluation	MIPR	Various	2.857	1.000	Various	1.000	Various	1.000	Various	Continuing	Continuing	Continuing
Operational Test & Evaluation	SS/T&M	BAE - Eglin AFB	6.328	2.616	04/03	3.000	04/04	3.338	04/04	Continuing	Continuing	Continuing
Evaluation Other Costs	MIPR	Various	10.806	2.866	Various	3.380	Various	1.569	Various	Continuing	Continuing	Continuing
Travel and Conference	MIPR	JCIET/Various	2.135	0.300	Various	0.400	Various	0.425	Various	Continuing	Continuing	Continuing
Operation Costs/Research	MIPR	JCIET/Various	3.744	1.200	Various	1.270	Various	1.343	Various	Continuing	Continuing	Continuing
Operational Test & Evaluation	CPAF	TAMS II - Eglin AFB		0.342	04/03	0.353	04/04	0.362	04/04	Continuing	Continuing	Continuing
Subtotal T&E			39.546	13.715		14.886		13.626		Continuing	Continuing	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel											0.000	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			39.546	13.715		14.886		13.626		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 76

CLASSIFICATION:

EXHIBIT R4, Schedule Profile			DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /**	PROGRAM ELEMENT NUMBER AND NAME 0603857N - Joint Combat Identification Evaluation Team	PROJECT NUMBER AND NAME 2691 - Joint Combat Identification Evaluation Team (JCIET)	

Fiscal Year	2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
JCIET Events			★				☆			☆		☆						TBD				TBD				TBD		
Planning	■	■			▭	▭	▭	▭	▭	▭	▭	▭																
Publications Milestones		▲▲		△△	△		△	△△	△	△△	△	△	△															

* Note required for Budget Acitivities 1, 2, 3, and 6.

R-1 Shopping List - Item No. 76

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E BA-4**				PROJECT NUMBER AND NAME 2691 - Joint Combat Identification Evaluation Team (JCIET)			
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
JCIET Events	Evaluation	Evaluation	Evaluation	Evaluation	Evaluation	TBD	TBD
Planning (Initial, Mid, Final, OPFOR and Airspace	1Q-2Q,4Q	1Q-2Q	1Q-2Q				
Publications (Evaluation Plan, Spin-up Plan, OPFOR&BLUFOR Playbooks, Nat'l Technical Means Assessment, Redeployment Plan, Final Report)	1Q-4Q	1Q-4Q	1Q-4Q				
Spin-up, Evaluation, and Re-deployment	3Q-4Q	3Q	3Q				
Joint CID Exercise, Gulfport MS. (JCIDEX03)	Stand Alone						
Planning (Initial and Final) Quick Look and Final Report	3Q-4Q						
Spin-up, Evaluation, and Re-deployment	4Q						

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**					R-1 ITEM NOMENCLATURE 0603860N, Joint Precision Approach and Landing System			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost		**12.217**	**24.034**	**32.391**	**29.608**	**25.332**	**20.869**	**21.296**
W2329 JOINT PRECISION APPROACH AND LANDING SYSTEM (JPALS)		**12.217**	**24.034**	**32.391**	**29.608**	**25.332**	**20.869**	**21.296**

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This program element provides for the development, integration, and testing of JPALS on Navy, Marine Corps, and Coast Guard aircraft, ships, and ground stations. JPALS will allow equipped aircraft to land on any suitable surface world wide (land and sea), while minimizing impacts to aircraft recovery operations due to low ceiling or visibility. JPALS will provide a rapidly deployable, adverse weather, adverse terrain, day-night, survivable, and mobile precision approach and landing capability. Operating environments include fixed base, tactical, shipboard and special mission. Military and civil interoperability is required. The funds cited above will provide for completion of JPALS Technology Development in FY 2005, begin System Development and Demonstration in FY 2006 and support developmental and operational testing through FY 2009. Funding supports the JPALS Tier 1 acquisition which includes development of the Shipboard Relative GPS system, reference avionics, and the initial integration aboard CV and LH class ships.

(U) B. JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under TECHNOLOGY DEVELOPMENT (TD) through the end of FY 2005 because it develops and integrates hardware for experimental test related to specific ship or aircraft applications. Beginning in FY 2006 funding is associated primarily with SYSTEM DEVELOPMENT AND DEMONSTRATION (SDD).

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603860N, Joint Precision Approach and Landing System				PROJECT NUMBER AND NAME W2329, Joint Precision Approach and Landing System			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**12.217**	**24.034**	**32.391**	**29.608**	**25.332**	**20.869**	**21.296**
RDT&E Articles Qty					**4**	**3**	**2**	**3**

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element provides for the development, integration, and testing of JPALS on Navy, Marine Corps, and Coast Guard aircraft, ships, and ground stations. JPALS will allow equipped aircraft to land on any suitable surface world wide (land and sea), while minimizing impacts to aircraft recovery operations due to low ceiling or visibility. JPALS will provide a rapidly deployable, adverse weather, adverse terrain, day-night, survivable, and mobile precision approach and landing capability. Operating environments include fixed base, tactical, shipboard and special mission. Military and civil interoperability is required. The funds cited above will provide for completion of JPALS Technology Development in FY 2005, begin System Development and Demonstration in FY 2006 and support developmental and operational testing through FY 2009. Funding supports the JPALS Tier 1 acquisition which includes development of the Shipboard Relative GPS system, reference avionics, and the initial integration aboard CV and LH class ships.

(U) B. JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under TECHNOLOGY DEVELOPMENT through the end of FY 2005 because it develops and integrates hardware for experimental test related to specific ship or aircraft applications. Beginning in FY 2006 funding is associated primarily with SYSTEM DEVELOPMENT AND DEMONSTRATION.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603860N, Joint Precision Approach and Landing Syster	W2329, Joint Precision Approach and Landing System

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		12.217	24.034	32.391
RDT&E Articles Quantity		0	0	0

Continued SRGPS architecture development, risk reduction, and avionics technology insertion (under related RDT&EN PE 0603216N in FY 2002) in FY 2002-2003. Demonstrated SRGPS technology integrated into X-47A Pegasus Unmanned Combat Air Vehicle (UCAV) in FY 2003. Developed and updated SRGPS System Requirements Document, Data Link System Segment Specification, Data Link Application Data Specification, Aircraft System Segment Specification, Ship System Segment Specification, System Design Document, and SRGPS Concept of Operations defining preferred system concept (PSC) in FY 2003.
In FY 2004 - 2005, demonstrate technology readiness of PSC to include hardware and software development for critical technologies (including precision GPS/INS, anti-jam antenna electronics, Low Probability of Intercept data link hardware subsystems and critical software components to include relative navigation integrity, guidance and control, system monitoring and communications functions). PSC shall be demonstrated through real-time flight test in operationally relevant environment, to include F/A-18 in FY 2004-2005, UK Harrier in FY 2005, and MH-60 in FY 2005.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				

R-1 SHOPPING LIST - Item No. 77

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603860N, Joint Precision Approach and Landing System	W2329, Joint Precision Approach and Landing System

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
FY 2004-2005 President's Budget:	11.668	24.304	38.989
FY 2005 President's Budget	12.217	24.034	32.391
Total Adjustments	0.549	-0.270	-6.598
Summary of Adjustments			
Congressional program reductions			
Congressional undistributed reductions		-0.270	
Congressional rescissions			
SBIR/STTR transfer	-0.255		
Economic assumptions			-0.077
Reprogrammings	0.804		
Reprioritization			-6.521
Other Navy/OSD adjustments			
Congressional increases			
Subtotal	0.549	-0.270	-6.598

Schedule: Due to funding constraints in FY 2002, the Navy program schedule has shifted by three quarters since the previous President's budget submission.

Technical:

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603860N, Joint Precision Approach and Landing System	W2329, Joint Precision Approach and Landing System

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
Not applicable.									

E. ACQUISITION STRATEGY:

TD Phase development is being conducted jointly by NAWCAD, Patuxent River, MD and ARINC Engineering Services, California, MD. This effort will provide the concept of operations, specifications and integration guides, which will furnish the foundation from which to launch the SDD phase development.

SDD Phase development will consist of SRGPS ship systems and airborne reference systems, end-to-end software algorithms, necessary ship installation hardware, test equipment, system simulation software, and other RDT&E products and tasks. Future Tier procurement of airborne systems will consist of modifications to OEM aircraft integrations and ECP of existing avionics. Navy JPALS will be developed with government owned or non-proprietary algorithms to an open system architecture in order to facilitate the compatible integration of many different aircraft and avionics architectures. Shore based JPALS units will be developed by the Air Force to meet the requirements of all the Services.

R-1 SHOPPING LIST - Item No. 77

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603860N, Joint Precision Approach and Landing System			PROJECT NUMBER AND NAME W2329, Joint Precision Approach and Landing System							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Technology Development Phase											0.000	
Primary Hdw - SRGPS	WR	NAWCAD, Pax River, MD	6.281	2.130	11/02	2.519	11/03	1.153	11/04	Continuing	Continuing	
Primary Hdw - SRGPS	SS/CR	EMA Lexington Park, MD				2.800	12/03				2.800	2.800
Primary Hdw - SRGPS	C/CR	ARINC, California, MD		2.376	08/03	9.617	11/03	13.139	12/04		25.132	25.132
Primary Hdw - SRGPS	SS/CR	TISI, Bloomington, IL				0.700	12/03				0.700	0.700
Primary Hdw - Avionics	WR	NAWCAD, Pax River, MD		0.087	12/02			0.513	11/04	Continuing	Continuing	
Primary Hdw - Avionics	SS/CR	Honeywell, Clearwater, FL	0.144	0.150	01/03	1.100	12/03	1.505	12/04		2.899	2.899
Primary Hdw - Common System	WR	NAWCAD, Pax River, MD		2.907	12/02			3.763	11/04	Continuing	Continuing	
Primary Hdw - Anti-jam	C/CR	TBD				3.688	11/03				3.688	3.688
Aircraft Integration	WR	NAWCAD, Pax River, MD		0.340	12/02			1.319	11/04	Continuing	Continuing	
Ship Integration	WR	NAWCAD, Pax River, MD	1.414	0.734	12/02	3.142	11/03	3.670	11/04	Continuing	Continuing	
Systems Engineering	WR	NAWCAD, Pax River, MD		2.104	12/02			2.710	11/04	Continuing	Continuing	
System Demonstration	WR	NAWCAD, Pax River, MD		0.374	12/02			3.410	11/04	Continuing	Continuing	
											0.000	
System Dev & Demonstration Phase											0.000	
Primary Hdw - Various	TBD	TBD								Continuing	Continuing	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			7.839	11.202		23.566		31.182		Continuing	Continuing	

Remarks:

R-1 SHOPPING LIST - Item No. 77

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603860N, Joint Precision Approach and Landing System				PROJECT NUMBER AND NAME W2329, Joint Precision Approach and Landing System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	WR	NAWCAD, Pax River, MD	0.200	0.281	11/02	0.075	11/03	0.543	11/04	Continuing	Continuing	
Cost Analysis/EVM *	WR	NAWCAD, Pax River, MD	0.100	0.570	11/02	0.182	11/03	0.450	11/04	Continuing	Continuing	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			0.300	0.851		0.257		0.993		Continuing	Continuing	

Remarks: * Previously shown as "Studies & Analyses".

R-1 SHOPPING LIST - Item No. 77

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603860N, Joint Precision Approach and Landing System			PROJECT NUMBER AND NAME W2329, Joint Precision Approach and Landing System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD, Pax River, MD								Continuing	Continuing	
Operational Test & Evaluation	WR	NAWCAD, Pax River, MD								Continuing	Continuing	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		Continuing	Continuing	
Remarks:												
Program Management Support	Various	NAWCAD & NSWC	0.060	0.144	11/02	0.161	11/03	0.141	11/04	Continuing	Continuing	
Travel	N/A	NAVAIR, Pax River, MD	0.010	0.020	11/02	0.050	11/03	0.075	11/04	Continuing	Continuing	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			0.070	0.164		0.211		0.216		Continuing	Continuing	
Remarks:												
Total Cost			8.209	12.217		24.034		32.391		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 77

CLASSIFICATION:

EXHIBIT R4, Schedule Profile — DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603860N, Joint Precision Approach and Landing System	W2329, Joint Precision Approach and Landing System

Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones													MS B △		NAVY	SDD △	REVIEW				PDR △											MS C △
SRGPS System Development	SRGPS TECHNOLOGY DEVELOPMENT																SRGPS SYSTEM DEVELOPMENT AND DEMONSTRATION															
Contract Award/Event				TD △													SDD △															
Test & Evaluation Milestones																									TRR △							
																							INTEGRATION			DT-I			DT-II			
Operational Test																														OA		
Production Milestones LRIP FY 10																																
Deliveries (Start in 2011)																																

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603860N, Joint Precision Approach and Landing System				PROJECT NUMBER AND NAME W2329, Joint Precision Approach and Landing System			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Milestone B (MS B)				1Q				
Technology Development	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q				
Technology Development Award (TD)	4Q							
System Development & Demonstration Award					1Q			
System Development & Demonstration					1-4Q	1-4Q	1-4Q	1-4Q
Preliminary Design Review (PDR)					4Q			
Integration						3Q-4Q	1Q	
Test Readiness Review (TRR)							1Q	
Developmental Testing (DT-I)							2-3Q	
Developmental Testing (DT-II)								1-2Q
Operational Assessment (OA)								2Q
Milestone C (MS C)								4Q

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: FEBRUARY 2004	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**					R-1 ITEM NOMENCLATURE **0603879N SINGLE INT AIR PICTURE (SIAP) SYS ENG**			
COST ($ in Millions)	Prior Years	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost		**67.034**	**14.411**	**20.252**	**36.958**	**50.844**	**26.004**	**0.447**
Project S3031/Single Int. Air Picture (SIAP)	**49,287**	**67.034**	**14.411**	**20.252**	**36.958**	**50.844**	**26.004**	**0.447**

PE transferred from SIAP System Engineering Task Force to the Navy starting in FY2004

A. (U) Mission Description and Budget Item Justification

A Single Integrated Air Picture (SIAP) is the product of fused, near-real-time and real-time data from multiple sensors to allow development of common, continuous, and unambiguous tracks of all airborne objects in the surveillance area. All airborne objects must be detected, tracked, and reported. Each object must have one and only one track identifier and associated characteristics to be incorporated into SIAP. Current systems do not provide this capability. The SIAP System Engineering (SE) Task Force was approved by the Joint Requirements Oversight Council (JROC) in March 2000, and chartered in Oct 2000 by the Under Secretary of Defense (A&T) to perform "the system engineering needed to fix problems in the existing Joint Data Network (JDN) and to guide development toward a future SIAP capability." This PE is funded by all the services and controlled by the SIAP Acquisition Executive. Starting in FY2004 joint SIAP funding will transition to a US Army PE and related documentation will be provided through the US Army.

This Joint engineering organization will develop tools/processes and perform system engineering that will identify cost effective fixes to US/coalition tactical data link systems. The resulting fixes will be addressed in incremental blocks designed to improve the SIAP. Each block will identify specific changes to be implemented in tactical systems to improve out integrated air and missile defense/theater air warfare capabilities. These blocks will identify the engineering specifications, supporting rationale (test results and analysis), and acquisition estimates expected to implement the changes. Once implemented by the Services, these improvements will reduce the risk of fratricide to US/coalition forces as well as allow our combatant commanders to exploit the full kinematic range of our weapons through better Joint Force integration.

R-1 SHOPPING LIST - Item No.78

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **FEBRUARY 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME **0603879N SINGLE INT. AIR PICTURE (SIAP) SYS ENG**				PROJECT NUMBER AND NAME Project S3031/Single Int. Air Picture (SIAP)			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**67.034**	**14.411**	**20.252**	**36.958**	**50.844**	**26.004**	**0.477**
RDT&E Articles Qty		**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Single Integrated Air Picture (SIAP) System Engineering (SE) Task Force (TF) is charged with implementing a disciplined systems engineering process to identify and recommend the most effective and efficient means to achieve a SIAP capability that satisfies warfighter needs. The product of the SIAP SE recommendations will be combat-ready, operationally certified equipment and computer programs that enable the warfighter to build and maintain a SIAP, as well as inputs to tactics, techniques, and procedures (TTP) necessary to operate the components of the integrated system.

• Block 0 addressed four joint warfighting shortfalls selected for their impact on the Joint Data Network (JDN), their applicability across the Services, and the engineering maturity reflected by interface change proposals already on-record. The Block 0 fixes addressed were: improved correlelation/decorrelation, formation tracking/correlation, identification taxonomy and symbology, and an identification (ID) conflict resolution matrix. The effect of these fixes will reduce operator confusion and lay the groundwork for subsequent JDN improvements.

• Block 1 is addressing a set of JDN deficiencies approved by United States Joint Forces Command to provide warfighter benefits which can be implemented in the near- to mid-term. The issues being addressed are: further reduction of dual tracks, improved combat ID capability, improved data sharing (network capacity), and improved air picture for theater ballistic missile defense performance.

Beginning in FY04 this project develops, designs, and tests Navy engineering changes for SIAP System Engineering Task Force Block upgrades in response to Joint Requirements Oversight Council (JROC) validated requirements. SIAP capability is being introduced through a series of Block improvements targeted at eliminating specific interoperability issues, providing C4I enhancements, and delivering an executable integrated architecture. Funding for planned systems upgrades (E-2C/CEC, AEGIS and Ship Self Defense System (SSDS).

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA 4	**0603879N SINGLE INT AIR PICTURE (SIAP) SYS ENG**	**Project S3031/Single Int. Air Picture (SIAP)**

B. Accomplishments/Planned Program (Cont.)

		FY 03	FY 04	FY 05
SIAP System Engineering Task Force		67.034	0.000	0.000

(U) FY2003 Accomplishments:

Continued developing Joint Data Network enhancements to improve the JTAMD FoS SIAP performance and continued to develop engineering concepts needed to support the Integrated Architecture. Specific products included a recommended list of Block 1 improvements which were presented to the JROC in the 1st Qtr of FY03, with the engineering specifications completed in 4th Qtr FY 03. Refined the set of metrics needed to define the completeness, continuity, and accuracy of target tracks; and a description of the systems used by the services and the capabilities and limitations of those systems in providing a Single Integrated Air Picture.

BLOCK 0: Monitor implementation of Block 0 fixes in Service systems. Conducted technical design reviews with 13 core affected weapon systems implementing Block 0 fixes.

BLOCK 1: Completed engineering of Block 1 SIAP improvements affecting 30-50 programs across DoD. Established technical configuration management of JROC approved solutions for Joint and NATO application.

BLOCK 2: Initiated definition of Block 2. Began the process of translating JROC validated requirements into equipment and computer programs with the Services and JFCOM. Coordinated design and solution development with the Services and Agencies. Developed program objectives and management plan in accordance with the SIAP system engineering process.

ARCHITECTURE: Continued development of the SIAP component of the JTAMD Integrated Architecture. Coordinated the matching of Block 1 solutions and Block 2 issues to the Joint requirements as defined in the CRDs and Integrated Architecture. Established maintenance functions to ensure that the Integrated Architecture functions as a Joint requirements engineering structure and decision making tool.

Systems Engineering Tools and Analysis: Developed analysis tools/techniques to evaluate the technical and warfighting benefits of the SIAP Block Improvements. Such analysis tools consist of modeling and simulation capabilities, hardware in the loop laboratories and data reduction of open-air live exercises. Analyzed and synchronized candidate solutions with respect to individual Services and weapon systems. Plot predicted and fielded Joint Tactical Data Link performance capabilities timelines.

Validation and Certification of SIAP Block 0/1 improvements: Identified and provided SIAP-specific fidelity improvements in national testing and certification facilities. These enhancements to the current land-based infrastructure are necessary to support accurate validation and certification of the implementation of SIAP Block improvements. SIAP Block Improvements will be tested and certified for operational use and the land based testing infrastructure will be used to validate achievement of SIAP's Measures of Effectiveness (MOEs) and Measures of Performance (MOPs).

Program Management: Continued to support SIAP TF infrastructure requirements such as rent, LAN (local area network), telephone, computers, VTC(video teleconferences) center, conference rooms, office equipment, facilities management / construction and contract office support.

Starting in FY2004 the Joint Siap Task Force will be funded in a US Army PE and the Navy SIAP Upgrade program is being realigned to this PE.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA 4	**0603879N SINGLE INT AIR PICTURE (SIAP) SYS ENG**	**Project S3031/Single Int. Air Picture (SIAP)**

B. Accomplishments/Planned Program (Cont.)

		FY 03	FY 04	FY 05
Navy Block Upgrade Implementation		0.000	14.411	20.252

(U) FY2004 PLAN:
Begins development of a SIAP reference implementation through the development of a “platform” independent behavior model and follow-on “platform” specific performance model in a digital computing environment. Navy Program Office engineering is required to assure common development of highly reusable software to accomplish the functionality required for each issue (e.g., data registration), and its integration with the functionality required for each system. FY 03 work is to design reference algorithms for priority core command and control systems: AEGIS, SSDS and E-2C/CEC.

(U) FY2005 PLAN:
Completes Block 1 design phase of the reference algorithms for the priority core command and control systems and initiates the code, debug and software testing phase in a simulation/stimulation environment. The Block 0 and Block 1 implementation funding for the Aegis, ACDS, SSDS and E2C programs have been consolidated into this PE stating this year.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	**0603879N SINGLE INT AIR PICTURE (SIAP) SYS ENG**	**Project S3031/Single Int. Air Picture (SIAP)**

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04 Pres Controls)	73.966	15.053	7.831
Current President's Budget: (FY05 Pres Controls)	67.034	14.411	20.252
Total Adjustments	-6.932	-0.642	12.421
Summary of Adjustments			
Management Reform/Reprogramming	-0.294	-0.168	-0.339
Congressional action	-0.524	-0.458	0.000
Programmatic Adjustment	0.000	0.000	12.846
BTR/SBIR	-4.918	0.000	0.000
Economic Assumptions	-1.196	-0.016	-0.086
Subtotal	-6.932	-0.642	12.421

Schedule: See Atached R4.

Technical: Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **DATE: FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	**0603879N SINGLE INT AIR PICTURE (SIAP) SYS ENG**	**Project S3031/Single Int. Air Picture (SIAP)**

D. OTHER PROGRAM FUNDING SUMMARY: Block 0/1

Line Item No. & Name

Related RDT&E: Computer programs developed under these programs are tested in their integrated configuration.

PE 0605853N S3039 (CHENG)
PE 0205604N X2126 (CDLMS)
PE 0603582N S0164(DEP)
PE 0604307N K1447 (AEGIS)
PE 0604755N K2178 (SSDS)
PE 0604518N K1604 (ACDS)
PE 0603658N K2039 (CEC)
PE 0204136N E1662 (F/A 18)
PE 0204152N E0463 (E2C)

F. MAJOR PERFORMERS:

Naval Surface Warfare Center, Dahlgren VA - Surface Combatant System Engineering and Computer Integration
Naval Air Warfare Center Aircraft Division, Patuxent River MD - Aircraft Platform Integration and System Engineering
Space and Warfare Systems Command, San Diego CA - System Communication

R-1 SHOPPING LIST - Item No. 78

Exhibit R-3 Cost Analysis (page 1) | DATE: FEBRUARY 2004

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NAME AND NUMBER
RDT&E, N/BA-4	**0603879N**	S3031 - SINGLE INTEGRATED AIR PICTURE SYS ENG TASK FORCE

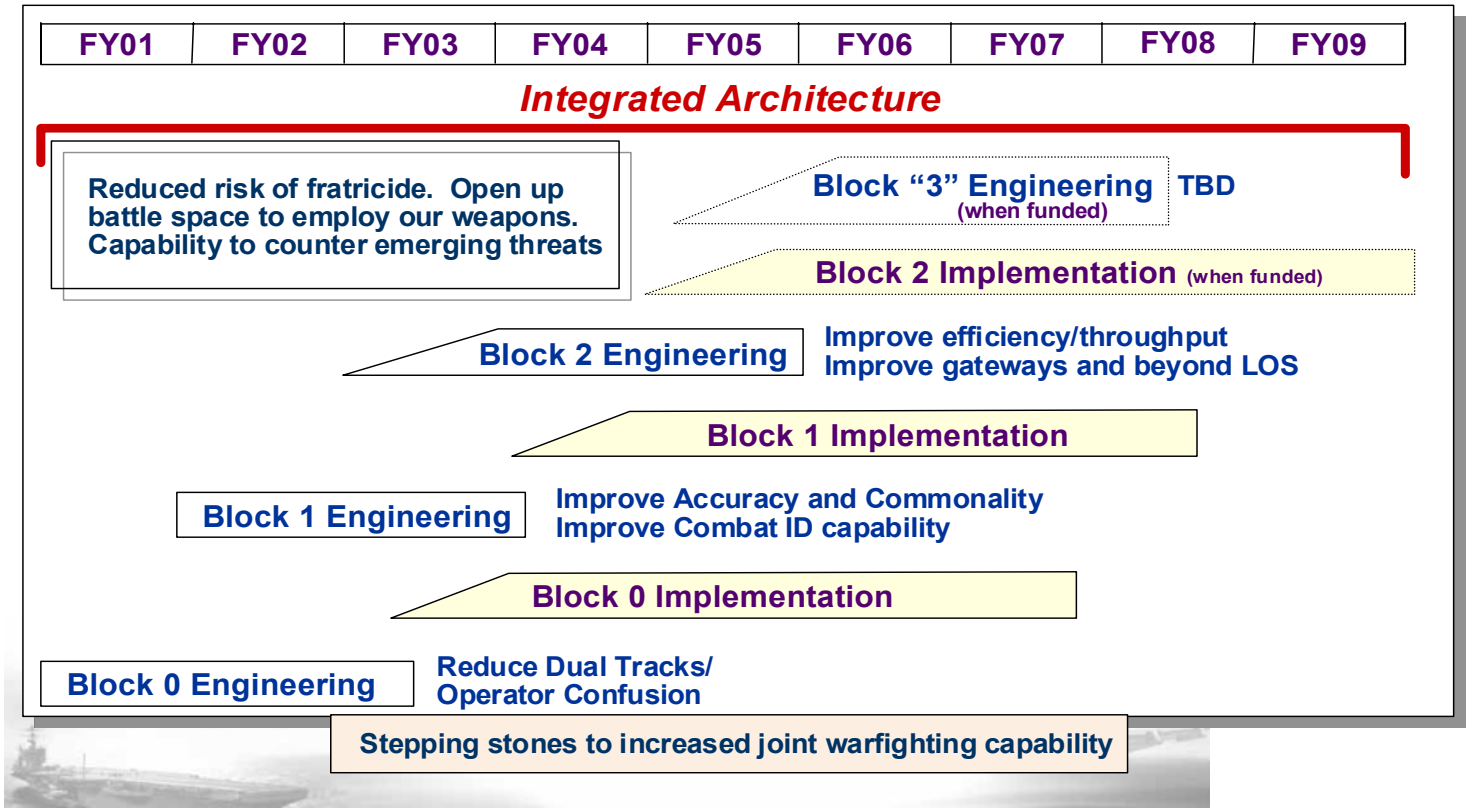
Cost Categories (Tailor to WBS, or System/Item Req't)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	**FY 03 Cost**	FY 03 Award Date	**FY 04 Cost**	FY 04 Award Date	**FY 05 Cost**	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Block 0	MIPR	Army PEO/AMD, Huntsville AL	0.838	0.041	VAR	0.000	VAR	0.000	VAR	0.000	0.000	
	MIPR	Navy PEO/TSC, Arlington VA	1.086	0.043		0.000		0.000		0.000	0.000	
	MIPR	Air Force ESC, Boston MA	1.283	0.046		0.000		0.000		0.000	0.000	
	MIPR	Marine MARCOR, Quantico VA	0.601	0.020		0.000		0.000		0.000	0.000	
	VAR	Contract Supt, Various	4.109	1.046		0.000		0.000		0.000	0.000	
Subtotal Block 0			7.916	1.196		0.000		0.000				
Block 1	MIPR	Army PEO/AMD, Huntsville AL	8.707	6.633	VAR	0.000	VAR	0.000	VAR	0.000	0.000	
	MIPR	Navy PEO/TSC, Arlington VA	9.180	6.905		0.000		0.000		0.000	0.000	
	MIPR	AF ESC/DI, Boston MA	9.866	7.248		0.000		0.000		0.000	0.000	
	MIPR	Marine MARCOR, Quantico VA	4.256	2.789		0.000		0.000		0.000	0.000	
	VAR	Contract Supt, Various	8.208	12.491		0.000		0.000		0.000	0.000	
	WX	NAVAIR, Pax River MD	0.000	0.000		0.000		0.000		0.000	0.000	
	WX	NSWC, Dahlgren VA	0.000	0.000		0.000		0.000		0.000	0.000	
	FAD	APL, Laurel MD	0.000	0.000		0.000		0.000		0.000	0.000	
	PD	SPAWAR, San Diego CA	0.000	0.000		0.000		0.000		0.000	0.000	
	VAR	Contract Supt, Various	0.000	0.000		0.000		0.000		0.000	0.000	
Subtotal Block 1			40.216	36.066		0.000		0.000		0.000	0.000	
Block 2	MIPR	Army PEO/AMD, Huntsville AL	0	2.060	VAR	0.000	VAR	0.000	VAR	0.000	0.000	
	MIPR	Navy PEO/TSC, Arlington VA	0	2.266		0.000		0.000		0.000	0.000	
	MIPR	AF ESC/DI, Boston MA	0	2.369		0.000		0.000		0.000	0.000	
	MIPR	Marine MARCOR, Quantico VA	0	1.030		0.000		0.000		0.000	0.000	
	VAR	Contract Supt, Various	0	2.271		0.000		0.000		0.000	0.000	
Subtotal Block 2				9.996		0.000		0.000				
Architecture	MIPR	Army PEO/AMD, Huntsville AL	0	1.536	VAR	0.000	VAR	0.000	VAR	0.000	0.000	
	MIPR	Navy PEO/TSC, Arlington VA	0	1.625		0.000		0.000		0.000	0.000	
	MIPR	AF ESC/DI, Boston MA	0	1.684		0.000		0.000		0.000	0.000	
	MIPR	Marine MARCOR, Quantico VA	0	0.786		0.000		0.000		0.000	0.000	
	VAR	Contract Supt, Various	0	2.364		0.000		0.000		0.000	0.000	
Subtotal Architecture				7.995		0.000		0.000				
System Engineering	MIPR	Army PEO/AMD, Huntsville AL	0	0.988	VAR	0.000	VAR	0.000	VAR	0.000	0.000	
Tools & Analysis	MIPR	Navy PEO/TSC, Arlington VA	0	0.876		0.000		0.000		0.000	0.000	
	MIPR	AF ESC/DI, Boston MA	0	1.206		0.000		0.000		0.000	0.000	
	MIPR	Marine MARCOR, Quantico VA	0	0.520		0.000		0.000		0.000	0.000	
	VAR	Contract Supt, Various	0	1.191		0.000		0.000		0.000	0.000	
Subtotal SE Tools & Analysis				4.781		0.000		0.000		0.000		
Validation and Certification	WR	Navy DEP/JDEP, NSWC-DD, Dahlgren VA	0	7.000		0.000		0.000				
BLOCK 1 TIER 2							VAR		VAR		CONT	
TIER 2	VAR	NAVSEA, Washington DC		0.000		1.250		1.230		CONT	CONT	
TIER 2	PD	PEO IWS, Washington, DC		0.000		4.476		6.000		CONT	CONT	
TIER 2	WX	NAVAIR, Pax River, MD		0.000		4.757		10.722		CONT	CONT	
TIER 2	PD	SPAWAR, San Diego, CA		0.000		3.428		1.800		CONT	CONT	
TIER 2	PD	CHENG, Washington, DC		0.000		0.500		0.500		CONT	CONT	
Subtotal BLOCK 1 TIER 2			0.000	0.000		14.411		20.252		CONT	CONT	
SUBTOTAL			48.132	67.034		14.411		20.252		CONT	CONT	

Exhibit R-3 Cost Analysis (page 1)

Remarks:

Exhibit R-3 Cost Analysis (page 2)										DATE: FEBRUARY 2004		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**			PROGRAM ELE **0603879N**	PROJECT NAME AND NUMBER S3031 - SINGLE INTEGRATED AIR PICTURE SYS ENG TASK FORCE								
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation												
Operational Test & Evaluation												
Tooling												
GFE												
Subtotal T&E			0.000	0.000		0.000		0.000			0.000	
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support			0.975									
Travel			0.180									
Labor (Research Personnel)												
Rent/Const/Utilities/Computers												
Subtotal Management			1.155	0.000		0.000		0.000		CONT	CONT	
Remarks:												
Total Cost			49.287	67.034		14.411		20.252		CONT	CONT	
Remarks:												

EXHIBIT R4, Schedule Profile		DATE: FEBRUARY 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603879N SINGLE INTEGRATED AIR PICTURE (SIAP) SYS ENG	PROJECT NUMBER AND NAME Project S3031/Single Int. Air Picture (SIAP)



CLASSIFICATION:

Exhibit R-4a, Schedule Detail							**FEBRUARY 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E BA-4**	PROGRAM ELEMENT 0603879N SINGLE INT. AIR PICTURE (SIAP) SYS ENG				PROJECT NUMBER AND NAME Project S3031/Single Int. Air Picture (SIAP)			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Sustaining Engineering/Infrastructure (Navy)	1Q							4Q
Block 0 Implementation		1Q					4Q	
Block 1 Implementation				4Q			4Q	

R-1 SHOPPING LIST - Item No. 78

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**					R-1 ITEM NOMENCLATURE 0604272N TADIRCM			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost			**11.866**					
E3040 TADIRCM (Congressional Add)			**11.866**					

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Tactical Aircraft Directed InfraRed CounterMeasure system (TADIRCM). The congressional language directed the TADIRCM project to perform an initial suitability assessment for tactical fighters through an Early Operational Assesment (EOA) and provide a report back to Congress within 60 days of completion. The completion is scheduled for late 2005. TADIRCM provides the warfighter with protection against surface and air to air missiles. This project looks at the surface to air (SAM) man portable air defense (MANPAD) threat.

R-1 SHOPPING LIST - Item No. 80

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0604272N TADIRCM				PROJECT NUMBER AND NAME 3040 TADIRCM			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost			**11.866**					
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Tactical Aircraft Directed InfraRed CounterMeasure system (TADIRCM). Congressional language directed the TADIRCM project to perform an initial suitability assessment for tactical fighters through an Early Operational Assesment (EOA) and provide a report back to Congress within 60 days of completion. The completion is scheduled for late 2005. TADIRCM provides the warfighter with protection against surface and air to air missiles. This project looks at the surface to air (SAM) man portable air defense (MANPAD) threat.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0604272N TADIRCM	3040 TADIRCM

B. Accomplishments/Planned Program

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			11.866	
RDT&E Articles Quantity			1 partially populated pod	

The objective of this TADIRCM Initial Suitability project is to take science and technology components and configure into an airborne pod and perform limited effectiveness testing. The output will be test articles consisting of a 2-color missile warning sensor or sensors to detect and declare the threat; an off the shelf laser and pointer/tracker which takes the declared threat from the missile warning and passes to a fine track sensor in the pointer/tracker, subsequently slewing and applying laser energy to counter the threat. All efforts will be contained within a new wing-mounted pod.

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				

R-1 SHOPPING LIST - Item No. 80

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0604272N TADIRCM	3040 TADIRCM

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:		0.000	
Current BES/President's Budget		11.866	
Total Adjustments		11.866	
Summary of Adjustments			
Congressional Undistributed Reductions		-0.134	
Congressional increases		12.000	
SBIR/STTR Transfer			
OSD			
Other Adjustments			
Economic Assumtions			
Reprogrammings			
Subtotal		11.866	

Schedule: Not Applicable

Technical: Not Applicable

R-1 SHOPPING LIST - Item No. 80

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0604272N TADIRCM	3040 TADIRCM

D. OTHER PROGRAM FUNDING SUMMARY: Not Applicable.

E. ACQUISITION STRATEGY:

The management and acquisition strategy for this TADIRCM Initial Suitability assessment entails a competetive phased approach to reduce risk to cost and schedule through viable competition. The project will initially award 2 contracts for pointer/tracker/laser development , 1 contract for pod development, and 1 contract for missile warning sensors. The Naval Research Lab will be the technical lead in integration of these pointer/trackers, lasers, and sensors within the pod utilizing government furnished processors and ancillary data recording equipment. Based on affordability, there will be a downselect to one pointer/tracker/laser contract at the fabrication point to ensure the project does not exceed budget and can be executed as described here.

F. MAJOR PERFORMERS: Not Applicable.

*** Not required for Budget Activities 1,2,3, and 6**

R-1 SHOPPING LIST - Item No. 80

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0604272N TADIRCM				PROJECT NUMBER AND NAME 3040 TADIRCM						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPFF	Northrop Grumman, IL				3.000	02/04				3.000	3.000
Primary Hardware Development	C/CPFF	BAE, NH				3.000	02/04				3.000	3.000
Primary Hardware Development	C/CPFF	Raytheon, IN				2.000	02/04				2.000	2.000
Primary Hardware Development	C/CPFF	DRS, TX				0.750	06/04				0.750	0.750
Ancillary Hardware Development												
Aircraft Integration												
Ship Integration												
Ship Suitability												
Systems Engineering												
Training Development												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			0.000	0.000		8.750		0.000		0.000	8.750	

Remarks:
The project will initally award 2 contracts for pointer/tracker/laser development, 1 contract for pod development, and 1 contract for missile warning sensors.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0604272N TADIRCM			PROJECT NUMBER AND NAME 3040 TADIRCM							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support												
Software Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
Studies & Analyses	C/CPFF	MacCauley Brown, OH				0.400	03/04				0.400	0.400
Studies & Analyses	MIPR	John Hopkins, MD				0.400	03/04				0.400	
GFE												
Award Fees												
Subtotal Support			0.000	0.000		0.800		0.000		0.000	0.800	

Remarks:

R-1 SHOPPING LIST - Item No. 80

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0604272N TADIRCM				PROJECT NUMBER AND NAME 3040 TADIRCM						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support	C/CPFF	TEKLA, VA				0.300	03/04				0.300	0.300
Government Engineering Support	WX	NRL, Washington DC				1.500	03/04				1.500	
Program Management Support	WX	NAWCAD, PAX RIVER, MD				0.500	03/04				0.500	
Travel	WX	NAWCAD, PAX RIVER, MD				0.016	02/04				0.016	
Transportation												
SBIR Assessment												
Subtotal Management			0.000	0.000		2.316		0.000		0.000	2.316	
Remarks:												
Total Cost			0.000	0.000		11.866		0.000		0.000	11.866	
Remarks:												

R-1 SHOPPING LIST - Item No. 80

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																												DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA4**									PROGRAM ELEMENT NUMBER AND NAME 0604272N TADIRCM												PROJECT NUMBER AND NAME 3040 TADIRCM											
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
EOA Study Contract Awards (BAE and/or NG)																																
EOA Contract																																
Delivery																																
Pod Contract																																
MWS Contract																																
MWS Delivery																																
Software Development and Test																																
Flight Test																																
EOA Report																																

R-1 SHOPPING LIST - Item No. 80

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&BA-4**	PROGRAM ELEMENT 0604272N TADIRCM				PROJECT NUMBER AND NAME 3040 TADIRCM			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
EOA Study Contract Awards (BAE & NGC)			2Q-3Q					
EOA Contract			3Q					
Delivery				2Q-4Q				
Pod Contract			2Q-4Q					
MWS Contract			1Q-4Q					
Delivery				1Q				
Software Development and Test			2Q-4Q					
Flight Test				3Q-4Q	1Q			
EOA Report					1Q			

R-1 SHOPPING LIST - Item No. 80

FY 2005 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: Feb 2004
Exhibit R-2

BA: 04 PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: Space and Electronic Warfare (SEW) Architecture/Eng Support

COST: (Dollars in Thousands)

Project Number & Title	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
R2357 MARITIME BATTLE CENTER	18,710	19,465	14,539	14,968	18,001	18,358	18,722
R9364 ADVANCED WIRELESS NETWORK	0	3,461	0	0	0	0	0
X0798 OTH TARGETING	2,011	1,567	1,713	1,620	1,985	2,025	2,065
X2144 Propulsion Tech Demonstration	11,258	9,910	9,691	11,437	12,452	12,702	12,960
X9054 IT-21 BLOCK 1 C4ISR COMPUTING EQUIPMENT UPGRADE	1,619	0	0	0	0	0	0
X9365 COALITION WARFARE PROGRAM (CWP) OPERATIONAL ASSESS	0	2,769	0	0	0	0	0
Totals	33,598	37,172	25,943	28,025	32,438	33,085	33,747

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This Program Element (PE) contains three projects: Maritime Battle Center (MBC), Over-the-Horizon Targeting (OTH-T), and Space and Electronic Warfare (SEW) Engineering. The projects are systems engineering non-acquisition programs with the objectives of developing, testing, and validating Naval Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) architectures to support Naval missions in Joint and Coalition Theater. The mission of this PE is carried out by multiple tasks that are used to ensure Naval C4ISR Command and Control Warfare (C2W) components of SEW are effectively integrated into the C4ISR architectures. Additionally the program ensures that (1) the composite operational capabilities of SEW systems (not the individual component systems) conform to the Naval C4ISR architecture as related to the objectives of National Defense Strategy and evolving joint visions and direction, such as Joint Vision 2010 (JV 2010), "Copernicus…C4ISR for the 21st Century," "Forward…From the Sea," C4I For the Warrior, and the Defense Science Board Summer Study Task Force on Information Architecture for the Battlefield and are guided by Commander In Chief (CINC) requirements; (2) that SEW systems and systems integration effort involves leading-edge technology transfer of information processing technologies primarily through integration of government and commercial off-the-shelf (GOTS/COTS)

products to enhance the Navy's operational capability, interoperability, flexible reconfiguration, as well as reduce costs; and (3) that SEW systems integration efforts support Expeditionary C5 Grid (EC5G) to provide the foundation for FORCEnet and the Navy's contribution to the Global Information Grid. The MBC is a distributed organization focusing on experimentation concept development and analysis tasks are coordinated by the Navy Warfare Development Command. The MBC will also act as the Navy representative to the Joint Battle Center and the Battle Labs of other services.

PROGRAM CHANGE SUMMARY:

	FY 2003	FY 2004	FY 2005
FY 2004-2005 President's Budget Submission	32,565	31,369	26,366
Cong. Rescissions/Adjustments/Undist.Reductions	-337	-442	0
Congressional Actions	0	6,300	0
Execution Adjustments	1,370	0	0
Inflation Savings	0	0	-85
Rate Adjustments	0	-28	-22
SPAWAR Service Cost Center Adjustments	0	-27	-30
Technical Adjustments	0	0	-286
FY 2005 President's Budget Submission	33,598	37,172	25,943

PROGRAM CHANGE SUMMARY EXPLANATION:
Technical: Not applicable

Schedule: Not applicable

FY 2005 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: Feb 2004
Exhibit R-2a

BA: 04 PROGRAM ELEMENT: 0604707N PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support
PROJECT NUMBER: R2357 PROJECT TITLE: MARITIME BATTLE CENTER

COST: (Dollars in Thousands)

Project Number & Title	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
R2357 MARITIME BATTLE CENTER	18,710	19,465	14,539	14,968	18,001	18,358	18,722

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The mission of the MBC is to execute the Naval Warfare Innovation Process. The process takes concepts developed by the Strategic Studies Group and approved by the Chief of Naval Operations into Fleet Battle Experiments; conducts preliminary sub-scale experiments and technological demonstrations focused on the advanced engineering and operational system development of systems related to all conflict levels of Littoral Battlespace. The MBC environment is a network centric environment that links the existing "core" Naval facilities to the Marine Corps Warfighting Lab (MCWL), the Joint Battle Center/Federated Battle Lab, and technologists in industry and academia. The MBC is essential to the evolution of combat capabilities since it is the engine for validating the new network centric warfare techniques in conjunction with the Sea Based Battle Laboratories (SBBL), Science & Technology (S&T) initiatives and other initiatives that originate with the operating forces. The MBC supports the early and sustained involvement of Joint Warfighters in refining the technology to meet the tactics, techniques, and procedures needed for 2010-2020 Littoral Battlespace. The MBC will have multiple roles since it is a crosscutting organization involved in several facets of concept, platform, weapons, weapon systems and Information Technologies (IT), Information System (IS) and Information Management (IM) systems development and integration. These include collaborative planning, operational experimentation planning and execution, technology transition/acquisition support, systems engineering and integration, technology assimilation and operational demonstrations.

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2003	FY 2004	FY 2005
FBE Analysis and Core Support	18,710	19,465	14,539

FY 2003 Accomplishments:

• Fleet Battle Experiment (FBE) Kilo objectives were to explore new and innovative warfare doctrine, organization, and materiel; assess their feasibility; and evaluate their utility. FBE-K combined experimental Tactics, Techniques, and Procedures (TTP) with new technologies, and also explored innovative ways to use existing technologies to enhance the warfighter's capabilities. The ultimate objective was to provide evidential data that would lead to analytical insights to support specific Doctrine, Organization, Training, Material, Leadership and Education, Personnel, and Facilities (DOTMLEPF) change package recommendations. The selection of warfighting initiatives was driven by the guidance of the Naval Transformation Roadmap, the tenets of Sea Power 21, the warfighting priorities of Commander, Fleet Forces Command (CFFC), Commander US Pacific Fleet (PACOM), Commander Seventh Fleet (C7F), Navy Warfare Development Command (NWDC) concept development, and previous NWDC experimentation. Thus the initiatives were developed on the firm foundation of Sea Trial guidance, the warfighting priorities of senior operational commanders, a conceptual view of the battlespace of the future, and as part of an experimentation campaign continuum. FBE-K focused on four initiative areas to enhance the warfighter's capabilities:

(1) Information Operations (IO),
(2) Area Air Defense Commander System (AADCS),
(3) Anti-Submarine Warfare (ASW), and
(4) Fires.

Initiative areas (1)-(3) are part of Sea Power 21's Sea Shield operational concept to assure access throughout the battlespace for the Joint Force and to project a defense around friends, allies, coalition and the Joint Forces. Initiative (4) is part of the Sea Strike operational concept to project decisive and persistent offensive power anywhere required and to launch immediate, agile, and sustainable operations from the sea.

• The Information Operations (IO) initiative explored both a strategy and a framework for implementing a robust, layered defense to protect the depth and breadth of information and its infrastructure required to support the afloat Joint Task Force (JTF) Commander. This Computer Network Defense-in-Depth (CNDiD) strategy included the employment of an advanced Network Intrusion Detection System (NIDS) and visualization tools. A denial of service detection and mitigation tool complemented this defensive framework.

• In Theater Air and Missile Defense (TAMD), an initiative on the AADCS involved observing and assessing the applicability, usefulness, and effectiveness of the draft C7F AADCS Tactical Memorandum (TACMEMO) in supporting the Joint Force Air Component Commander (JFACC). The AADCS TACMEMO contained a general description of this operational level planning and real time monitoring tool's systems architecture and functionality, a Command and Control (C2) process description, and the anticipated command relationships during the use of the AADCS by JFACC/Area Air Defense Commander (AADC) while embarked on USS BLUE RIDGE (LCC 19), the C7F Command Ship. The TAMD initiative also explored the use of Builder II, a prototype Radio Frequency (RF) propagation analysis system that incorporates actual meteorological data for sensor and RF transmitter range and susceptibility predictions.

• The ASW initiatives experimented with planning and C2 procedures, including interactions between the Theater ASW Commander (TASWC) and the local ASWC. New technologies supporting improving Situational Awareness (SA) included the Experimental Common Undersea Picture (XCUP) and integration of Low Frequency Active sonar (LFA) in coordinated ASW operations.

• The Fires initiatives addressed procedures that incorporate the Joint Fires Network (JFN) family of systems into the war fighting processes of a sea-based JTF commander. One initiative examined the refinement of C7F JFN Concept of Operations (CONOPS) as well as Time Sensitive Targeting (TST) Standard Operating Procedures (SOP). In addition, a coalition initiative was to establish and examine requirements for utilizing a distributed maritime sensor and fires network that integrated a coalition engagement node into the network.

• Distributed Command and Control Limited Objective Experiments. Continuum looks at Sea Trial's "Innovation to the warfighter… rapid prototyping, concept development, and coordinated experimentation".

FY 2004 Plans:

• Fleet Battle Experiment Lima.
• Sea Viking 04 Advanced Warfighting Experiment.
• Joint Force Maritime Component Commander Workshop.

- Joint Force Maritime Component Commander War Game.
- Distributed Collaborative Environment Limited Objective Series (3 events).
- Silent Hammer Limited Objective Experiment.
- Dominant Undersea Warfare Limited Objective Experiment.
- Littoral Combat Ship Mission Module Limited Objective Experiments.
- High Speed Vessel Limited Objective Experiments.
- Undersea Warfare Wargame.
- Predictive Analysis Workshop.

FY 2005 Plans:

- Support Fleet Battle Experiment Mike.
- Continue the Joint Forces Command (JFCOM) experimentation events.
- Continue the Limited Objective Experiments.
- Execute Sea Trial experiments, wargames and seminars.

C. OTHER PROGRAM FUNDING SUMMARY:

Not applicable.

D. ACQUISITION STRATEGY:

Not applicable.

FY 2005 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: Feb 2004

Exhibit R-3

BA: 04 PROGRAM ELEMENT: 0604707N PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support

PROJECT NUMBER: R2357 PROJECT TITLE: MARITIME BATTLE CENTER

Exhibit R-3 Cost Analysis (page 1)									Date: FEBRUARY 2004			
APPROPRIATION/BUDGET ACTIVITY RDT&E,N			PROGRAM ELEMENT 0604707N						PROJECT NAME AND NUMBER Maritime Battle Center R2357			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY-03 Cost	FY-03 Award Date	FY-04 Cost	FY-04 Award Date	FY-05 Cost	FY-05 Award Date	Cost To Comp.	Total Cost	Target Value of Contract
System Test and Evaluation	Various	Various	65773	15624	Various	15753	Various	11900		CONT	CONT	CONT
Subtotal T&E			65773	15624		15753		11900		CONT	CONT	CONT
Remarks												
Program Management	Various	Various	14820	3086	Various	3712	Various	2639		CONT	CONT	CONT
Subtotal Management			14820	3086		3712		2639		CONT	CONT	CONT
Remarks												
Total Cost			80593	18710		19465		14539		CONT	CONT	CONT

FY 2005 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: Feb 2004

Exhibit R-2a

BA: 04 PROGRAM ELEMENT: 0604707N PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support

PROJECT NUMBER: X0798 PROJECT TITLE: OTH TARGETING

Project Number & Title	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
X0798 OTH TARGETING	2,011	1,567	1,713	1,620	1,985	2,025	2,065

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFCATION: The Over-the-Horizon Targeting (OTH-T) program provides a virtual, global systems integration and test facility for Information Technology for the 21st Century (IT-21) C4ISR technology that supports the collection, transmission, correlation, and display of track data into a Common Operational Picture (COP) in support of warfighting requirements. This effort was originally undertaken to support targeting of over-the-horizon weapons such as the TOMAHAWK cruise missile. The common view of the battle space that was provided to the war fighter by OTH-T has been applied across the spectrum of warfare missions; however, the technology and doctrine on which it was based has changed radically in recent years. The result is that the first goal of the OTH-T program is to transition the OTH-T architectures and systems from older Military Standard (MIL-STD) technologies to COTS (Commercial Off the Shelf) and GOTS (Government Off the Shelf) based technologies that support Network Centric Warfare and the Navy's plan to support JV 2020 implementing IT-21 technology. The second goal of the OTH-T program is to support integration and interoperability of all C4I systems into warfighting capabilities. This support includes providing technical expertise afloat and ashore via a cadre of highly-trained Fleet Systems Engineers who ensure smooth integration of new capabilities to enhance OTH-T during major Fleet exercises and demonstrations which are used to validate and evaluate developed portions of configuration. The OTH-T program integration and testing in support of warfighting capabilities includes interoperability testing for both MIL-STD and IT-21 COTS equipment for submarines, surface, and land based components. Allied interoperability is important for future naval operations. Funding will allow for development of subnet relay protocols and automatic link establishment standards, which will provide for a significant improvement within and between battlegroups.

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2003	FY 2004	FY 2005
BF E-MAIL	228	0	0

• Integrated code combination techniques developed during previous fiscal year into internationally agreed High Frequency (HF) data profiles for significant improvement in guarantee of delivery of email attachments in poor propagation conditions associated with the HF medium. Exploited HF Full Duplex protocols and adaptive compression techniques to greatly improve data throughput. FY03 converted primary transmission protocol to Transmission Control Protocol/Integrated Protocol (TCP/IP).

	FY 2003	FY 2004	FY 2005
Subnet Relay	256	664	733

• Exploit and coordinate subnet relay protocols and multi frequency band channels to provide greater data throughput in the HF and UHF Line-of-Sight Radio Frequency (RF) mediums. Exploit HF Beyond-Line-of-Site and Extended-Line-of-Sight ground – and sky – waveforms to improve long range tactical communications. Adapt IP Quality of Service (QOS), Voice over IP (VoIP), and Internet Protocol Video Teleconference (IP VTC (H.323)) protocols to subnet relay communications.

	FY 2003	FY 2004	FY 2005
ALE Development	227	0	0

• Exploited Automatic Link Establishment (ALE) standard to support integration and interoperability of multi-level coalition forces to enhance OTH-T capabilities in a Network Centric Warfare environment. Adapted ALE toward future implementation as integral part of Joint Tactical Radio System (JTRS) for allied interoperability.

	FY 2003	FY 2004	FY 2005
Systems Integration & Interoperability Testing	424	424	453

• Conduct systems integration and interoperability (Navy and Joint) testing, using the facilities of the Land Based Test Network (LBTN). The Reconfigurable Land Based Test Sites (RLBTS) have been expanded to validate

plans and execute integration tests for IT-21 networks to Global Command and Control System-Maritime (GCCS-M) and for other C4ISR systems, participate in Distributed Engineering Plant (DEP) certification testing, by providing GCCS-M nodes and network infrastructure during the test and collecting track data. Provide the key C4ISR node to the DEP. A key component of the IT-21 virtual joint test network for RDT&E testing. Provides Common Operation Picture (COP) development in the joint environment. Provides resources for Advanced Tomahawk Weapons Control System (ATWCS), Tactical Tomahawk Weapons Control System (TTWCS) and GCCS-M integration.

	FY 2003	FY 2004	FY 2005
Interoperability Validation	528	144	156

• Worked with the Fleet staffs and Naval Doctrine Command to develop policy and doctrine for operations of NVI in support of Network Centric Warfare objectives. Served as technical expert in researching the Fleet's technical questions and providing information. Conducted systems integration and interoperability testing using the facilities of the LBTN. Provide test and validation of 100% of Net Ready – Key Performance Parameters (NR-KPPs) to ensure interoperability between sensors, weapon systems and information systems are met. Through Family of Systems (FoS) and System of Systems (SoS) testing along with coordinated testing effort with JITC and other test agencies and OTH-T resources to bring this testing together.

	FY 2003	FY 2004	FY 2005
Testing OTH-T Systems	348	335	371

• Conduct integration testing and certification, in accordance with OPNAVINST 9410.5, of OTH-T and combat systems with tactical data exchanged over COP Synchronization Tools (CST) networks and other networks. These CST networks will operate within battle groups and to ashore nodes while other networks will continue to use Battle Group Database Management (BGDBM). Integration testing to include testing of GCCS-M and Combat Decision Systems (CDS) two-way interfaces. Testing to also address issues of Time Critical Strike for example TTWCS, Fleet essential capabilities and emerging mission essential needs both for new, legacy, and technology refreshed systems.

C. OTHER PROGRAM FUNDING SUMMARY:

RELATED RDT&E:
SEW Architecture/Engineering Support program element is related to all Naval C4I related efforts.

D. ACQUISITION STRATEGY:

Not applicable.

FY 2005 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: Feb 2004

Exhibit R-3

BA: 04 PROGRAM ELEMENT: 0604707N PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support

PROJECT NUMBER: X0798 PROJECT TITLE: OTH TARGETING

Exhibit R-3 Cost Analysis (page 2)												Date: FEBRUARY 2004
APPROPRIATION/BUDGET ACTIVITY RDT&E,N			PROGRAM ELEMENT 0604707N									PROJECT NAME AND NUMBER OTH Targeting X0798
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY-03 Cost	FY-03 Award Date	FY-04 Cost	FY-04 Award Date	FY-05 Cost	FY-05 Award Date	Cost To Comp.	Total Cost	Target Value of Contract
System Test and Evaluation	Various	Various	3648								3648	
Interoperability Requirements	Various	Various	3266								3266	
T & E Tools Development	Various	Various	429								429	
Systems Int. & Interop. Testing (LBTN)	Various	Various	887	417	Various	424	Various	453	Various	CONT	CONT	
Interoperability Validation	Various	Various	1343	517	Various	144	Various	156	Various	CONT	CONT	
Joint Interoperability	Various	Various	1174								1174	
Testing OTH-T Systems	Various	Various	640	362	Various	335	Various	371	Various	CONT	CONT	
Subtotal T&E			11387	1296		903		980		0	14566	
Remarks												
Contractor Engineering Support											0	
Government Engineering Support	Various	Various	2063	715	Various	664	Various	733	Various	CONT	CONT	
Program Management Support	Various	Various	1468								1468	
Travel											0	
Transportation											0	
Subtotal Management			3531	715		664		733		0	5643	CONT
Remarks												
Total Cost			14918	2011		1567		1713		0	20209	CONT

FY 2005 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: Feb 2004
Exhibit R-2a

BA: 04 PROGRAM ELEMENT: 0604707N PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support
PROJECT NUMBER: X2144 PROJECT TITLE: PROPULSION TECH DEMONSTRATION

Project Number & Title	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
X2144 Propulsion Tech Demonstration	11,258	9,910	9,691	11,437	12,452	12,702	12,960

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFCATION: OPNAVINST 3050.23 directs the alignment and responsibility of Navy requirements generation and resource planning, and modifies the Navy's Planning Programming Budgeting System (PPBS) process to focus on capability-driven warfighting requirements (establishment of the Mission Capability Package (MCP) process). It further defines the policy to fuse validated/approved architectures and interoperability requirements with Joint requirements, milestones and program decisions. Sea Power 21 is the Chief of Naval Operation's (CNO) initiative to meet these Joint transformational objectives. FORCEnet (Fn) is one of the four pillars of Sea Power 21 and focuses on C4ISR systems transformation. The CNO N6/N7 has designated the Space and Naval Warfare Systems Command (SPAWARSYSCOM) as the FORCEnet Chief Engineer (CHENG) with the following responsibilities: (1) develop C4ISR systems requirements, architectures, standards, configurations, capability integrations and compliance/validations for FORCENet, (2) ensure that Naval solutions are derived from and/or interoperate with Joint, Coalition and other Federal C4ISR systems, and (3) maintain subject matter expertise on how C4ISR systems will fit within the greater Sea Power 21 pillars of Sea Shield, Sea Strike and Sea Basing. To execute the FORCEnet CHENG responsibilities, SPAWAR requires the following key efforts; C4ISR - Requirements Analysis and Assessments, C4ISR Architecture and Standards, and Target Design Generation. Execution of the above tasks is required to meet CNO's objectives for Sea Power 21. The results will be used by CNO N6/N7 and Commander, Fleet Forces Command (CFFC) to support the re-alignment and adjustments to Naval programs. In addition, these products are required to support Joint Forces Command (JFCOM) requirements.

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2003	FY 2004	FY 2005
JWID	2,731	1,732	1,968

• CJCSI 6260.01B directs all Services to provide funds to support Joint Warrior Interoperability Demonstrations (JWID). JWIDs integrate maturing system developments, military and commercial technologies that support enhanced operational capabilities in key Fleet, joint and coalition priority areas and Joint Mission Area (JMA) Assessment Thrust Areas with a combined force structure into the annual JWID. Beginning in FY 2003, JWID's advance technology introduction supports the goals and objectives of Joint Vision 2020, Fleet, joint and coalition priorities, and identifies relevant potential solutions for Allied C4I Interoperability and Coalition Operations.

	FY 2003	FY 2004	FY 2005
EC5G	4,712	3,866	4,194

• Demonstrated/validated EC5G networking and communication capabilities required to support all warfare missions (i.e. Theater Air and Missile Defense (TAMD), Time Critical Strike (TCS), Undersea Submarine Warfare (USW), etc.) and support operations. Optimized experimentation, Science and Technology (S&T), and acquisition to transform the tactical/operational network infrastructure for FORCEnet and Network-Centric Operations and provided the Navy's contribution to the Global Information Grid. Focus areas include Ashore Network Backbone Infrastructure, Wireless Line-of-Sight Networking, RF Connectivity and Throughput, Tactical Advanced Data Integration Links System (TADILS) Gateway, Composite Networking, Information Assurance, Automated Network Services, Aerial Communications Package, Allied/Coalition Interoperability. The FY03 demonstration/validation of Expeditionary C5 Grid (EC5G) networking and communication capabilities occurred via an operational Fleet Based experiment.

• EC5G will conduct Joint Rapid Architecture Experimentation (JRAE) via the associated Joint Limited Objective Experiments known as Joint RAPTORs. These joint efforts will build on prior year knowledge gained in C4ISR architecture issues but with specific focus on joint interoperability at the tactical level. In FY04, EC5G will conduct five Joint RAPTOR events with the Army and Air Force in coordination with JFCOM's JBMC2: Joint RAPTOR 04-1- Joint Enterprise Services Interoperability Experiment (Mar 04); Joint RAPTOR 04-2 - FORCEnet/Future Combat System (FCS) Interoperability Experiment (May/June 04); Joint RAPTOR 04-3 – Joint Expeditionary Force Experiment (JEFX) Air Force/Army/Navy Experiment (Summer 04) (Close Air Support, Battle

Force Testing (BFT)); Joint RAPTOR 04-4 - Navy/Army/Air Force Global Information Grid (GIG) Transformation Experiment (Sept 04); Joint RAPTOR –4-5 – Joint Time Sensitive Targeting (TST) (Sept 04). EC5G will provide analysis, metrics and measurable outcomes that will be fed back into Navy Programs of Record and Joint Architecture Products and Assessments (I.e. JFCOM Joint Battle Management Command and Control (JBMC2)) to ensure a joint Foundation for FORCEnet.

• The EC5G Joint RAPTOR efforts will be driven by JFCOM interoperability risk areas at the horizontal (tactical) level as identified by the Joint Architecture efforts under the JFCOM JBMC2 effort. The EC5G Joint Rapid Architecture Experimentation (via the Joint RAPTOR Limited Objective Experiments) will be used to prototype the "to be" FORCEnet architecture and integrate and experiment with the Army's FCS/Future Force and the Air Force's C2 Constellation architecture to promote joint interoperability between the services next generation tactical C4ISR architectures.

	FY 2003	FY 2004	FY 2005
C4ISR Requirements Analysis and Assessments	972	1,099	900

• In FY 2003, performed POM06 SYSCOM assessments as directed by CNO N6-7 business rules on the gaps and overlaps of performance, and provided recommendations.

• Beginning in FY 2004, lead complete SYSCOM assessments of systems in Comms/Networks, Commanding Officer's Tactical Plot (COTP), and Intelligence, Surveillance and Reconnaissance (ISR) Mission Capability Plans (MCPs). Participate in SYSCOM MCP assessments led by other SYSCOMs for Strike, Shield, and Basing SP-21 pillars. Initiate requirements analysis that will provide a feed for Navy Tool for Interoperability and Rick Assessment (NTIRA). Develop the network related Measures of Effectiveness (MOEs) and Measures of Performance (MOPs) that can be used to assess combat effects and funding impacts of changes to FORCEnet architecture. Establish Baseline performance models. Expand analysis to other systems that will identify dependencies of the C4I Architecture, with follow up evaluations in FY 2005.

	FY 2003	FY 2004	FY 2005
C4ISR Architecture and Standards	1,770	2,001	1,637

• In FY 2003, developed Architecture and Standards, ver 1. Developed Analysis of Alternatives (AOA) for beyond line of sight (BLOS) network. Performed proof of concept.

• Beginning in FY 2004, provide the groundwork for developing the overarching FORCEnet architecture as outlined in Sea power-21 for SEA Strike, Sea Shield, Sea Basing, including FORCEnet standards. Provide FORCEnet Design Studies and support systems that will integrate unique C2 of a BF that will allow operators to take advantage of the data from various sources over the C4I information grid. Review Joint & Cross service requirements which will be incorporated in the FORCEnet Architecture in FY 2005.

	FY 2003	FY 2004	FY 2005
FORCEnet Design Generation & Integration	1,073	1,212	992

• In FY 2003, investigated and provided recommendations for Information Assurance (IA) and network consolidation. Reviewed and developed a communication roadmap, identified shortfalls and made recommendations to address gaps.

• Beginning in FY 2004, decompose validated Joint operational requirements and perform engineering analysis to determine the appropriate technical solutions. Provide end-to-end engineering assessment of proposed FORCEnet and C4ISR architectural products to ensure operational and technical feasibility. Provide system engineering support to ensure respective Land Based Test Facilities (LBTF) requirements definition are met. Provide system engineering to PEO Pilot Programs which ensures FORCEnet Architecture is developed in specific targeted programs. Provide FORCEnet proof of concept to current legacy architecture which will increase Service-Oriented Architecture (SOA) opportunities.

C. OTHER PROGRAM FUNDING SUMMARY:

Not applicable.

D. ACQUISITION STRATEGY:

Not applicable.

FY 2005 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: Feb 2004

Exhibit R-3

BA: 04 PROGRAM ELEMENT: 0604707N PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support

PROJECT NUMBER: X2144 PROJECT TITLE: PROPULSION TECH DEMONSTRATION

Exhibit R-3 Cost Analysis (page 1)												Date: FEBRUARY 2004
APPROPRIATION/BUDGET ACTIVITY RDT&E,N			PROGRAM ELEMENT 0604707N									PROJECT NAME AND NUMBER Propulsion Tech Demonstration X2144
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY-03 Cost	FY-03 Award Date	FY-04 Cost	FY-04 Award Date	FY-05 Cost	FY-05 Award Date	Cost To Comp.	Total Cost	Target Value of Contract
Primary Hardware Developmentn											0	
Ancillary Hardware Developmentn											0	
Systems Engineering											0	
Licenses											0	
Tooling											0	
GFE											0	
Award Fees											0	
Subtotal Product Development			0	0		0		0		0	0	
Remarks												
Development Support	Various	Various	4554								4554	
SEW/C4I Technology Integration	Various	Various	12985								12985	
Systems A&E and Validation	Various	Various	13188								13188	
C4ISR Req Analysis & Assessments	Various	Various	4984	972	Various	1099	Various	900	Various		7955	
C4ISR Architecture and Standards	Various	Various	1187	1770	Various	2001	Various	1637	Various		6595	
FORCEnet Design Generation & Integration	Various	Various	4544	1073	Various	1212	Various	992	Various		7821	
Info. Repository/Naval Architecture	Various	Various	4000									
Navy Collaborative Int.	Various	Various										

FY 2005 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: Feb 2004

Exhibit R-3

BA: 04 PROGRAM ELEMENT: 0604707N PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support

PROJECT NUMBER: X2144 PROJECT TITLE: PROPULSION TECH DEMONSTRATION

Subtotal Support			45442	3815		4312		3529		0	57098	
Remarks												

Exhibit R-3 Cost Analysis (page 2)									Date: FEBRUARY 2004			
APPROPRIATION/BUDGET ACTIVITY RDT&E,N			PROGRAM ELEMENT 0604707N						PROJECT NAME AND NUMBER Propulsion Tech Demonstration X2144			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY-03 Cost	FY-03 Award Date	FY-04 Cost	FY-04 Award Date	FY-05 Cost	FY-05 Award Date	Cost To Comp.	Total Cost	Target Value of Contract
SEW Eng/JWID	Various	Various	12889	2731	Various	1732	Various	1968	Various	CONT	CONT	CONT
SEW Eng/EC5G	Various	Various		4712	Various	3866	Various	4194	Various	CONT	CONT	CONT
Subtotal T&E			12889	7443		5598		6162		0	32092	CONT
Remarks												
Contractor Engineering Support											0	
Government Engineering Support											0	
Program Management Support											0	
Travel											0	
Transportation											0	
Subtotal Management			0	0		0		0		0	0	
Remarks												
Total Cost			58331	11258		9910		9691		0	89190	

CONGRESSIONAL PLUS-UPS:

R9364	FY 2003	FY 2004
Advanced Wireless Network	0	3,461

Advanced Wireless Network will be used to design and develop a flexible, reconfigurable wireless communications network that combines advanced antennas, a software radio, mobile networking protocols and real-time resource management. It will have the ability to provide an adaptive, reconfigurable, mobile wireless network for Navy ships and Marine Corps forces ashore. The benefits will be enhanced Navy battle group and Marine Corps mobile network operations and extended over-the-horizon communications connectivity.

X9054	FY 2003	FY 2004
IT-21 BLOCK 1 C4ISR COMPUTING EQUIPMENT UPGRADE	1,619	0

This program is funded under DEMONSTRATION & VALIDATION because it develops and integrates hardware for experimental tests related to specific ship or aircraft applications. It also develops a virtual demonstration and validation environment across Navy for C4ISR.

FY2003 ACCOMPLISHMENTS:
• Researched current C4ISR software applications and designed an integration approach for transition from legacy networks to an enterprise solution. Implement the C4ISR-T Systems Design effort that incorporated the AN/UYQ-70 rack design.
• Developed an overarching Q-70 BLK system integration, test plan and validation that ensures the Q-70 racks were fully integrated and tested.
• Developed hardware baseline for integration into the Q-70 servers. Integration included standardized configuration, integrated documentation and integrated software applications.
• Developed and implemented an Integrated Logistics Support (ILS) Plan ensuring provisioning, training, technical manuals, support and test equipment (S&TE), Planned Maintenance System (PMS) availability, and other ILS requirements were met.

X9365	FY 2003	FY 2004
Coalition Warfare Program (CWP) Operational Assessment	0	2,769

The Coalition Warfare Project integrates, federates and secures IT systems of multiple operating systems and security domains to improve information sharing and collaboration between services, coalitions, and other organizations and agencies. The system combines network-centric server clusters, Ultra Thin Clients (UTCs) or traditional PCs, and a robust security solution of Evaluation Assurance Level (EAL4) certified trusted operating systems and hardware Virtual Private Network (VPNs). It is an open-system architecture (OSA) so that any operating system and application can be quickly integrated into the system allowing for rapid scalability and flexibility. The security solution provides an avant-garde ability to rapidly reconfigure networks of various security domains and communities of interest (COI) in near-real time globally. On a single display, multiple applications and multiple security domains can be viewed. The system also reduces space, weight, heat and total ownership costs. This project will establish interoperability across domains, applications and operating system platforms.

Systems Engineering
• Research and develop an architecture, which integrates, federates and secures IT systems of multiple operating systems and security domains and improve information sharing and collaboration between services, coalitions, and other organizations and agencies. The systems combine network-centric server clusters, UTCs and/or traditional PC, and a robust security solution consisting of EAL4 certified trusted operating systems and hardware VPNs.

Test and Evaluation
• Provide Systems Tests and Evaluations to ensure this project provides the Navy with a cross-domain security solution for coalition collaboration, which includes the ability to provide for dynamic reconfiguration of coalition networks and secure information data exchange to deliver the right information, to the right warfighter at the right time.

Interoperability Validation
• Interoperability Validation 445k (SSC-SD)
Validate interoperability between joint, coalition, State Department, HLS/HLD, and other agencies/organizations by providing a means to share data and collaborate across domains and COI within domains.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**					R-1 ITEM NOMENCLATURE 0604787N - Joint Warfare Transformation Programs					
COST ($ in Millions)	Prior Years Cost	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Total PE Cost	0.000	0.000	0.000	22.450	23.261	20.575	19.769	20.046	Continuing	Continuing
3021 Joint Warfare Transformation Programs	0.000	0.000	0.000	22.450	23.261	20.575	19.769	20.046	Continuing	Continuing
Quantity of RDT&E Articles										

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Secretary of Defense Program Decision Memorandum (dated 12 Dec 2003) tasked U.S. Joint Forces Command (USJFCOM) with the responsibility for maintaining Joint Simulation System (JSIMS) software and establishing a Software Support Facility (SSF) at the Joint Warfighting Center, pending the results of an Analysis of Alternatives (AoA). The mission of this program is to create an SSF to support the delivery and maintenance of Block I of the JSIMS. JSIMS Block I delivers to the Joint Warfighting Center the simulation capability to train Joint Force Commanders, their components, and staffs. JSIMS is the next generation modeling and simulation tool that will be the cornerstone for Training Transformation and will be one of the key tools to the success of the Joint National Training Center (JNTC).

The USJFCOM SSF efforts through FY 2009 will focus on supporting and maintaining JSIMS Block I software support for Joint Training. Specific JSIMS SSF tasks include: software configuration management; joint exercise technical support; JSIMS specific training; resource repository maintenance; and software administrative support. When Block I is formally delivered, Joint Warfighting Center (JWFC) will be responsible for the “upkeep” of the software and hardware. This is a departure from standard software acquisition processes as the Program Office is responsible for out-year Post Development Software Support (PDSS) and other logistic support.

The Joint Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Battle Center (JBC) is the U.S. Joint Forces Command (JFCOM) and Chairman, Joint Chiefs of Staff (CJCS) facility for warfighter exploration and assessment of C4ISR capabilities. The Center provides the combatant commands, at the Joint Task Force (JTF) level, with a near-term joint assessment and experimental environment for the warfighter and technologist in support of Joint Vision 2020 (JV2020). It serves as the technical analysis and assessment agency for the Joint Requirement Operating Council (JROC) in determining C4ISR system “value-added” PRIOR to introduction to the Combatant Commanders and in advance of system fielding in operational environments. The intent is for the JBC to be a forcing function for joint synchronization and a means to foster rapid, near-term insertion of C4ISR technology. The mission of the JBC is to provide rapid assessment of required C4ISR interoperability and warfighter utility, join emerging C4ISR technology with new operational doctrine, and result in fielding C4ISR capabilities that meet the joint warfighter's needs.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: The Joint Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Battle Center (JBC) is the U. S. Joint Forces Command's (JFCOM) facility for warfighter exploration and assessment of C4ISR capabilities. The mission of the JBC is to prototype and to operationally assess current and emerging technology to address the joint warfighters' needs. The center provides the Combatant Commands with near-term solutions that address C4ISR problems at the Joint Force Headquarters level.

R-1 SHOPPING LIST - Item No. 82

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0604787N - Joint Warfare Transformation Programs				PROJECT NUMBER AND NAME 3021 - Joint Warfare Transformation Programs					
COST ($ in Millions)	Prior Years Cost	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost	0.000	0.000	0.000	22.450	23.261	20.575	19.769	20.046	Continuing	Continuing
RDT&E Articles Qty										

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Secretary of Defense Program Decision Memorandum (dated 12 Dec 2003) tasked U.S. Joint Forces Command (USJFCOM) with the responsibility for maintaining Joint Simulation System (JSIMS) software and establishing a Software Support Facility (SSF) at the Joint Warfighting Center, pending the results of an Analysis of Alternatives (AoA). The mission of this program is to create an SSF to support the delivery and maintenance of Block I of the JSIMS. JSIMS Block I delivers to the Joint Warfighting Center the simulation capability to train Joint Force Commanders, their components, and staffs. JSIMS is the next generation modeling and simulation tool that will be the cornerstone for Training Transformatio and will be one of the key tools to the success of the Joint National Training Center (JNTC).

The USJFCOM SSF efforts through FY 2009 will focus on supporting and maintaining JSIMS Block I software support for Joint Training. Specific JSIMS SSF tasks include: software configuration management; joint exercise technical support; JSIMS specific training; resource repository maintenance; and software administrative support. When Block I is formally delivered, Joint Warfighting Center (JWFC) will be responsible for the “upkeep” of the software and hardware. This is a departure from standard software acquisition processes as the Program Office is responsible for out-year Post Development Software Support (PDSS) and other logistic support.

The Joint Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Battle Center (JBC) is the U.S. Joint Forces Command (JFCOM) and Chairman, Join Chiefs of Staff (CJCS) facility for warfighter exploration and assessment of C4ISR capabilities. The Center provides the combatant commands, at the Joint Task Force (JTF) level, with a near-term joint assessment and experimental environment for the warfighter and technologist in support of Joint Vision 2020 (JV2020). It serves as the technical analysis and assessment agency for the Joint Requirement Operating Council (JROC) in determining C4ISR system “value-added” PRIOR to introduction to the Combatant Commanders and in advance of system fielding in operational environments The intent is for the JBC to be a forcing function for joint synchronization and a means to foster rapid, near-term insertion of C4ISR technology. The mission of the JBC is to provide rapid assessment of required C4ISR interoperability and warfighter utility, join emerging C4ISR technology with new operational doctrine, and result in fielding C4ISR capabilities that meet the joint war fighter's needs.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E,N/ BA 4	0604787N - Joint Warfare Transformation Programs	3021 - Joint Warfare Transformation Programs

(U) B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
JOINT SIMULATION SYSTEM				13.500
RDT&E Articles Quantity				

· JWFC will continue software configuration management (CM) which insures users are operating the most current version of software in Joint Exercises. The CM team is responsible for documenting upgrades/fixes to the software and publishing those changes to the user community at large. Real-time technical support to Joint Exercise and other training or testing events will be provided to include 24/7 help desk support during a given event, and insuring the JSIMS software operates as delivered, taking steps to correct real-time problems that arise. Specific training (technical and operational) will be provided to users prior to conducting a JSIMS-driven Joint Exercise. Periodic upgrade training will be provided to JSIMS user sites, and training will be provided for periodic model testing events, as required. The SSF will maintain and control all JSIMS software and documentation in a central location (resource repository) and will serve as an archive for historical documentation. Perfunctory Software administrative support (considered specialized and technical) will be provided to the above functions, to include organic security and engineering expertise.

		FY 03	FY 04	FY 05
CCs REQMTS ANALYSIS & CAPABILITY ASSESSMENTS				5.863
RDT&E Articles Quantity				

FY05 CCs Requirements Analysis and Capability Assessments: Analyze near-term requirements from all Combatant Commanders, identify current mature technology available to address these requirements, perform comprehensive assessment for jointness, maturity, and warfighter utility. JBC projects are nominated to meet Combatant Commanders and Joint Force transformational requirements for the fiscal year. Those submitted to the Joint Staff for approval, and subsequently become the approved fiscal year program.

		FY 03	FY 04	FY 05
DOTMLP-F JROC RECOMMENDATIONS				0.608
RDT&E Articles Quantity				

FY05 (DOTMLP-F JROC Recommendations: Provide Doctrine, Organizational, Training, Material, Leadership, Personnel, and Facilities (DOTMLP) recommendations on fielding strategies for Joint Requirement Oversight Council (JROC) endorsement. Recommendations are based on results from technology assessments, which identify relevant Service programs, doctrinal impacts, training implications, personnel requirements, etc.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E,N/ BA 4	0604787N - Joint Warfare Transformation Programs	3021 - Joint Warfare Transformation Programs

(U) B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
JOINT CONCEPT DEVELOPMENT & EQUIP SUP				1.869
RDT&E Articles Quantity				

FY05 Joint Concept Development and Experimentation Support: Continue to support the Unified Vision series of experiments and preparation of Olympic Challenge and Pinnacle series of events. Provide support for Limited Objective Experiments and Multi-national experimentation efforts.

		FY 03	FY 04	FY 05
FEDERATED JOINT C2 LABORATORIES				0.610
RDT&E Articles Quantity				

FY05 Federated Joint C2 Laboratories (FJC2L): The FJCL is a voluntary consortium of the JBC, the Service Battle Centers/Laboratories, Combatant Commanders, Agencies and other DoD organizations formed to promote near-term Joint C4ISR solutions to JTF operational needs/issues. The JBC, as chairman of the consortium, provides annual funding to support Service efforts through project experimentation/assessment. The CFBL is a consortium of nations and international organizations formed to evaluate combined C4ISR interoperability shortfalls, assess potential solutions through the utilization of agreed upon phased assessment procedures, report the results of those assessments, and make recommendations in order to foster improved combined CIS for the explicit purpose of promoting near-term concepts and acceptance of solutions.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E,N/ BA 4	0604787N - Joint Warfare Transformation Programs	3021 - Joint Warfare Transformation Programs

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
FY04 President's Budget:	0.000	0.000	0.000
FY05 President's Budget	0.000	0.000	22.450
Total Adjustments	0.000	0.000	22.450
Summary of Adjustments			
JFCOM PE Realignment			22.450
Subtotal	0.000	0.000	22.450

(U) Schedule:

Not Applicable

(U) Technical:

Not Applicable

R-1 SHOPPING LIST - Item No. 82

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E,N/ BA 4	0604787N - Joint Warfare Transformation Programs	3021 - Joint Warfare Transformation Programs

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
Not Applicable									

(U) E. ACQUISITION STRATEGY:

FY 2005. The JBC does not have a major contract for their RDT&E efforts. Equipment required to support our various projects are either bought from other service contracts and/or from the GSA schedule. Services are provided by other services and/or various vendors with expertise on a specific assessment we are accomplishing.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/ BA 4**		PROGRAM ELEMENT 0604787N - Joint Warfare Transformation Programs					PROJECT NUMBER AND NAME 3021 - Joint Warfare Transformation Programs					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Dev Support Equip Acquisition	MIPR	GSA Schedule						0.591	Various	Continuing	Continuing	Continuing
Systems Engineering	C-CPFF	ODU						0.087	10/04	Continuing	Continuing	Continuing
Contractor Engineering Support	C-CPFF	GTRI						1.075	10/04	Continuing	Continuing	Continuing
Gov't Engineering Support	C-CPFF	General Dynamics						0.846	11/04	Continuing	Continuing	Continuing
Gov't Engineering Support	MIPR	Various DoD						0.623	Various	Continuing	Continuing	Continuing
Travel		Various DoD						0.045	Various	Continuing	Continuing	Continuing
											0.000	Continuing
JSIMS Govt Eng Supp	MIPR	PEO STRI						4.000	12/04		4.000	Continuing
JSIMS Development Support	MIPR	JSIMS SSF Orlando						3.900	11/04		3.900	
JSIMS Travel								0.100	Various		0.100	
											0.000	
Subtotal Product Development			0.000	0.000		0.000		11.267		Continuing	Continuing	
Remarks:												
Systems Engineering Support	C-CPFF	ODU						0.068	10/04	Continuing	Continuing	Continuing
Contractor Engineering Support	C-CPFF	General Dynamics						1.443	11/04	Continuing	Continuing	Continuing
Gov't Engineering Support	MIPR	Various DoD						0.618	Various	Continuing	Continuing	Continuing
Travel		Various DoD						0.034	Various	Continuing	Continuing	Continuing
											0.000	
JSIMS Development support	MIPR	JSIMS SSF Orlando						1.000	11/04		1.000	
JSIMS Cont. Eng. Support	C-FPAW	NGIT						1.000	10/04		1.000	
JSIMS System Eng. Support	WR	SPAWAR						0.900	12/04		0.900	
JSIMS Travel								0.100	Various		0.100	
											0.000	
Subtotal Support			0.000	0.000		0.000		5.163		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/ BA 4**		PROGRAM ELEMENT 0604787N - Joint Warfare Transformation Programs					PROJECT NUMBER AND NAME 3021 - Joint Warfare Transformation Programs					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Dev Support Equip Acquisition	MIPR	GSA Schedule						1.042	Various	Continuing	Continuing	Continuing
Systems Engineering	C-CPFF	ODU						0.155	10/04	Continuing	Continuing	Continuing
Contractor Engineering Support	C-CPFF	General Dynamics						1.127	11/04	Continuing	Continuing	Continuing
Gov't Engineering Support	MIPR	Various DoD						1.088	Various	Continuing	Continuing	Continuing
Travel		Various DoD						0.108	Various	Continuing	Continuing	Continuing
JSIMS Contractor Eng. Support	C-FPAW	NGIT						0.500	12/04		0.500	
JSIMS Govt Eng Support	MIPR	JSIMS SSF Orlando						0.500	12/04		0.500	
JSIMS Systems Engineering	WR	SPAWAR						0.500	12/04		0.500	
JSIMS Govt Eng Support	WR	Various DOD						0.900	Various		0.900	
JSIMS Travel								0.100	Various		0.100	
											0.000	
Subtotal T&E			0.000	0.000		0.000		6.020		Continuing	Continuing	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel											0.000	
Transportation											0.000	
											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			0.000	0.000		0.000		22.450		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 82

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																												DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/ BA 4**					PROGRAM ELEMENT NUMBER AND NAME 0604787N - Joint Warfare Transformation Programs												PROJECT NUMBER AND NAME 3021 - Joint Warfare Transformation Programs												
Fiscal Year	2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																												
					NO TITLE 10 ACQUISITION AUTHORITY / FORM NOT APPLICABLE																								
Test & Evaluation Milestones																												
Production Milestones																												
Deliveries																												

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/ BA 4**	PROGRAM ELEMENT 0604787N - Joint Warfare Transformation Programs				PROJECT NUMBER AND NAME 3021 - Joint Warfare Transformation Programs		
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Not Applicable.							