DEPARTMENT OF THE NAVY
FISCAL YEAR (FY) 2009
BUDGET ESTIMATES

JUSTIFICATION OF ESTIMATES
FEBRUARY 2008

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

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Research, Development, Test and Evaluation, Navy

For expenses necessary for basic and applied scientific research, development, test and evaluation, including maintenance, rehabilitation, lease, and operation of facilities and equipment, $19,337,238,000, to remain available for obligation until September 30, 2010: *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.

"In accordance with the President's Management Agenda, Budget and Performance Integration initiative, this program has been assessed using the Program Assessment Rating Tool (PART). Remarks regarding program performance and plans for performance improvement can be located at the Expectmore.gov website."

DEPARTMENT OF DEFENSE

FY 2009 RDT&E PROGRAM

SUMMARY
($ IN THOUSANDS)

22 JAN 2008

APPROPRIATION	FY 2007	FY 2008	FY 2009
Research, Development, Test & Eval, Navy	3,636,508	3,050,591	3,440,400
Total Research, Development, Test & Evaluation	3,636,508	3,050,591	3,440,400

DEPARTMENT OF DEFENSE

FY 2009 RDT&E PROGRAM

SUMMARY
($ IN THOUSANDS)

22 JAN 2008

Summary Recap of Budget Activities	FY 2007	FY 2008	FY 2009
Advanced Component Development & Prototypes	3,636,508	3,050,591	3,440,400
Total Research, Development, Test & Evaluation	3,636,508	3,050,591	3,440,400

Summary Recap of FYDP Programs			
Research and Development	3,636,508	3,050,591	3,440,400
Total Research, Development, Test & Evaluation	3,636,508	3,050,591	3,440,400

DEPARTMENT OF THE NAVY

FY 2009 RDT&E PROGRAM

SUMMARY
($ IN THOUSANDS)

22 JAN 2008

Summary Recap of Budget Activities	FY 2007	FY 2008	FY 2009
Advanced Component Development & Prototypes	3,636,508	3,050,591	3,440,400
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DEPARTMENT OF THE NAVY
FY 2009 RDT&E PROGRAM

EXHIBIT R-1

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

Date: 22 JAN 2008

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 2007	FY 2008	FY 2009	SEC
26	0603207N	Air/Ocean Tactical Applications	04	35,070	43,406	66,133	U
27	0603216N	Aviation Survivability	04	28,860	21,625	5,917	U
28	0603237N	Deployable Joint Command and Control	04	15,975	9,303	5,905	U
29	0603254N	ASW Systems Development	04	24,840	20,378	28,799	U
30	0603261N	Tactical Airborne Reconnaissance	04	3,944	4,037	4,298	U
31	0603382N	Advanced Combat Systems Technology	04	20,251	11,515	4,367	U
32	0603502N	Surface and Shallow Water Mine Countermeasures	04	113,207	89,175	119,164	U
33	0603506N	Surface Ship Torpedo Defense	04	49,063	27,451	49,171	U
34	0603512N	Carrier Systems Development	04	149,866	86,544	120,511	U
35	0603513N	Shipboard System Component Development	04	44,652	43,529	4,003	U
36	0603525N	PILOT FISH	04	128,408	127,116	86,017	U
37	0603527N	RETRACT LARCH	04	85,385	88,163	93,078	U
38	0603536N	RETRACT JUNIPER	04	37,718	36,553	159,175	U
39	0603542N	Radiological Control	04	1,845	1,522	1,094	U
40	0603553N	Surface ASW	04	33,181	46,475	29,574	U
41	0603559N	SSGN Conversion	04	25,168			U
42	0603561N	Advanced Submarine System Development	04	140,870	149,576	141,720	U
43	0603562N	Submarine Tactical Warfare Systems	04	10,169	14,806	10,212	U
44	0603563N	Ship Concept Advanced Design	04	21,154	39,341	31,111	U
45	0603564N	Ship Preliminary Design & Feasibility Studies	04	25,109	25,987	14,627	U
46	0603570N	Advanced Nuclear Power Systems	04	173,988	165,140	158,270	U

DEPARTMENT OF THE NAVY
FY 2009 RDT&E PROGRAM

EXHIBIT R-1

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

Date: 22 JAN 2008

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 2007	FY 2008	FY 2009	SEC
47	0603573N	Advanced Surface Machinery Systems	04	8,107	1,590		U
48	0603576N	CHALK EAGLE	04	131,863	207,230	352,858	U
49	0603581N	Littoral Combat Ship (LCS)	04	663,935	304,117	371,008	U
50	0603582N	Combat System Integration	04	58,418	53,872	54,401	U
51	0603609N	Conventional Munitions	04	18,726	8,760	8,124	U
52	0603611M	Marine Corps Assault Vehicles	04	314,935	247,207	316,052	U
53	0603612M	USMC Mine Countermeasures Systems - Adv Dev	04	5,256	648		U
54	0603635M	Marine Corps Ground Combat/ Support System	04	26,784	56,725	59,049	U
55	0603654N	Joint Service Explosive Ordnance Development	04	30,616	81,608	115,086	U
56	0603658N	Cooperative Engagement	04	52,688	36,513	38,316	U
57	0603713N	Ocean Engineering Technology Development	04	20,725	5,080	7,737	U
58	0603721N	Environmental Protection	04	27,530	20,618	19,632	U
59	0603724N	Navy Energy Program	04	1,579	6,020	5,611	U
60	0603725N	Facilities Improvement	04	8,179	9,363	4,086	U
61	0603734N	CHALK CORAL	04	28,097	30,384	117,543	U
62	0603739N	Navy Logistic Productivity	04	24,961	19,401	2,846	U
63	0603746N	RETRACT MAPLE	04	342,183	340,318	138,091	U
64	0603748N	LINK PLUMERIA	04	81,111	87,358	60,444	U
65	0603751N	RETRACT ELM	04	57,494	77,876	139,139	U
66	0603755N	Ship Self Defense	04	11,166	10,719	11,001	U
67	0603764N	LINK EVERGREEN	04	54,341	31,090	75,995	U

DEPARTMENT OF THE NAVY
FY 2009 RDT&E PROGRAM

EXHIBIT R-1

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

Date: 22 JAN 2008

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 2007	FY 2008	FY 2009	SEC
68	0603787N	Special Processes	04	46,575	40,248	60,678	U
69	0603790N	NATO Research and Development	04	10,039	9,797	10,129	U
70	0603795N	Land Attack Technology	04	64,339	51,027	40,028	U
71	0603851M	Nonlethal Weapons	04	45,126	47,876	46,902	U
72	0603860N	Joint Precision Approach and Landing Systems	04	32,594	69,298	99,929	U
73	0603879N	Single Integrated Air Picture (SIAP) System Engineer (SE)	04	40,374	45,456	41,807	U
74	0603889N	Counterdrug RDT&E Projects	04	76,137	7,939		U
75	0603925N	Directed Energy and Electric Weapon Systems	04	26,641	1,987		U
76	0604272N	Tactical Air Directional Infrared Countermeasures (TADIRCM)	04	92,490	32,552	63,244	U
77	0604327N	Hard and Deeply Buried Target Defeat System (HDBTDS) Program	04	19,421			U
78	0604450N	Joint Air-to-Ground Missile (JAGM)	04		14,680		U
79	0604707N	Space and Electronic Warfare (SEW) Architecture/Engineering Support	04	45,355	41,592	47,518	U
		Advanced Component Development & Prototypes		3,636,508	3,050,591	3,440,400	
		Total Research, Development, Test & Eval, Navy		3,636,508	3,050,591	3,440,400	

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4				R-1 ITEM NOMENCLATURE PE 0603207N Air/Ocean Tactical Applications			
COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	**35.070**	**43.406**	**66.133**	**46.725**	**40.120**	**32.300**	**31.448**
2341 METOC Data Acquisition	13.750	14.056	19.831	15.979	14.214	9.032	9.253
2342 METOC Data Assimilation and Modeling	10.664	14.212	18.642	21.652	17.356	14.497	13.189
2343 Tactical METOC Applications	8.164	7.374	6.390	6.758	6.185	6.349	6.516
2344 Precise Timing and Astrometry	1.517	1.206	20.270	1.313	1.311	1.337	1.364
3207 Fleet Synthetic Training			1.000	1.023	1.054	1.085	1.126
9999 Congressional Increases	0.975	6.558					

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

The Air Ocean Tactical Applications (AOTA) Program Element is fully 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 Combat Systems and FORCEnet-related programs of record and Tactical Decision Aids (TDAs) that determine in real-time and near-real-time 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, assimilation, 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 latest versions of the Global Command and Control System (GCCS), the new Network Enterprise Command and Control (NECC) system (formerly called Joint Command and Control (JC2)), 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, geolocation, 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. Funding increase in Project 2341 beginning in FY09 reflects an internal transfer of Geo-Acoustic Sensing funding for the Ocean Bottom Characterization Initiative (OBCI). Funding increase in Project 3207 beginning in FY09 reflects funding for Fleet Synthetic Training to be executed by Fleet Forces Command. Fleet Synthetic Training (FST) is a CNO initiative that is intended to provide naval forces with an enhanced in-port training capability. Integrating embedded shipboard training devices, aircraft and submarine simulators into an interoperable network with Joint, Coalition and Interagency partners is expected to provide more effective training for our deploying naval forces. FY09 funding increase in project 3207 for the Joint Milli-Arcsecond Pathfinder Survey (J-MAPS) will be used to complete Phase A (conceptual design) and Phase B (preliminary design) of the overall spacecraft and mission. In addition, long lead item developments will begin immediately after the System Requirements Review (SRR) at end of FY08. Development will include focal plane assemblies, readout and processing electronics, and optical components. By the end of FY09, as a result of this funding, a preliminary design for the spacecraft will be delivered.

FY09 funding increase in project 2344 reflects funding for the Joint Milli-Arcsecond Pathfinder Survey (J-MAPS). The accuracy of star positions is degrading with time due to the movement of stars since the last highly accurate space-based measurements of star positions were made in 1991 . The accuracy of the catalog is approaching the minimum necessary to support current requirements, and will not meet future needs for high accuracy sensors and weapon systems. Therefore, the United States Naval Observatory (USNO), in concert with other activities and agencies in the Space and Intelligence Surveillance and Reconnaissance (ISR) communities, has developed the J-MAPS initiative. J-MAPS will satisfy the emerging requirements for a new high accuracy star catalog through a space-based (satellite) astrometry mission that will also “pathfind” new star tracker technology for future ISR systems.

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA 4	R-1 ITEM NOMENCLATURE PE 0603207N Air/Ocean Tactical Applications

(U) B. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2007	FY 2008	FY 2009
FY08 President's Budget	32.654	47.914	36.215
FY09 President's Submit	35.070	43.406	66.133
Total Adjustments	2.416	(4.508)	29.918
Summary of Adjustments			
Program Adjustment		(3.543)	29.990
Miscellaneous Adjustment	2.757		
Small Business Innovative Research (SBIR) Tax	(0.341)	(0.682)	
Navy Working Capital Fund (NWCF) Rate Adjustment			(0.072)
Congressional Adjustments		(0.283)	
Subtotal	2.416	(4.508)	29.918

(U) Schedule:

This budget reflects a reorganization by program/project to better support the acquisition process.
Schedules are now presented separately for each program/project.

(U) Technical:

Not applicable

EXHIBIT R-2a, RDT&E Project Justification					DATE: February 2008		
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)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	**13.750**	**14.056**	**19.831**	**15.979**	**14.214**	**9.032**	**9.253**
RDT&E Articles Qty							

(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 to warfighters that will allow them to detect and monitor the conditions of the physical environment throughout the entire battlespace. New sensor technologies (including unmanned vehicles, tactical sensor exploitation, in-situ sensors, etc.) are identified and the most promising candidates are transitioned from the government's and commercial industry's technology base to this project. These new sensor technologies are then demonstrated, validated and integrated into operational programs of record for use by warfighters. These new sensor capabilities are to 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 deep strike battlespace, METOC data requirements have likewise evolved. The littoral and deep strike 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 conditions is more crucial than ever in planning and executing Amphibious Warfare, Mine Warfare, Special Operations, Anti-Submarine Warfare (ASW), and Strike Warfare operations. Routinely available data sources, such as climatology, oceanographic and meteorological numerical models, and satellite remote sensing are necessary but not sufficient to support these warfare areas in the littoral and deep strike regions. Current operational sensors, such as the standard balloon-launched radiosound, are deployed from platforms that are frequently located great distances from the target 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 shortfall in coastal hydrographic survey requirements; and, 7) develop an expanded database for predictive METOC models in areas of interest. In FY07 and FY08 a portion of project funding is directed towards the development of the USMC Meteorological Mobile Facility (Replacement) Next Generation (METMF(R) NEXGEN) due to emergent critical USMC capability requirements. These efforts will enhance Intelligence Preparation of the Environment (IPE) capabilities to meet CNO and CFFC (Commander, Fleet Forces Command) requirements for remote autonomous, clandestine, Littoral Battlespace Sensing (LBS) in support of Sea Shield & Sea Basing.

Funding increases in FY08 and beyond support development of radar weather using Through-The-Sensor (TTS) techniques and development of ocean glider and Autonomous Undersea Vehicles (AUV), sensors, Tracking and Telemetry, and Mission Planning System (MPS) as part of the Littoral Battlespace Sensing, Fusion and Integration (LBSF&I) Program. Funding increases for the Ocean Bottom Characterization Initiative (OBCI) support 1) Intelligence Preparation of the Environment (IPE), providing optimal force structure and asset allocation and placement determination; 2) Phase 0 Antisubmarine Warfare (ASW) operations; and 3) sensor performance predictions for low and mid frequency active and passive Navy sonar systems.

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
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	

(U) B. Accomplishments/Planned Program

Littoral Battlespace Sensing, Fusion and Integration (LBSF&I)	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	2.379	0.980	4.841
RDT&E Articles Quantity			

FY07 - Demonstrated and validated automated data acquisition and assimilation efforts as part of the Littoral Battlespace Sensing, Fusion and Integration (LBSF&I) program. Formerly part of "Acoustic Data Inversion/Sensors and Observing Systems (Through-the-Sensor)." Delivered/tested/demonstrated prototype Sensor Pod on operational Unmanned Aerial Vehicles (UAVs) of miniaturized sensor suites for mini/micro UAV platforms. Developed and tested Network interoperability of miniaturized sensor suites for emergent UAV and Autonomous Undersea Vehicles (AUV) platforms (continued from autonomous sensors (AUV/UAV)). Ruggedized vehicles and began development of a common command and control system. Developed prototype AUV (buoyancy) and other in-situ sensors in accordance with study results. Integrated new sensing capabilities into prototypes as part of the LBSF&I program. Formerly part of "Autonomous Sensors (AUV/UAV)/Sensors and Observing Systems (Unmanned Vehicles)."

FY08 - Begin development of glider prototypes and the planned tracking and telemetry components of the unmanned systems in preparation of Milestone C (FY10). Sensor integration and validation/ verification tests will be initiated. Continue development glider prototypes, including the development and testing of integrated sensors. Complete related studies (communications, databasing, data flow, etc.) and system engineering plans. Continue development of a common Tracking and Telemetry and vehicle mission planning system. Demonstrate and test components. Develop requirements, specifications, and standards for the glider, Tracking and Telemetry, and Mission Planning systems in preparation for procurement and for use in related Joint Capabilities Integration & Development System (JCIDS) documentation. Formerly part of "Autonomous Sensors (AUV/UAV)/Sensors and Observing Systems (Unmanned Vehicles)."

FY09 - Continue development of end-to-end LBSF&I Increment 1.0 glider sensor and support systems. Begin testing and demonstration of end to end glider systems in preparation for MS C and LRIP in FY10. Define Increment 2.0 requirements and definition of Spiral 2 improved Unmanned Undersea Vehicles and associated support systems (launch and recovery, mission planning, test equipment, etc.). Conduct Spiral 2 studies (Analyses of Alternatives, Engineering Studies, etc.). Formerly part of "Autonomous Sensors (AUV/UAV)/Sensors and Observing Systems (Unmanned Vehicles)." Begin preparations for the System Development and Demonstration (SDD) phase of the Autonomous Undersea Vehicle (AUV) procurement scheduled to commence in FY10.

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
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

USMC Meteorological Mobile Facility (Replacement) Next Generation (METMF(R) NEXGEN)	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	2.704	2.491	
RDT&E Articles Quantity			

FY07 - Conducted METMF(R) NEXGEN (formerly METMF(R) NG) software, hardware, radar, and communications upgrades. Delivered Variant I EDM and Variant II prototype. Formerly part of "USMC Acquisition."

FY08 - Conduct operational testing of METMF(R) NEXGEN (formerly METMF(R) NG) prototypes and prepare for delivery. Formerly part of "USMC Acquisition."

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
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

Meteorlogical and Oceanographic (METOC) Furture Mission Capabilities (FMC)	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	5.243	9.687	7.537
RDT&E Articles Quantity			

FY07 - Completed integration of the AQS-20 inversion techniques into the Commander, Naval Meteorological and Oceanographic Command (CNMOC) Mine Warfare Workstation and the Mine Warfare Environmental Decision Aids Library (MEDAL). Continued development of the SPS-48E weather radar and SPY-1 Tactical Environmental Processor (TEP) work. Demonstrated and validate automated data acquisition and assimilation efforts as part of the Littoral Battlespace Sensing, Fusion and Integration (LBSF&I) program. Began integration into Fleet Combat Systems. Began development of Military Aircraft Communications Addressing and Report System (ACARS). Formerly part of "Acoustic Data Inversion/Sensors and Observing Systems (Through-the-Sensor)." Continued the development of the next generation AN database modeled after the Global Data Base Variable Resolution (GDB-V) database. Conducted annual pre-release technical analysis and research of new National Geospatial Agency (NGA) products used by the Navy for navigation systems and maritime safety for Quality Control, Suitability of Use, and Interoperability. (from Digital MC and G Analysis Program (DMAP)). Continued to develop Tactical Decision Aids (TDA) uncertainty algorithms (from Acoustic Data Acquisition). Formerly part of "Ambient Noise Data/TDA/Mission Planning."

FY08 - METOC Future Capabilities will continue development and test military ACARS and exploit Intelligence Surveillance & Reconnaissance (ISR) sensors for manned & unmanned platforms for environmental information. Continue with use of Naval Special Warfare (NSW), Mine Warfare tactical sensors for Through-the-Sensor (TTS) applications for environmental assessment and characterization. Develop, demonstrate & test TTS concept for undersea warfare systems. Continue development of the SPS-48E and SPS-48G Radar Obsolescence and Availability (ROAR) Hazardous Weather Detection and Display Capability (HWDDC). Test and demonstrate the HWDDC system. Begin work with SPS-48G developer to integrate algorithms into ROAR. Continue development of the SPY-1 TEP prototype. Complete related studies (communications, databasing, data flow, etc.) and system engineering plans. Complete development of the HWDDC requirements, specifications, and standards for the HWDDC system in preparation for procurement and for use in related JCIDS documentation. Begin development of TEP requirements, specifications, standards and system engineering plans for the TEP system. Formerly part of "Acoustic Data Inversion/Sensors and Observing Systems (Through-the-Sensor)." Mapping, Charting & Geodesy (MC&G) product analysis and development. Architecture and design of Mission Planning Systems and support elements in support of littoral combat operations. Data analysis and processing development for environmental characterization for Mission Planner & Tactical Decision Aid use. Develop quality control, fusion and product uncertainty tools and techniques to transform data into information to support product development for mission planners and TDA use. Development of techniques and tools to guide adaptive sampling to optimize use of measurement assets. Develop advanced Geospatial Information and Services (GI&S) databases and data processing tools and techniques to support boundary conditions for numerical forecast models. Develop advanced data fusion tools and interface modules to ocean and atmospheric data assimilation systems. Formerly part of "Ambient Noise Data/TDA/Mission Planning."

FY09 - Continue advanced component and prototype efforts associated with acquiring environmental data. Continue development of advanced data measurement and survey techniques to improve survey planning and execution. Continue development of improved data quality control technologies and the automation of data acquisition processes. Continue to develop advanced technologies and techniques to improve Geospatial Information and Services (GI&S) capabilities within Navy METOC production centers and throughout the fleet user base. Implement through-the-sensor (TTS) technologies to use tactical detection systems to characterize undersea and atmospheric environment in the battlespace intregate with analysis and C4I distribution systems. Development of the SPY-1 TEP prototype and integration of HWDDC into the SPS-48G ROAR. Develope TEP requirements, specifications, standards and system engineering plans for integration of the TEP algorithms into the Aegis SPY-1 Open Architecture upgrade program. Work with the SPS-48G program office and prime contractor to integrate HWDDC algorithms into the ROAR system. Formerly part of the "Acoustic Data Inversion/Sensors and Observing Systems (Through-the-Sensor)".

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
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

Naval Integrated Tactical Environmental System Next Generation (NITES-Next)	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost			2.289
RDT&E Articles Quantity			

FY09 - Support METOC data transport, storage, delivery, design and development efforts in a Net-centric environment for pre-Milestone C Naval Integrated Tactical Environmental Subsystem Next Generation (NITES-Next) activities. Formerly part of "Data Connectivity/METOC in the IT Enterprise."

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
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

Tactical Environmental Support System/Naval Integrated Tactical Environmental Subsystem (TESS/NITES)	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost		0.342	0.231
RDT&E Articles Quantity			

FY08 - Finalize Naval Integrated Tactical Environmental Subsystem (NITES) Data (formerly known as Tactical Environmental Data (TED) Services) integration efforts and prepare for COMOPTEVFOR operational evaluation (OPEVAL) with Command and Control Systems. Formerly part of "Data Connectivity/METOC in the IT Enterprise."

FY09 - Tactical Environmental Support System/Naval Integrated Tactical Environmental Subsystem (TESS/NITES) software development and testing for technology upgrades, refreshes, migrations, and system engineering efforts. Formerly part of "Data Connectivity/METOC in the IT Enterprise."

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
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

Tactical Oceanography Capabilities (TOC) / Undersea Warfare (USW)	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	0.275	0.556	0.433
RDT&E Articles Quantity			

FY07- Delivered Geophysical Acoustic Inversion Toolkit (GAIT) Version 2 to Ocean Atmosphere Master Library (OAML). Began integration into Fleet Combat Systems. Matured networked data sharing capabilities (from acoustic data inversion). Continued investigation of Precise Underwater Mapping (PUMA) volumetric sound velocity and backscatter inversion techniques. Tested and validated Modular Ocean Data Assimilation System-Light (MODAS-L) string data ingest capability and volumetric sound velocity assimilation algorithms for OAML approval. Began integration of these algorithms into submarine combat systems. Began development of web-based submarine ambient noise assimilation capability (Acoustic Data Acquisition). Formerly part of "Acoustic Data Inversion/Sensors and Observing Systems (Through-the-Sensor)." Integrated the Dynamic Ambient Noise Prediction System (DAPS) Version 2 and updated historical shipping noise database into Fleet Anti-submarine Warfare (ASW) Combat Systems (specifically the Sonar Tactical Decision Aid Variants and Under Sea Warfare (USW) Decision Support System (DSS)). Developed Network based on DAPS. Added real-time ship tail Ambient Noise (AN) observations to the Shipping Nose (SN) database (from Ambient Noise Data). Continued the development of the next generation AN database modeled after the Global Data Base Variable Resolution (GDB-V database. Continued to develop Tactical Decision Aids (TDA) uncertainty algorithms (from Acoustic Data Acquisition). Formerly part of "Ambient Noise Data/TDA/Mission Planning.".

FY08 - Complete integration of GAIT Version 2 algorithms into Fleet Combat Systems, Anti-submarine Warfare (ASW) Tactical Decision Aids (TDAs) and for use aboard Naval Oceanographic Office (NAVOCEANO) assets. Commence development of the GAIT Version 3 algorithms. Engineering studies and preliminary design for a passive seabed classification system to be used aboard submarines, next-generation surface ships and aboard Maritime Patrol & Reconnaissance Aircraft (MPRA.) Continue development of ambient noise assimilation capability aboard submarines. Begin development of advanced geo-acoustic merging algorithms to support inversions. Conduct submarine fathometer (BQN-17) Automated Sediment Classification System (ASCS) validation. Develop, demonstrate & test Through-the-Sensor (TTS) concept for undersea warfare systems. Formerly part of "Acoustic Data Inversion/Sensors and Observing Systems (Through-the-Sensor)." Architecture and design of Mission Planning Systems and support elements in support of littoral combat operations. Data analysis and processing development for environmental characterization for Mission Planner & Tactical Decision Aid use. Develop quality control, fusion and product uncertainty tools and techniques to transform data into information to support product development for mission planners and TDA use. Development of techniques and tools to guide adaptive sampling to optimize use of measurement assets. Formerly part of "Ambient Noise Data/TDA/Mission Planning." Develop advanced processing tools to work with insitu data sources to populate environmental database and support forward deployed oceanographic personnel. Continue development work, test and document adaptive hydrographic and seafloor survey work for transition to the unmanned vehicles, small surface craft and T-AGS 60 class ships. Formerly part of "Littoral Battlespace Data Acquisition/Sensors and Observing Systems (In-Situ)."

FY09 - Geo-acoustic data inversion (through-the-sensor) efforts rolled into the Ocean Bottom Characterization Initiative (OBCI). Expand ambient noise through-the-sensor collection and assimilation capability to include current and future MPRA platforms like the Multi-Mission Maritime Aircraft (MMA) and future surface combatant platforms like the Littoral Combat Ship (LCS) and the Next Generation Destroyer (DD(X)). Develop techniques and algorithms to collect atmospheric refractivity data in support od Anti-Submarine Warfare (ASW) operations. Continue to develop, test and demonstrate advanced Geographic Information Systems (GIS) in support of world-wide Anti-Submarine Warfare (ASW) operations. Develop mission planning tools in support of littoral combat operations. Develop capability to quickly calculate transmission loss (TL) values in tactical timeframes. Continue data analysis and processing development for environmental characterization for mission planning & tactical decision aid use. Continue development, test/document and quality control fusion and product uncertainty tools and techniques to transform data into information to support product development for mission planners and tactical decision aid (TDA) use. Continue development, test and validation of techniques and tools to guide adaptive sampling to optimize use of measurement assets. Develop both acoustic and non-acoustic ASW reconstruction and analysis algorithms and techniques to aid in environmental analysis of Naval exercises. Develop and validate ASW product effectiveness metrics algorithms. Develop and validate methods for a theater-wide ambient noise planning tool using all available data sources. Develop next-generation shipping noise quantification, data fusion and forecast algorithms. Design the automated model metrics system. Continue to develop and demonstrate advanced processing tools to work with insitu data sources to populate environmental database and support forward deployed oceanographic personnel. Development and demonstration of advanced insitu sensor systems to support very near shore situational awareness in support of Anti-Submarine Warfare missions. Continue development, verify and validate performance and document adaptive geoacoustic survey work for transition to unmanned vehicles and T-AGS 60 class ships. Continue the development and demonstration of micro-miniature oceanographic and atmospheric in-situ sensors & systems. Utilize tactical and survey platforms for insitu measurements.

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
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	

(U) B. Accomplishments/Planned Program

Ocean Bottom Characterization Initiative (OBCI)	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	3.149		4.500
RDT&E Articles Quantity			

FY07 - Developed improved capabilities to characterize acoustic sea bottom loss and backscatter (reverberation) properties for inclusion in Naval Oceanographic Office (NAVOCEANO) databases supporting sensor performance predictions for low and mid-frequency active and passive Navy sonar systems in the Major Combat Operation (MCO) 2 and 3 areas of interest. Designed a prototype offboard ocean bottom characterization system to augment currently existing NAVOCEANO survey techniques employed by NAVOCEANO's fleet of T-AGS class ships. Conducted a zero-based review of existing survey methods by investigating concepts such as adaptive geoacoustic sampling, including horizontal/vertical bottom loss database decimation to determine the effect of building loss databases with fewer grid points and/or fewer sub-bottom layers on acoustic transmission loss calculations by Anti Submarine Warfare (ASW) tactical decision aids (TDAs). Improve data base accuracy of Navy Standard Low & High Frequency Bottom Loss (LFBL and HFBL) databases without inclusion of newly collected data sets. Incorporate existing, on-the-shelf data sets (e.g. HEP and BTEC data) into those databases. Extend the frequency boundaries of existing data bases in order to support new acoustic sensors. d. Characterize active reverberation for use in ASW tactical decision aids (TDAs). Provide a first-order solution to the reverberation characterization problem by furthering the development of the Geophysical Acoustic Bottom Interaction Model (GABIM).

FY09 - Develop capability to rapidly map coastal and deep-water seabed geoacoustic properties through characterization of seabed variability. Design offboard geo-acoustic survey platform and sensor prototypes for deployment aboard T-AGS class ships and other Naval Oceanographic Office (NAVOCEANO) assets. Continue development, validation and verfication of the Delivered Geophysical Acoustic Inversion Toolkit (GAIT) Version 3 bottom loss algorithms for AntiSubmarine Warfare Tactical Decision Aids (ASW TDAs) and NAVOCEANO assets to include active inversion methods. Continue development of a passive seabed classification system. Verify & validate performance of Through The Sensor (TTS) applications for inclusion in Navy Standard databases. Continue development of advanced geo-acoustic merging algorithms to support inversions. Pursue adapative sampling techniques for NAVOCEANO geoacoustic survey assets. Characterize backscatter (i.e. reverberation) data for inclusion in NAVOCEANO databases. Adapt ocean glider and autonomous underwater vehicle (AUV) sensors and behavior algorithms to support NAVOCEANO survey operations. Perform gravity/seismic data set correlation to improve geoacoustic databases. Extend bandwidth of existing bottom loss databases and algorithms to include all active and passive tactical acoustic frequencies. Define frequency extrapolation limits of existing reverberation data sets. Continue to develop prototype replacement acoustic source for NAVOCEANO survey operations. Begin development of active acoustic clutter characterization algorithms into Fleet Synthetic Training (FST) systems. Adapt the Generalized Acoustic Bottom Interaction Model (GABIM) to act as the first-order solution for a comprehensive, integrated system to generate an acoustic bottom loss and backscatter database in regions of strategic Navy interest. Provide technical and program management oversight for the Ocean Bottom Characterization Initiative (OBCI). Continue investigation of Low Frequency Active (LFA) source to characterize the seabed.

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
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	

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name

Not Applicable

RELATED RDT&E: PE 0604218N, Air/Ocean Equipment Engineering - AN/SMQ-11 satellite receiver/recorder system engineering to receive data from on-orbit Defense Meteorological Satellite Program (DMSP) sensors onboard selected ships and shore sites.

(U) D. ACQUISITION STRATEGY:

Acquisition, management and contracting strategies are to support the 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 the Program Executive Officer for Command, Control, Communications, Computers, and Intelligence (PEO C4I).

(U) E. MAJOR PERFORMERS:

Not applicable

(U) F. METRICS:

Earned Value Management (EVM) is used for metrics reporting and risk management.

Exhibit R-3 Cost Analysis (page 1)

DATE: February 2008

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 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software/Product Development	WX	NRL	30.720	5.008	N/A	6.070	N/A	5.824	N/A	CONT	CONT	
	WX	SSCs	9.784	2.718	N/A	3.447	N/A	3.030	N/A	CONT	CONT	
	WX	MISC	5.792	0.528	N/A	1.009	N/A	0.790	N/A	CONT	CONT	
	CP	MISC	14.895	5.436	N/A	3.470	N/A	10.187	N/A	CONT	CONT	
	N/A	MISC	3.784		N/A		N/A		N/A	CONT	CONT	
Subtotal Software/Product Development			64.975	13.690	N/A	13.996	N/A	19.831	N/A	CONT	CONT	

Remarks:

Systems Engineering	CP	MISC	2.060		N/A		N/A		N/A	CONT	CONT	
Subtotal Systems Engineering			2.060	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	

Remarks:

Exhibit R-3 Cost Analysis (page 2)

DATE: February 2008

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 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	OPTEVFOR	0.140	0.020	N/A	0.020	N/A		N/A	CONT	CONT	
	MP	JITC		0.040		0.040				CONT	CONT	
Subtotal Developmental T & E			0.140	0.060	N/A	0.060	N/A	0.000	N/A	CONT	CONT	

Remarks: Testing supports delivery of the Marine Corps Meteorological Mobile Facility Replacement (METMF(R)) Next Generation (NEXGEN) prototypes.

Management												
Subtotal Management			0.000	0.000		0.000		0.000				

Remarks:

Total Cost			67.175	13.750	N/A	14.056	N/A	19.831	N/A	CONT	CONT	

EXHIBIT R4, Schedule Profile

DATE: February 2008

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 - Program: Littoral Battlespace Sensing, Fusion and Integration (LBSF&I)

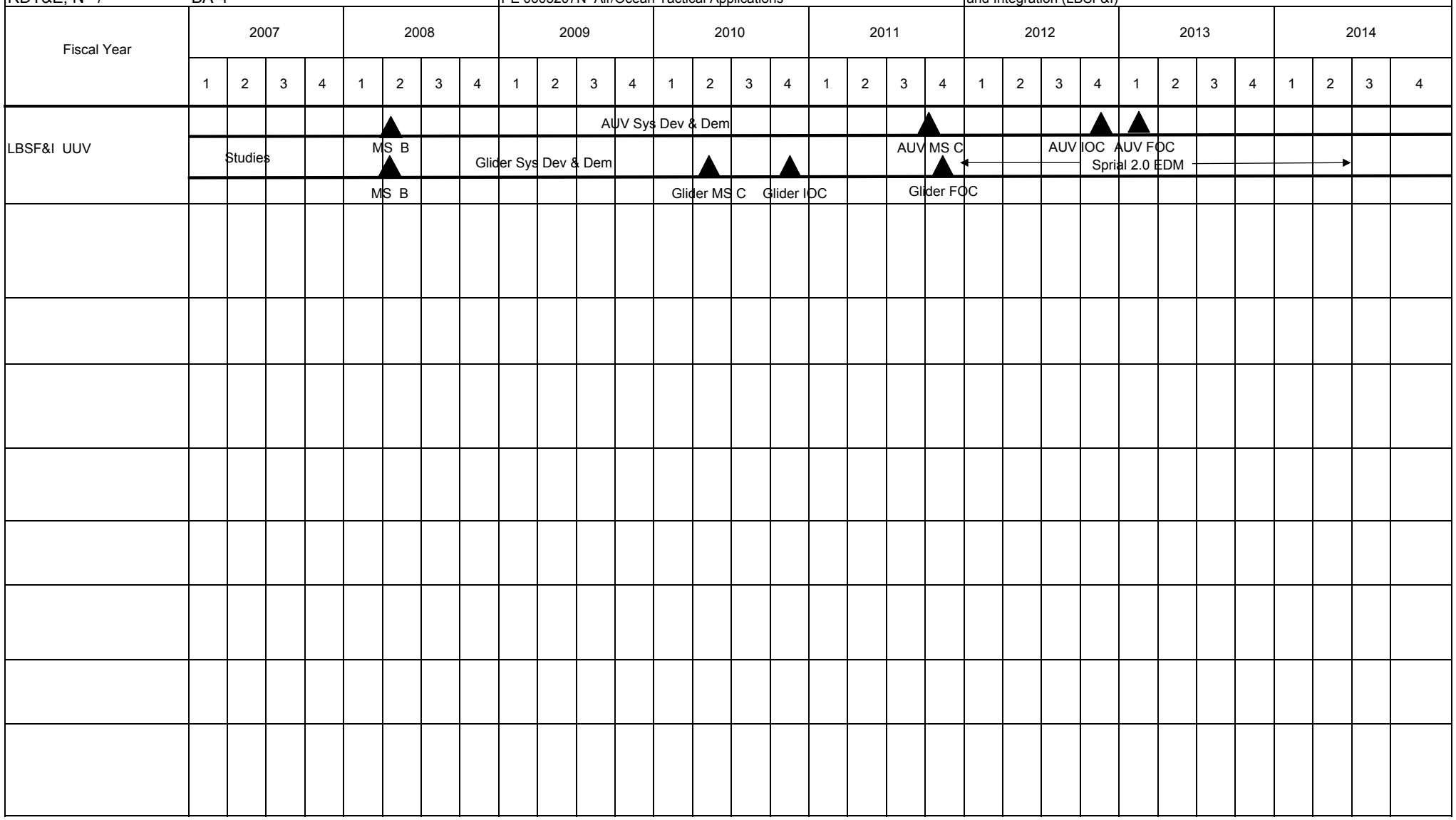


Exhibit R-4a, Schedule Detail							DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications				PROJECT NUMBER AND NAME 2341 METOC Data Acquisition - Program: Littoral Battlespace Sensing, Fusion and Integration (LBSF&I)		
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
LBSF&I UUV		2Q			4Q	4Q	1Q	

EXHIBIT R4, Schedule Profile		DATE: February 2008
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 - Program: USMC Meteorological Mobile Facility (Replacement) Next Generation (METMF(R) NEXGEN)

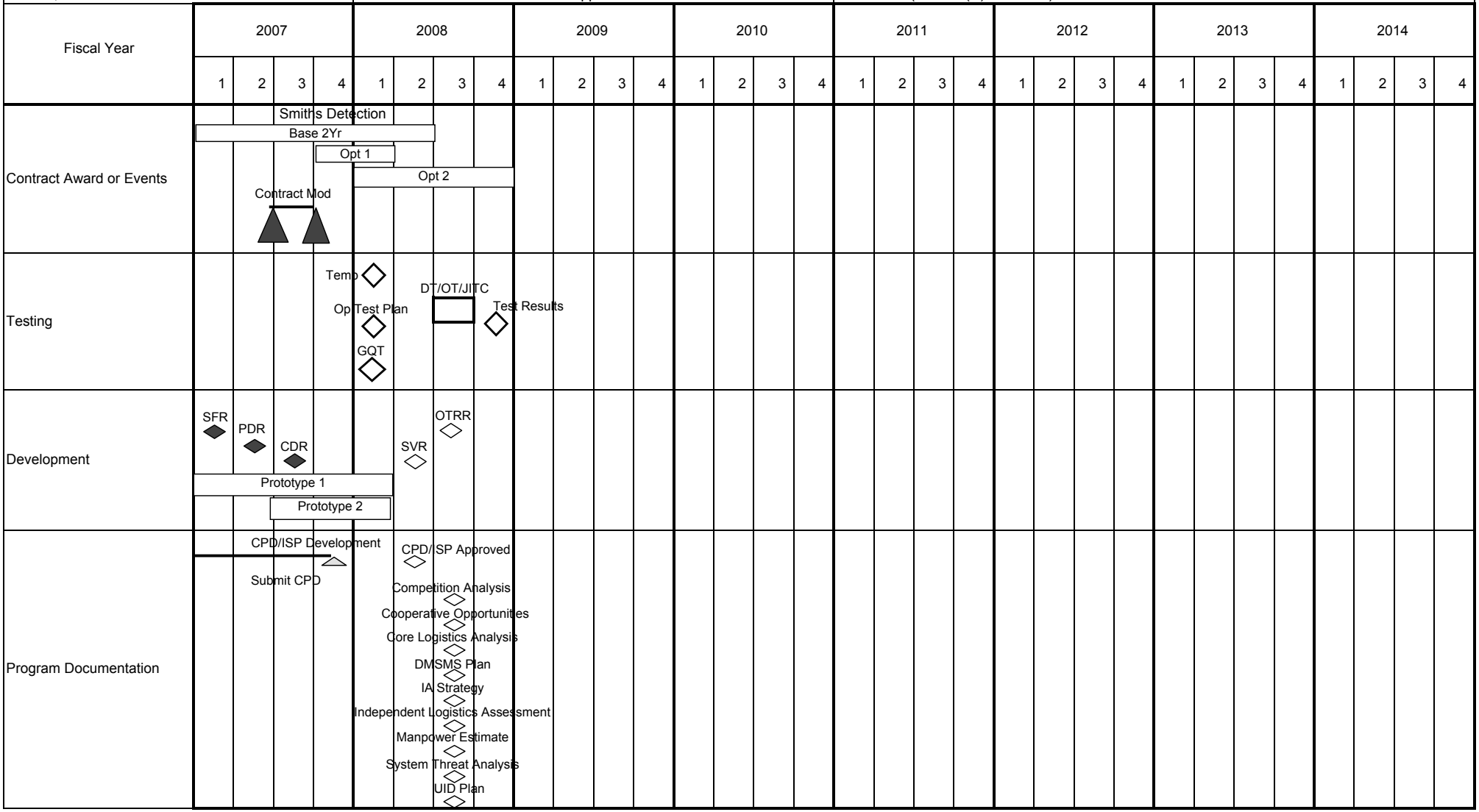


Exhibit R-4a, Schedule Detail							DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications				PROJECT NUMBER AND NAME 2341 METOC Data Acquisition - Program: METMF NEXGEN		
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Contract Award or Events								
Base	1Q - 4Q	1Q - 2Q						
Modification	3Q							
Option 1	4Q	1Q						
Option 2		1Q - 4Q						
Testing								
Temp - Test & Evaluation Master Plan		1Q						
Op Test Plan - Oper		1Q						
GQT		1Q						
DT/OT/JITC		3Q						
Test Results		4Q						
Development								
SFR	1Q							
PDR	2Q							
CDR	3Q							
Prototype 1	1Q - 4Q	1Q						
Prototype 2	3Q - 4Q	1Q						
SVR		2Q						
OTRR		3Q						
Program Documentation								
CDP/ISP Development	1Q - 4Q							
Submit CDP	4Q							
CDP/ISP Approval		2Q						
Competition Analysis		3Q						
Cooperative Opportunities		3Q						
Core Logistics Analysis		3Q						
DMSMS Plan		3Q						
IA Strategy		3Q						
Independent Logistics Assessment		3Q						
Manpower Estimate		3Q						
System Threat Analysis		3Q						
UID Plan		3Q						

EXHIBIT R4, Schedule Profile			DATE: February 2008
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 - Program: Meteorlogical and Oceanographic (METOC) Future Mission Capabilities (FMC)

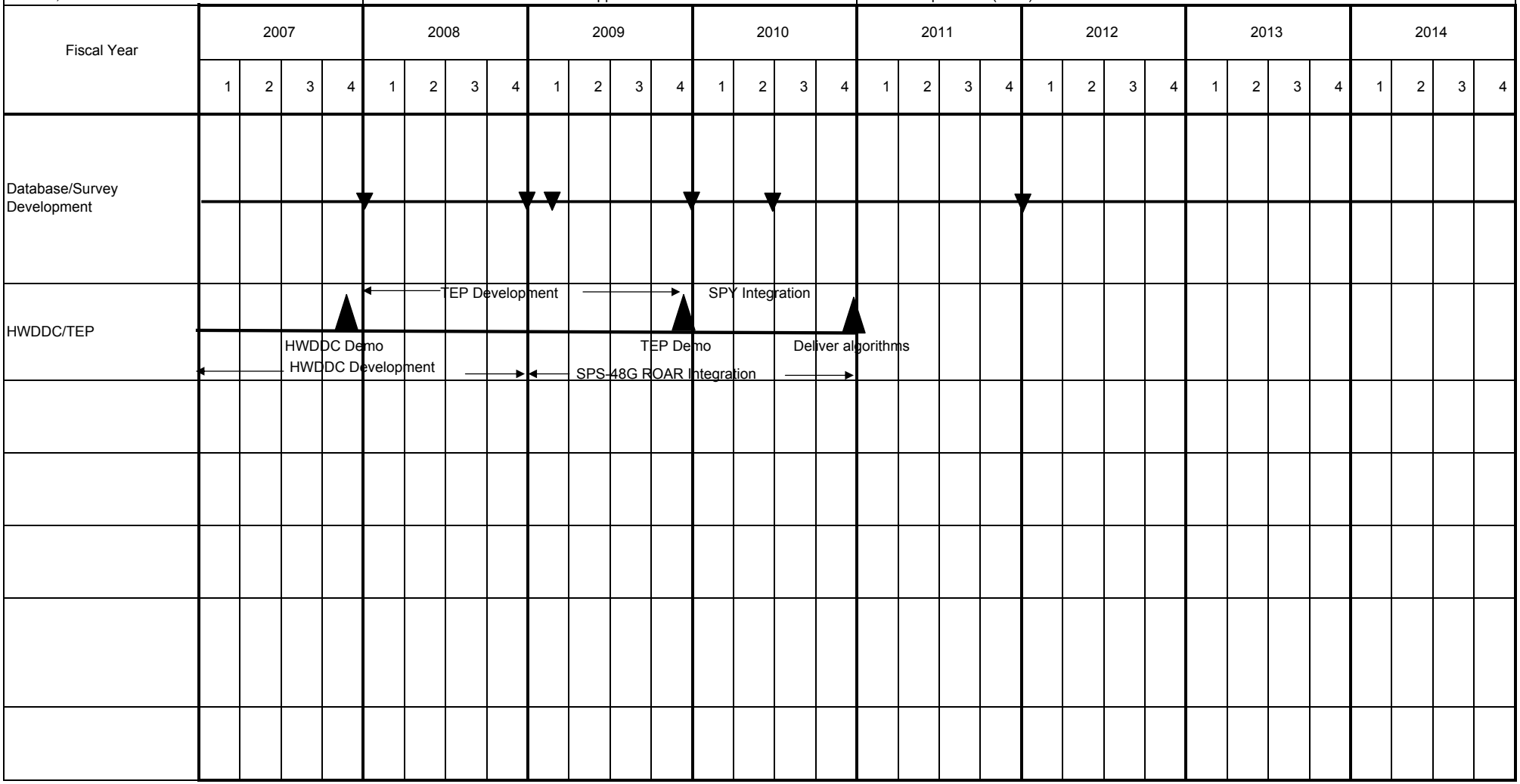


Exhibit R-4a, Schedule Detail							DATE: February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications				PROJECT NUMBER AND NAME 2341 METOC Data Acquisition - Program: Meteorological and Oceanographic (METOC) Future Mission Capabilities			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Database/Survey Development	4Q	4Q	1Q/4Q	2Q	4Q			
HWDDC/TEP	4Q		4Q	4Q				

CLASSIFICATION:

EXHIBIT R4, Schedule Profile		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /**	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications	PROJECT NUMBER AND NAME 2341 METOC Data Acquisition - Program: Tactical Environmental Support System/Naval Integrated Tactical Environmental Subsystem (TESS/NITES)

Fiscal Year	2007				2008				2009				2010				2011				2012				2013				2014			
					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
Update Database Software for Transition to New Technology																																
Tactical Decision Aid (TDA) and Data Software Test and Integration																																
NITES TDA/Data Integration Efforts for Command and Control System Platforms																																

Exhibit R-4a, Schedule Detail								**DATE:** February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	**PROGRAM ELEMENT** PE 0603207N Air/Ocean Tactical Applications				**PROJECT NUMBER AND NAME** 2341 METOC Data Acquisition - Program: Tactical Environmental Support System/Naval Integrated Tactical			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Update Database Software for Transition to New Technology	4Q	3Q						
Tactical Decision Aid (TDA) and Data Software Test and Integration		2Q	1Q					
NITES TDA/Data Integration Efforts for Command and Control System Platforms		1Q	1Q/4Q					

EXHIBIT R4, Schedule Profile

DATE: February 2008

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 - Program: Naval Integrated Tactical Environmental Subsystem (NITES) Next

Fiscal Year	2007				2008				2009				2010				2011				2012				2013				2014			
					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 Studies/Prototypes of Data Transport for Engineering & Development									Arch/Design Study/Eng																							
Design Development and Test of Data Storage in Netcentric Environment with NITES-Next													Net-centric METOC data												NITES-next SOA migration for data							

Exhibit R-4a, Schedule Detail							DATE: February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	**PROGRAM ELEMENT** PE 0603207N Air/Ocean Tactical Applications				**PROJECT NUMBER AND NAME** 2341 METOC Data Acquisition - Program: Naval Integrated Tactical Environmental Subsystem (NITES)			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Engineering Studies/Prototypes of Data Transport for Engineering & Development			1Q/3Q					
Design Development and Test of Data Storage in Netcentric Environment with NITES-Next				1Q	1Q	2Q		

EXHIBIT R4, Schedule Profile

DATE: February 2008

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 - Program: Tactical Oceanography Capabilities (TOC) / Undersea Warfare (USW)

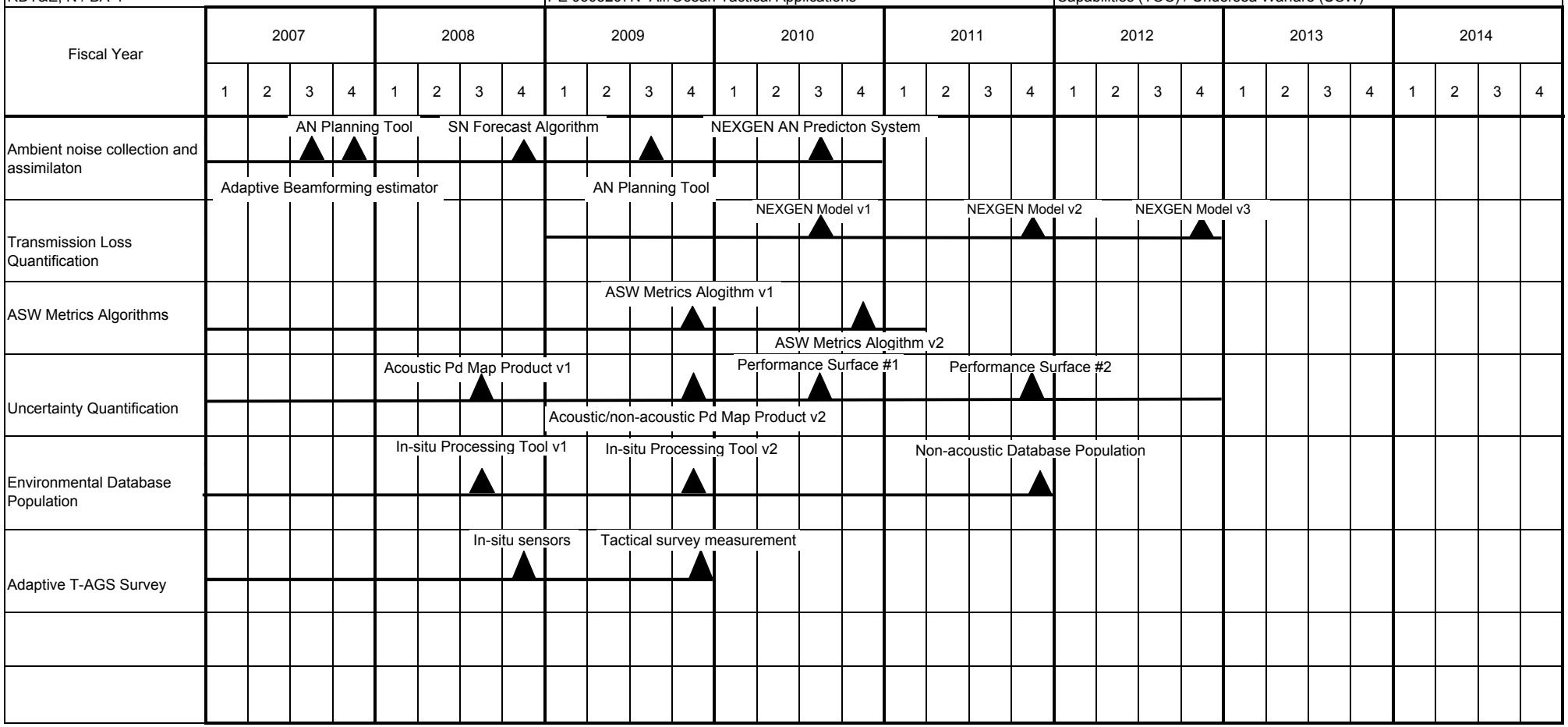


Exhibit R-4a, Schedule Detail							DATE: February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications				PROJECT NUMBER AND NAME 2341 METOC Data Acquisition - Program: Tactical Oceanography Capabilities (TOC) / Undersea Warfare (USW)			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Ambient noise collection and assimilaton	3Q/4Q	4Q	3Q	3Q				
Transmission Loss Quantification				3Q	4Q	4Q		
ASW Metrics Algorithms			4Q	4Q				
Uncertainty Quantification		3Q	4Q	3Q	4Q			
Environmental Database Population		3Q	4Q		4Q			
Adaptive T-AGS Survey		4Q	4Q					

EXHIBIT R4, Schedule Profile			DATE: February 2008
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 - Program: Ocean Bottom Characterization Initiative (OBCI)	

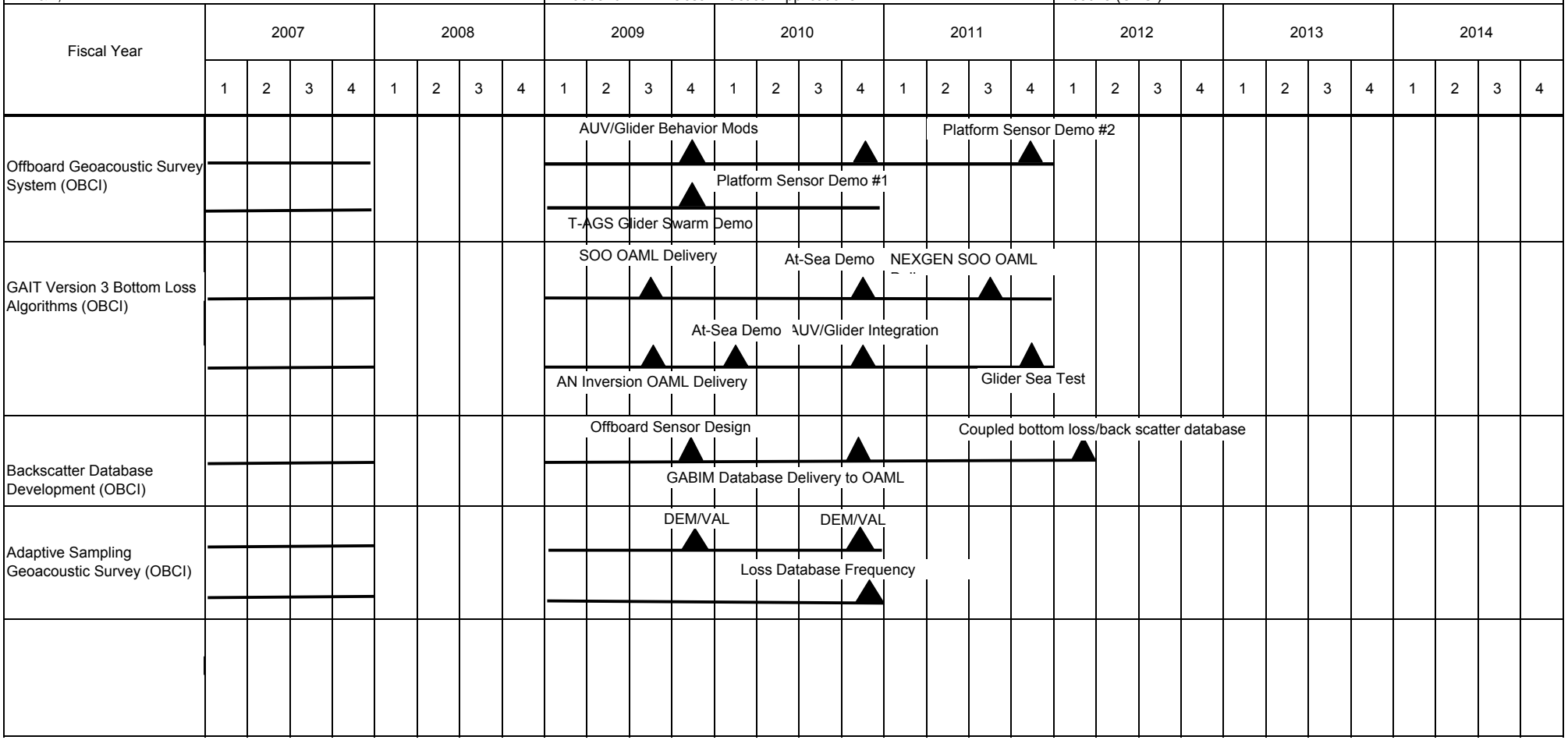


Exhibit R-4a, Schedule Detail							DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications				PROJECT NUMBER AND NAME 2341 METOC Data Acquisition - Program: Ocean Bottom Characterization Initiative (OBCI)		
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Offboard Geoacoustic Survey System (OBCI)			4Q	4Q	4Q			
GAIT Version 3 Bottom Loss Algorithms (OBCI)			3Q	1Q/4Q	3Q/4Q			
Backscatter Database Development (OBCI)			4Q	4Q		1Q		
Adaptive Sampling Geoacoustic Survey (OBCI)			4Q	4Q				

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2008
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)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	**10.664**	**14.212**	**18.642**	**21.652**	**17.356**	**14.497**	**13.189**
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 (FNMOC), Monterey, CA and the Naval Oceanographic Office (NAVO), 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; 4) National Polar-orbiting Operational Environmental Satellite System (NPOESS) readiness and risk reduction preparations to develop hardware and software that will allow ground stations to receive, ingest and exploit NPOESS data including the NPOESS Preparatory Project (NPP). 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, 5) 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 sensor data. 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 at both FNMOC and NAVO. Improved representation of smaller-scale phenomena, particularly in the littoral, is also an important consideration. Intelligence Preparation of the Environment (IPE) Sensor R&D to meet CNO and Commander, Fleet Forces Command (CFFC) requirements for remote autonomous, clandestine, littoral battlespace sensing in near shore areas in support of Sea Shield & Sea Basing.

Funding increases in FY08 and beyond support the development of advanced data fusion algorithms and network integration as part of the Littoral Battlespace Sensing, Fusion and Integration (LBSF&I) Program.

This budget reflects a reorganization by program/project to better support the acquisition process.

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
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

Littoral Battlespace Sensing, Fusion and Integration (LBSF&I)	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	0.990		1.700
RDT&E Articles Quantity			

FY07- Developed advanced data fusion algorithms for weather radars in support of the LBSF&I program. Formerly part of "Coupled Data Assimilation/Assimilation and Prediction Models (Atmosphere)." Developed advanced data fusion algorithms in support of the LBSF&I program. Formerly part of "Basin Scale Ocean Models/Assimilation and Prediction Models (Oceans)."

FY09 - Continue development of advanced data assimilation and fusion algorithms for glider and Autonomous Undersea Vehicles (AUVs) data including, temperature, depth, saliningy, optics, hydrographic, bathymetric and other water column and ocean bottom properties. Demonstrate a basic capability to assimilate, database, and relay data and derived products from ocean gliders and AUVs, including optics, bathymetry, temperature, depth, salinity, and currents. Demonstrate prototype mission planning and adaptive sampling capability. Begin defining LBSF&I Unmanned Undersea Vehicle (UUV) Spiral 2.0 Fusion and Integration requirements and capabilities. Conduct Spiral 2 capability studies and analyses as required. Formerly part of the "Basin Scale Ocean Models/Assimilation and Prediction Models (Oceans)."

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
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	

(U) B. Accomplishments/Planned Program

Meteorlogical and Oceanographic (METOC) Future Mission Capabilities (FMC)	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	6.719	11.418	9.968
RDT&E Articles Quantity			

FY07 - Delivered Joint Modeling and Simulations (M&S) support capabilities to Naval Oceanography Command (NAVOCEANO). Continued development of Version 2.0 of the Carrier Strike Group/Expeditionary Strike Group (CSG/ESG) Environmental Simulator. Participated in selected Naval Exercises and delivered post exercise strawman and final reports (from Fleet Exercises). New applications and data are delivered from the program and require verification and validation on an annual basis. Delivered annual report (from Fleet Applications and Data Verification and Validation). Formerly part of "Modeling and Simulation (M&S)/Tactical Design Aids (TDA) and Mission Planning." Completed Variational Data Assimilation System (NAVDAS) Version 3 Operational Test (OPTEST) and deliver to FNMOC. Investigated and incorporated Automated Techniques into the next generation data assimilation system. Re-coded NAVDAS to conform to Weather Research and Forecasting (WRF) compatibility requirements (from Coupled Data Assimilation). Continued implementing WRF compatibility requirements. Explored incorporation of high-resolution Aerosol analyses and forecasts (from High-Resolution Models). Began development of Coupled Ocean/Atmosphere Meso-Scale Prediction System (COAMPS) V4. Continued investigations into improved Tropical Cyclone forecasting techniques. Began Development of Hi-Res (~27km) Global Model. Completed COAMPS Dust algorithm integration. Began COAMPS operating system Nowcast integration. Developed advanced data fusion algorithms for weather radars in support of the LBSF&I program. Formerly part of "Coupled Data Assimilation/Assimilation and Prediction Models (Atmosphere)." Incremental development of coupled air/ocean models for selected geographical locations in response to emergent requirements. Completed development of MODAS dynamic. Began development of MODAS Next Generation (NEXGEN). Continued development of HYCOM. Completed development of NCOM relocateable. Began development of NCOM Region A. Completed development of NCODA Vertical Covariance. Began development of NCODA Horizontal Covariance. Continued development of advanced ADvanced CIRCulation model (ADCIRC) and coastal wave and surf algorithms. Developed advanced data fusion algorithms in support of the LBSF&I program. Formerly part of "Basin Scale Ocean Models/Assimilation and Prediction Models (Oceans)." Continued to transition applications using next generation WindSat, MSG, the SSMIS, and MTSAT. Incorporation of Automated Expert System techniques (from Data Assimilation). Continued improvements to the Satellite Workstation. Formerly part of "Data Assimilation/Assimilation and Prediction Models (Space)."

FY08 - Develop ASW Tactical Decision Aids (TDA) asset allocation and mission planning tools to optimize deployment of environmental data collection assets. Explore presentation of mission planning and acoustic reconstruction data in a Geographic Information System (GIS) Develop a algorithms to create area acoustic assessments and analogous exercise area tools. Formerly part of "Modeling and Simulation (M&S)/Tactical Design Aids (TDA) and Mission Planning." Develop advanced data assimilation, coupled meoscale forecast systems. Test performance of 4D-Var (Degrees of Variation) for NAVDAS integration. Extend capabilities of assimilation systems to use additional satellite, remote sensed and insitu data types. Develop architecture for fully coupled ocean and atmospheric system. Continue to develop advanced atmospheric prediction/forecast models. Develop high resolution (small scale) atmospheric models to forecast environmental conditions in the littoral and riverine regions. Develop advanced global atmospheric prediction/forecast models. Develop high resolution (small scale) atmospheric models to nowcast & forecast environmental conditions in the littoral and riverine regions. Development advance aerosol small scale and large scale prediction models. Continue development of the Hazardous Weather Detection and Display Capability (HWDDC), the Tactical Environmental Processor (TEP) and associated advanced algorithms (e.g. Nowcast) that assimilate and fuse various data types such as radial wind velocity, reflectivity, rain rate, etc. generated from the HWDDC system as well as data types such as electromagnetic refractivity generated from the SPY-1 TEP. Demonstrate the HWDDC system and associated fusion algorithms. Develop automated quality control algorithms for these data types. Begin development of an end-to-end methodology to collect, fuse, and integrate these data into Navy and DoD networks and command and control nodes. Formerly part of "Coupled Data Assimilation/Assimilation and Prediction Models (Atmosphere)." Develop advanced data assimilation, coupled mesoscale forecast systems. Test performance of 3D-Var for NCODA integration. Extend capabilities of assimilation systems to use additional satellite, remote sensed and insitu data types. Development of architecture for fully coupled ocean and atmospheric system. Continue to develop advanced ocean prediction/forecast models. Develop high resolution (small scale) atmospheric models to forecast environmental conditions in the littoral and riverine regions. Develop advanced global atmospheric prediction/forecast models. Develop high resolution (small scale) atmospheric models to nowcast & forecast environmental conditions in the littoral and riverine regions. Formerly part of "Basin Scale Ocean Models/Assimilation and Prediction Models (Oceans)." Begin development of data assimilation capability using EUMETSAT (European satellite) and NASA satellite data. Formerly part of "Data Assimilation/Assimilation and Prediction Models (Space)." Develop TDA uncertainty algorithms. Formerly part of "Ambient Noise Data/TDA/Mission Planning."

FY09 - Continue advanced component development and prototype efforts associated with advanced data assimilation into environmental prediction systems. Continue development of advanced oceanographic and atmospheric prediction systems and architectures to provide improved forecasts and estimates of product accuracies. Continue development of improved data fusion techniques, data quality control technologies and accelerate the automation prediction processes. Develop data assimilation and fusion techniques and technologies for tactical radars, remote sensing and undersea sensor systems. Develope tmospheric fusion algorithms and demonstrate TEP/HWDDC reachback fusion capability. Development of network integration capability and continue to develop systems engineering plans, requirements, standards, studies, and other documentation supporting integration of these products into the SPY-1 Open Architecture and SPS-48G radars. Development of advanced data assimilation and data quality control algorithms for glider and Autonomous Undersea Vehicles (AUVs) data including, temperature, depth, saliningy, optics, hydrographic, bathymetric and other water column and ocean bottom properties.

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
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

Meteorological and Oceanographic (METOC) Space-Based Sensing Capabilities	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost			3.664
RDT&E Articles Quantity			

FY09 - Continue development of NPOESS data assimilation algorithms and applications previously funded under PE 0305160N, Navy METOC Support (Space), Project 0524 using simulations and on-orbit heritage sensors. The NPOESS program constellation of satellites include the NPP satellite, the NPOESS satellites (C-1, C-2 and replacements) and the European METOP (European METeorological OPerational satellite program) .

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
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	

(U) B. Accomplishments/Planned Program

Tactical Oceanographic Capabilities (TOC) / Undersea Warfare (USW)	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	2.955	2.794	3.310
RDT&E Articles Quantity			

FY07 - Participated in selected Naval Exercises and delivered post exercise strawman and final reports (from Fleet Exercises). New applications and data delivered from the program and require verification and validation on an annual basis. Delivered annual report (from Fleet Applications and Data Verification and Validation). Continued development of automated Anti-Submarine Warfare (ASW) reconstruction and data collection efforts. Formerly part of "Modeling and Simulation (M&S)/Tactical Design Aids (TDA) and Mission Planning". Demonstrated and validated Range-dependent Acoustic Model (RAM) 4.0 3D (3 Degrees of Freedom) and delivered OAML. Began development of RAM 5.0 4D (4 Degrees of Freedom). Completed bottom database consolidation. Continued development of Standard Operating Activities (SOA) GAIT. Began development of active algorithms for the GAIT. Incorporated Automated Expert Systems model selection algorithms into the next generation RAM (from NEXGEN Acoustic Models). Completed integration of initial uncertainty algorithms into Fleet TDAs. Continued development of next generation mid-frequency bottom loss/bottom scatter models and databases for shallow water environments. Began development of a fully automated version of GAIT (from Shallow Water Acoustics). Continued annual upgrades to the STAPLE system. Completed SESSS 3.0 (4-10 kHz gap). Formerly part of "NEXGEN Acoustic Models/Assimilation and Prediction Models (Acoustics)".

FY08 - Begin development of an ASW mission planning tool for operational use at the ASW Reachback Cell (RBC) resident at the NAVOCEANO. Develop ASW Tactical Decision Aids (TDA) asset allocation and mission planning tools to optimize deployment of environmental data collection assets. Explore presentation of mission planning and acoustic reconstruction data in a Geographic Information System (GIS Develop algorithms to create area acoustic assessments and analogous exercise area tools. Formerly part of "Modeling and Simulation (M&S)/Tactical Design Aids (TDA) and Mission Planning". Continue development of RAM. Increase computational speed of the model on ASW TDA processors. Create an OAML Model Testbed by archiving existing passive transmission loss active reverberation datasets. Make modification to the Comprehensive Acoustic System Simulation (CASS) Gaussian Ray Bundle (GRAB) to improve model performance. Begin upgrade of NAUTILUS (a commercial product) propagation model to compute low frequency reverberation. Continue annual upgrades to the STAPLE system. Conduct Reverberation Modeling Workshop. Continue development of the SESSS algorithm. Continue to develop the Geophysical-Acoustic Bottom Interaction Model (GABIM) and GABIM-derived database. Begin development of algorithms that recommend active sonar waveforms based on the state of the environment. Develop an algorithm that validates and improves the quality of modeled low frequency active planning. Formerly part of "NEXGEN Acoustic Models/Assimilation and Prediction Models (Acoustics)". Development of the regional Ambient Noise Database (ANDB). Incorporate archived directional ambient noise time series observational data into the ANDB. Update historical shipping database with non-traditional vessel density data. Commence development of a short-term ambient noise forecasting capability using previously collected ambient noise data from tactical sensors. Incorporate Adaptive Beam Forming (ABF) techniques into existing noise models. Develop methods to aid in the collection, archiving/databasing ambient noise data for later inclusion in historical databases supporting ASW TDAs. Develop TDA uncertainty algorithms. Formerly part of "Ambient Noise Data/TDA/Mission Planning".

FY09 - Continue development of ASW mission planning, analysis and reconstruction tools, including Geographic Information Systems (GIS), for operational use at the ASW Reachback Cell (RBC.) Reconstruction and Analysis (R&A) tool set will be expanded to support all ASW communities, integrate mission planning functions and contain both acoustic/non-acoustic reconstruction data in a GIS environment. Continue to develop ASW tactical decision aid (TDA) asset allocation and mission planning tools to optimize deployment of both environmental data collection assets and tactical acoustic and non acoustic sensors. Develop ASW-related performance surface products for use at the NAVOCEANO ASW Reachback Cell and in mission planning systems to include Probability of Detection (Pd) maps. Assess uncertainty values associated with acoustic performance prediction products. Identify, develop and test environmentally-oriented, mathematically-based decision support tools for application in support of ASW operations and exercises. Begin development of models, databases and algorithms to quantify non-acoustic/acoustic uncertainty. Continue development of algorithms to create area acoustic assessments and analogous exercise area tools. Develop descriptive dynamic oceanography features assessment tool for ocean model accuracy/reliability determination. Establish a standardized environment for model and observation data. Continue spiral development of the RAM and Parobolic Equation acoustic models. Integrate upgrade NAUTILUS propagation model into fleet systems. Continue annual upgrades to the Scalable Tactical Acoustic Propagation Loss Engine (STAPLE) system. Continue development of SESSS. Develop a self-consistent semi-empirical surface loss model. Develop quantification algorithms for volume scattering. Continue development of the GABIM Version 2.0 and GABIM-derived database. Continue development of algorithms that recommend active sonar waveforms based on the state of the environment. Continue to make modification to the Comprehensive Acoustic System Simulation (CASS) Gaussian Ray Bundle (GRAB) to improve model performance in support of mission planning systems, tactical decision aids, fleet synthetic training systems and modeling and simulation tools. Upgrade the ASPM model to support IEER mission predictions. Use reverberation workshop results to develop new Navy Standard active reverberation model. Continue development of algorithms that recommend active sonar waveforms based on the state of the environment and algorithms that validate and improve the quality of modeled low frequency active planning. Develop electro-magnetic propagation and radiance models and refractive databases to support emerging non-acoustic ASW sensors. Develop models that quantify effects of near- surface turbulence and N-gradients on target detection. Develop Fish Scattering Strength (FSS) algorithm. Adapt exisitng acoustic models for better active localization. Improve realism in clutter modeling. Continue development of the regional ANDB. Continue development of a short-term ambient noise forecasting capability using previously collected ambient noise data from tactical sensors. Continue to develop methods and techniques to aid in the collection, archiving/databasing and dissemination of both omni-directional and directional ambient noise data. Engineering design for NEXGEN ambient noise model, data assimilation and forecasting tool. Continue to develop TDA uncertainty algorithms. Develop ambient noise databases for emerging airborne and submarine-based ASW systems. Develop prototype P-3 AXBT data collection system. Develop improved bathythermograph (BT) data processing system for Master Oceanographic Observation Data Set (MOODS). Develop rapid mission reconstruction, analysis & feedback system. Provide project technical and program management oversight.

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
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	

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name

Not applicable

(U) D. ACQUISITION STRATEGY:

Acquisition, management and contracting strategies to support the 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 Program Executive Officer for Command, Control, Communications, Computers, and Intelligence (PEO C4I).

(U) E. MAJOR PERFORMERS:

Not applicable

(U) F. METRICS:

Earned Value Management (EVM) is used for metrics reporting and risk management.

Exhibit R-3 Cost Analysis (page 1)

DATE: February 2008

APPROPRIATION/BUDGET ACTIVITY	**PROGRAM ELEMENT**	**PROJECT NUMBER AND NAME**
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2342 METOC Data Assimilation and Modeling

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software/Product Development	WX	NRL	64.032	7.491	N/A	9.338	N/A	11.088	N/A	CONT	CONT	
	WX	SSCs		0.226	N/A	0.580	N/A	0.680	N/A	CONT	CONT	
	WX	MISC	1.981	0.798	N/A	0.768	N/A	1.020	N/A	CONT	CONT	
	CP	MISC	5.796	2.149	N/A	3.526	N/A	5.854	N/A	CONT	CONT	
	N/A	MISC	12.775		N/A		N/A		N/A	CONT	CONT	
	Grant	Univ. S. Miss.	2.413		N/A		N/A		N/A			
Subtotal Software/Product Development			86.997	10.664	N/A	14.212	N/A	18.642	N/A	CONT	CONT	

Remarks:

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

Remarks:

Exhibit R-3 Cost Analysis (page 2)

DATE: February 2008

APPROPRIATION/BUDGET ACTIVITY	**PROGRAM ELEMENT**	**PROJECT NUMBER AND NAME**
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2342 METOC Data Assimilation and Modeling

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation					N/A		N/A		N/A	CONT	CONT	
Subtotal Developmental T & E			0.000	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	

Remarks:

Management					N/A		N/A		N/A	CONT	CONT	
Subtotal Management			0.000	0.000		0.000		0.000				

Remarks:

Total Cost			87.292	10.664	N/A	14.212	N/A	18.642	N/A	CONT	CONT	

EXHIBIT R4, Schedule Profile

DATE: February 2008

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 - Program: Littoral Battlespace Sensing, Fusion and Integration (LBSF&I)

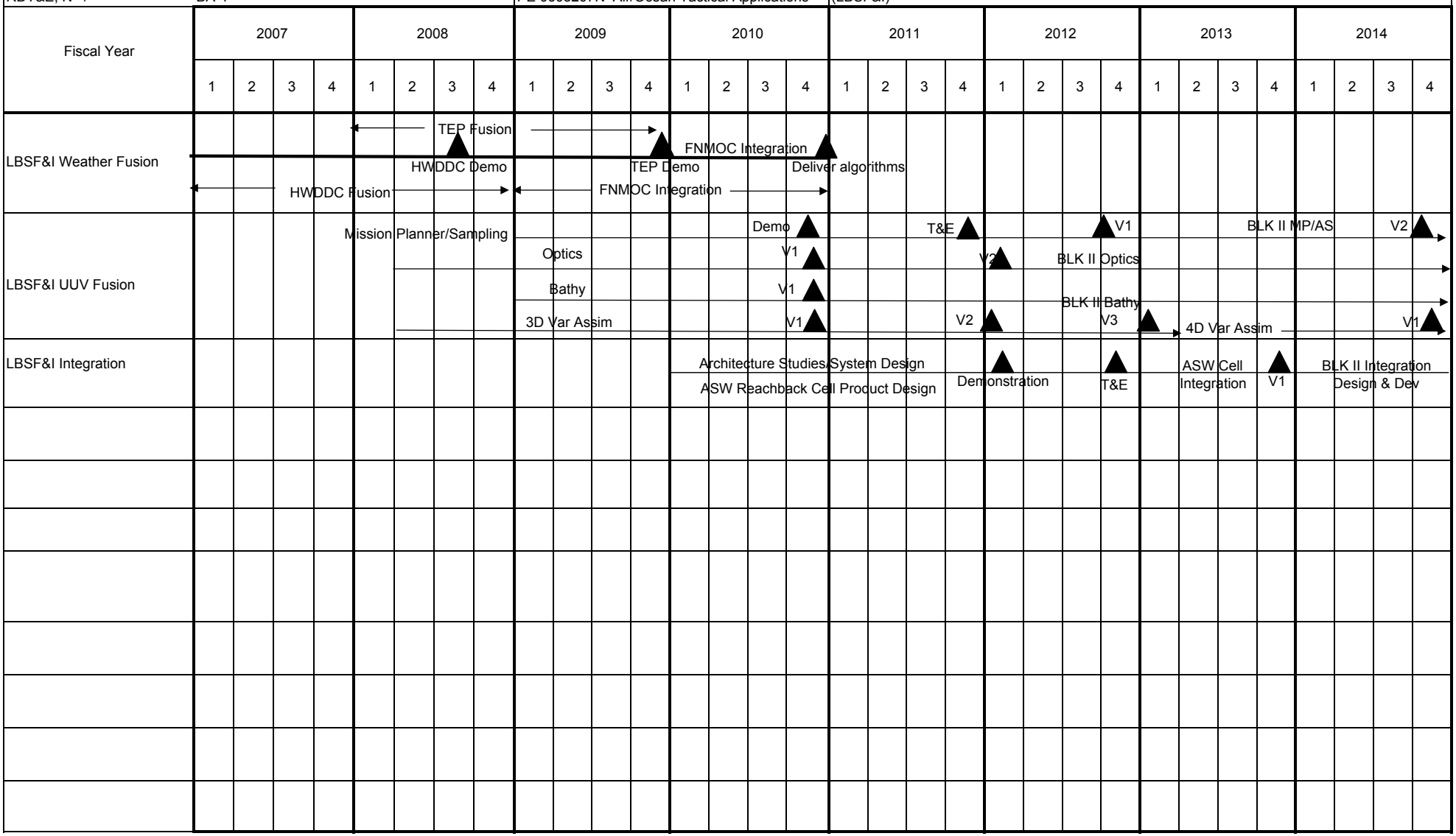


Exhibit R-4a, Schedule Detail					DATE: February 2008			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications				PROJECT NUMBER AND NAME 2342 METOC Data Assimilation - Program: Littoral Battlespace Sensing, Fusion and Integration (LBSF&I)			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
LBSF&I Weather Fusion		3Q	4Q	4Q				
LBSF&I UUV Data Fusion/Assimilation				4Q	4Q	1Q/4Q	1Q	4Q
LBSF&I Integration						1Q/4Q	4Q	

EXHIBIT R4, Schedule Profile			DATE: February 2008
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 - Program: Meteorlogical and Oceanographic (METOC) Furture Mission Capabilities (FMC)

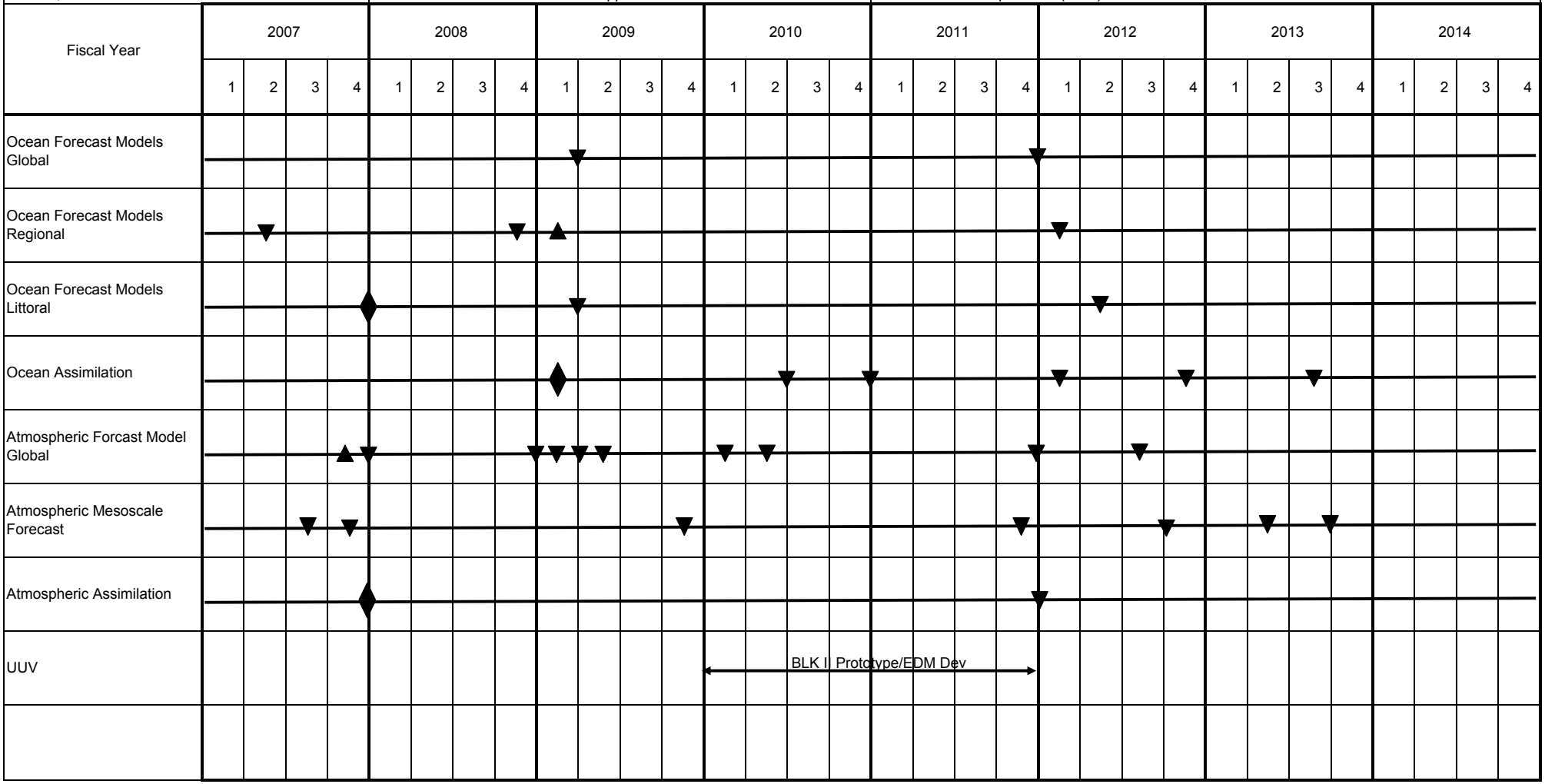


Exhibit R-4a, Schedule Detail					DATE: February 2008			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications				PROJECT NUMBER AND NAME 2342 METOC Data Assimilation and Modeling - Program: Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Ocean Forecast Models Global			1Q		4Q			
Ocean Forecast Models Regional	2Q	4Q	1Q			1Q		
Ocean Forecast Models Littoral	4Q		1Q			2Q		
Ocean Assimilation			1Q	2Q	1Q	1Q/4Q	3Q	
Atmospheric Forecast Model Global	4Q	1Q	1Q/2Q	1Q/2Q	4Q	3Q		
Atmospheric Mesoscale Forecast	3Q/4Q		4Q		4Q	4Q	2Q/3Q	
Atmospheric Assimilation	4Q				4Q			
UUV								

EXHIBIT R4, Schedule Profile		DATE: February 2008
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 - Program: Meteorological and Oceanographic (METOC) Space-Based Sensing Capabilities

Fiscal Year	2007				2008				2009				2010				2011				2012				2013				2014			
	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
NPP/NPOESS													NPP Launch															C-1 Launch				
													Data Assimilation Algorithm Development																			

Exhibit R-4a, Schedule Detail								DATE: February 2008
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 - Program: Meteorological and Oceanographic (METOC) Space-Based Sensing Capabilities			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
NPP/NPOESS			4Q				4Q	

EXHIBIT R4, Schedule Profile

DATE: February 2008

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 - Program: Tactical Oceanographic Capabilities (TOC) / Undersea Warfare (USW)

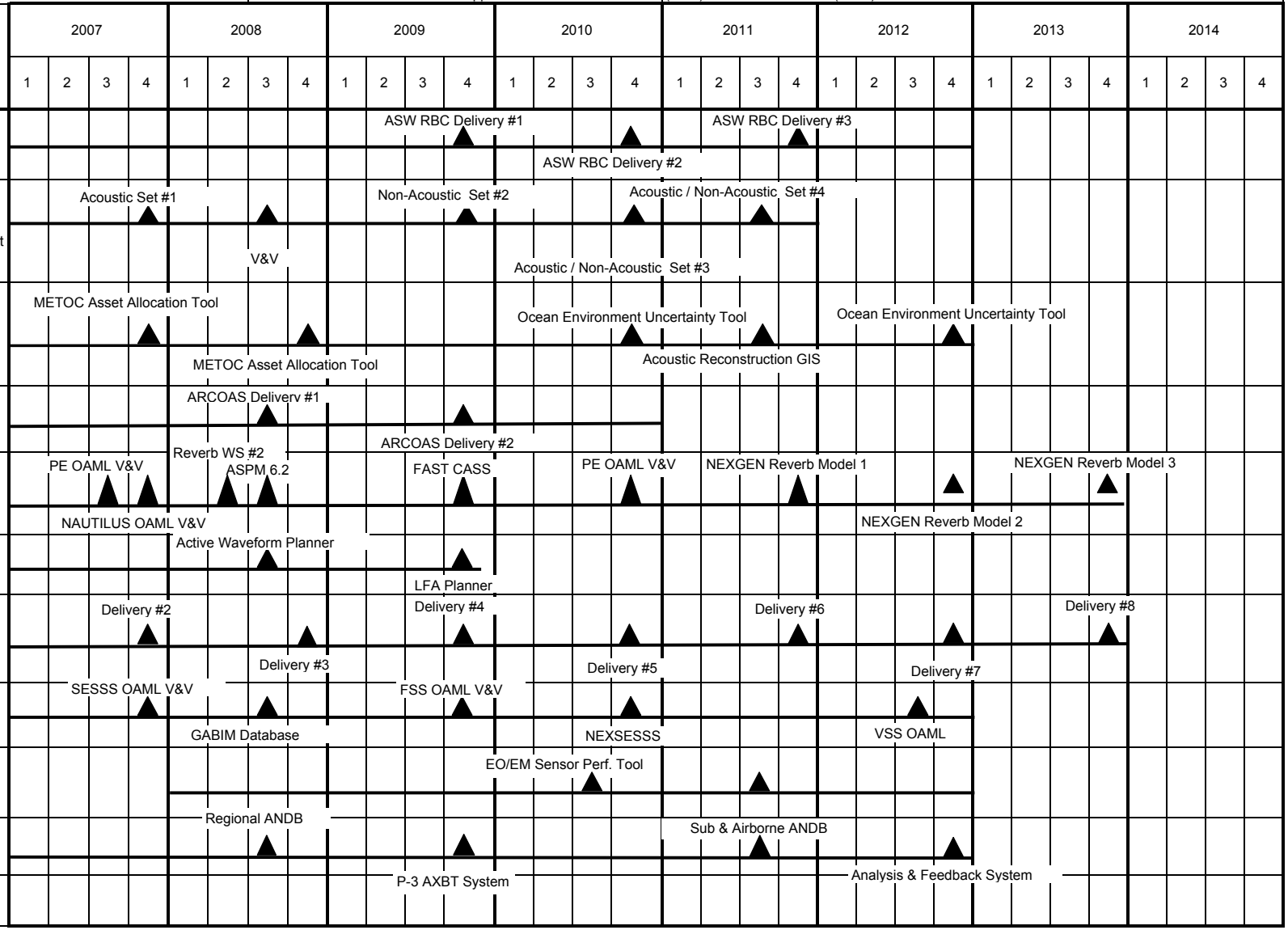


Exhibit R-4a, Schedule Detail					DATE: February 2008			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications				PROJECT NUMBER AND NAME 2342 METOC Data Assimilation and Modeling - Program: Tactical Oceanographic Capabilities (TOC) / Undersea Warfare (USW)			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
ASW Reconstruction & Analysis Tool			4Q	4Q	4Q			
Performance Surface Toolset	4Q	3Q	4Q	4Q	3Q			
ASW Mission Planning	4Q	4Q		4Q	3Q	4Q		
Descriptive Dynamic Oceanography Assessment Tool		3Q	4Q					
Acoustic Model Upgrades	3Q/4Q	2Q/3Q	4Q	4Q	4Q	4Q	4Q	
Acoustic Model Planner		3Q	4Q					
STAPLE Upgrades	4Q	4Q	4Q	4Q	4Q	4Q	4Q	
Boundary Algorithms	4Q	3Q	4Q	4Q		3Q		
Non-Acoustic ASW Algorithms				3Q	3Q			
AN Databases		3Q	4Q		3Q	4Q		

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2008
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)	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013
Project Cost	**8.164**	**7.374**	**6.390**	**6.758**	**6.185**	**6.349**	**6.516**
RDT&E Articles Qty							

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

The Tactical Meteorological and oceanographic (METOC) 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 Naval Special Warfare (NSW). Performance assessments leading to improvements in operational and tactical control are conducted through a two-tiered approach: 1) METOC Decision Aids (MDAs) and, 2) Operational 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, and numerically modeled forecast 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 against hostile targets. Performance results are displayed in tabular and graphic formats for use by mission planners and combat/weapon system operators to develop 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 2341 (METOC Data Acquisition) and assimilated by software produced by Project 2342 (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 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 shallow water ASW, NSW, and missile and air defense/strike capabilities.

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
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

Tactical Environmental Support System/Naval Integrated Tactical Environmental Subsystem (TESS/NITES)	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	4.480		
RDT&E Articles Quantity			

FY07 - Completed development of Target Acquisition Weapons Software (TAWS) 4.0. Began development of TAWS 4.4 Enterprise Portal. Completed development of Advanced Refractive Effects Prediction System (AREPS) JAVA port. Began development of an advanced Electromagnetic (EM) Model Server. Conducted annual update of Mine Warfare Environmental Data Applications Library (MEDAL) acoustic databases and models. Formerly part of "Electromagnetic and Electro-optical (EM/EO) Decision Aids/ TDA/Mission Planning".

FY08 - Efforts rolled into the Naval Integrated Tactical Environmental System Next Generation (NITES-Next) program.

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
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

Naval Integrated Tactical Environmental System Next Generation (NITES-Next)	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	3.684	7.374	6.390
RDT&E Articles Quantity			

FY07 - Continued development of NITES-Next (formerly NITES NG). Formerly part of "Electromagnetic and Electro-optical (EM/EO) Decision Aids/ TDA/Mission Planning".

FY08 - Development of System architecture, system engineering, Preliminary Design Review (PDR), Critical Design Review (CDR), initial software development and Pre-Milestone C acquisition activities for NITES-Next (formerly NITES NG), including integration of updates to sensor data and backgrounds consistent with Joint Operations and development of upgrades to next generation Electromagnetic and Electro-optical (EM/EO) and Advanced Refractive Environmental Prediction System (AREPS) performance prediction systems to include incorporation of new Navy and Joint Sensor Suites. Develop the Mine Warfare and Environmental Data Applications Library (MEDAL) to include the incorporation of the new environmental databases and model updates . Support transition in fleet for integration of new EM/EO Target Acquisition Weapons Software (TAWS), and advanced visualization techniques for Global Command and Control Systems integration prior to NITES-Next transition in FY08 to include integration of new EM/EO, TAWS, and advanced visualization techniques. Formerly part of "Electromagnetic and Electro-optical (EM/EO) Decision Aids/ TDA/Mission Planning".

FY09 - Milestone C preparation activities and associated development of system architecture, system engineering, software development, test and integration activities for NITES-Next, including development of upgrades to next generation EM/EO and AREPS performance prediction systems. Extensive Developmental Test and Evaluation (DT&E) efforts in preparation for Initial Operational Test and Evaluation and Milestone C involving lab, fleet and site testing and early COMOPTEVFOR involvement. Develop MEDAL to include the incorporation of the new environmental databases and model updates. Formerly part of "Electromagnetic and Electro-optical (EM/EO) Decision Aids/ TDA/Mission Planning".

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
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	

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name

Not applicable

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

(U) D. ACQUISITION STRATEGY:

Acquisition, management and contracting strategies are to support the Tactical METOC 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 incorporating these into Naval Integrated Tactical Environmental System Next Generation (NITES-Next) under JCIDS by Program Executive Officer for Command, Control, Communications, Computers, and Intelligence (PEO C4I).

(U) E. MAJOR PERFORMERS:

N/A

Exhibit R-3 Cost Analysis (page 1)

DATE: February 2008

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 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software/Product Development	WX	NRL	2.343	0.345	N/A	0.300	N/A	0.250	N/A	CONT	CONT	
	WX	SSCs	3.459	0.837	N/A	0.760	N/A	0.630	N/A	CONT	CONT	
	WX	MISC	1.400	0.982	N/A	0.920	N/A	0.758	N/A	CONT	CONT	
	CP	MISC	42.805	6.000	N/A	5.394	N/A	4.752	N/A	CONT	CONT	
	N/A	MISC	6.370		N/A		N/A		N/A	CONT	CONT	
Subtotal Software/Product Development			56.377	8.164	N/A	7.374	N/A	6.390	N/A	CONT	CONT	

Remarks:

Systems Engineering	CP	IPD	0.595		N/A		N/A		N/A	CONT	CONT	
Subtotal Systems Engineering			0.595	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	

Remarks:

Exhibit R-3 Cost Analysis (page 2)

DATE: February 2008

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 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation					N/A		N/A		N/A	CONT	CONT	
Subtotal Developmental T & E			0.000	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	

Remarks:

Management												
Subtotal Management			0.000	0.000		0.000		0.000				

Remarks:

Total Cost			56.972	8.164	N/A	7.374	N/A	6.390	N/A	CONT	CONT	

EXHIBIT R4, Schedule Profile

DATE: February 2008

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

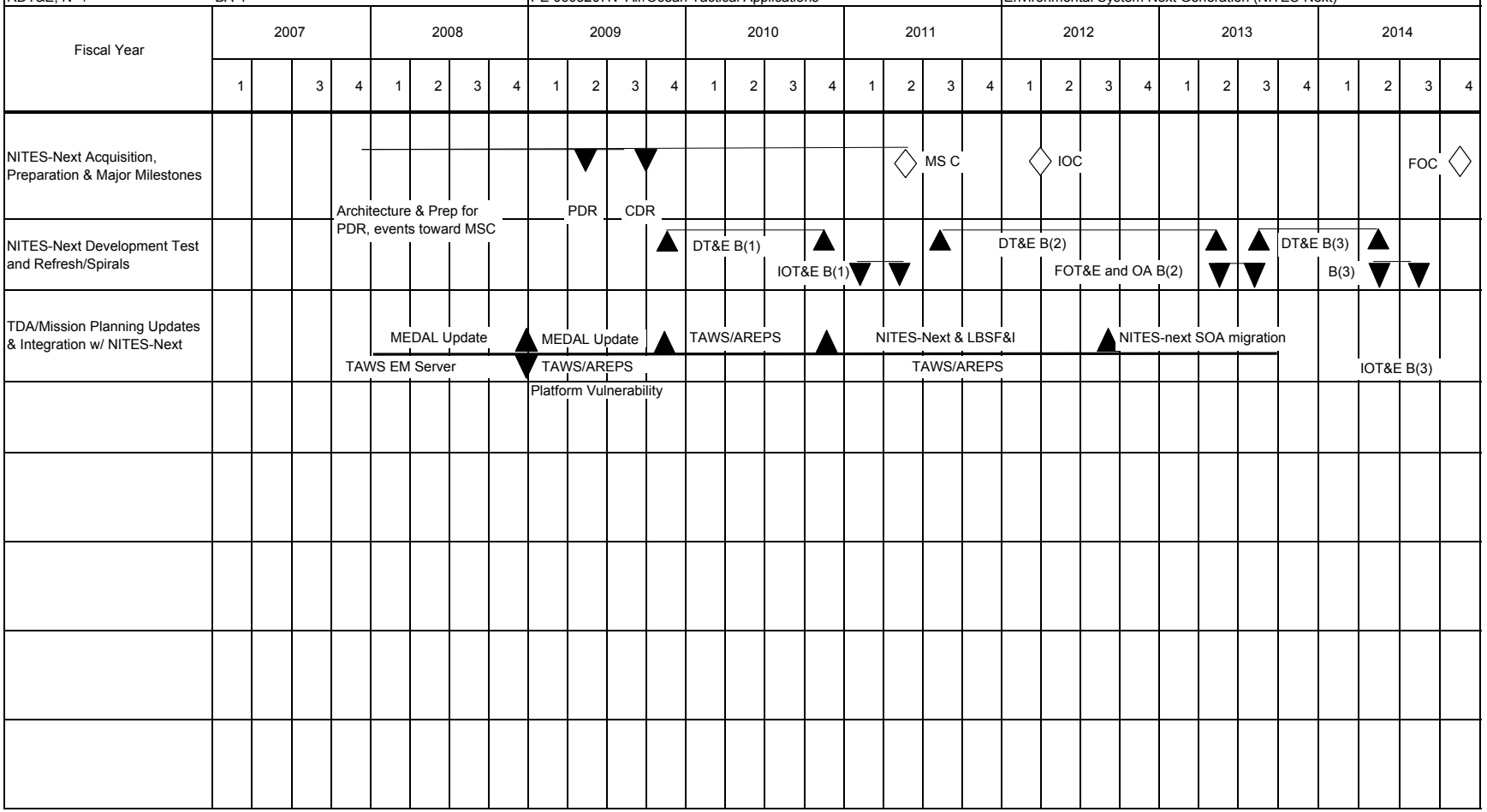
PROGRAM ELEMENT NUMBER AND NAME
PE 0603207N Air/Ocean Tactical Applications

PROJECT NUMBER AND NAME
2343 Tactical METOC Applications - Program: Tactical Environmental Support System/Naval Integrated Tactical Environmental Subsystem (TESS/NITES)

Fiscal Year	2007				2008				2009				2010				2011				2012				2013				2014			
	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
GCCS- 4.1 Software Corrective Update of TAWS, AREPS, and other TDAs.			▲																													
Consolidate TDA and Data for NITES Integration to GCCS-M &J				▲																												

Exhibit R-4a, Schedule Detail					DATE: February 2008			
APPROPRIATION/BUDGET ACTIVITY	**PROGRAM ELEMENT**				**PROJECT NUMBER AND NAME**			
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications				2343 Tactical METOC Applications - Program: Tactical Environmental Support System/Naval Integrated Tactical Environmental Subsystem (TESS/NITES)			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
GCCS- 4.1 Software Corrective Update of TAWS, AREPS, and other TDAs.	3Q							
Consolidate TDA and Data for NITES Integration to GCCS-M &J	4Q							

EXHIBIT R4, Schedule Profile			DATE: February 2008
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 - Program: Naval Integrated Tactical Environmental System Next Generation (NITES-Next)	



B(1) - Spiral Build 1, B(2) - Spiral Build 2, B(3) - Spiral Build 3

Exhibit R-4a, Schedule Detail					DATE: February 2008			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications				PROJECT NUMBER AND NAME 2343 Tactical METOC Applications - Program: Naval Integrated Tactical Environmental System Next Generation (NITES-Next)			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
NITES-Next Acquisition, Preparation & Major Milestones			2Q/3Q		2Q	1Q		4Q
NITES-Next Development Test and Refresh/Spirals		4Q	4Q	4Q	1Q/2Q/3Q		2Q/3Q	2Q/3Q
TDA Mission Planning Updates & Integration with NITES-Next		4Q	4Q	4Q		3Q		

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2008
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)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	**1.517**	**1.206**	**20.270**	**1.313**	**1.311**	**1.337**	**1.364**
RDT&E Articles Qty							

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

The major thrust of the Precise Timing and Astrometry Project (PTA) 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.

FY09 funding increase for the Joint Milli-Arcsecond Pathfinder Survey (J-MAPS). Joint strike operations require extremely accurate Positioning, Navigation, and Timing (PNT) systems in order to both: locate hostile threats with space-borne Intelligence Surveillance and Reconnaissance (ISR) systems, and then to deliver ordnance on precisely selected targets. The U.S. Navy, via the U.S. Naval Observatory (USNO), provides a key component of PNT – the Celestial Reference Frame. This reference frame is defined in star catalogs that are used in conjunction with star trackers to determine orientation of space-based sensors to minimize Target Location Error (TLE) and the resultant weapon system Circular Error Probable (CEP). The accuracy of star positions (hence obtainable CEP and TLE) is degrading with time due to the movement of stars since the last highly accurate space-based measurements of star positions (order of 1 milli-arcsecond) were made in 1991 (Hipparcos star catalog). The accuracy of the catalog is approaching the minimum necessary to support current requirements, and will not meet future needs for high accuracy sensors and weapon systems. Therefore, USNO, in concert with other activities and agencies in the Space and ISR communities, has developed the J-MAPS initiative. The J-MAPS initiative will satisfy the emerging requirements for a new high accuracy star catalog through a space-based astrometry mission that will also “pathfind” new star tracker technology as a risk reduction for future ISR systems. Producing star catalogs with sufficient accuracy to meet these requirements can only be done from space platforms (satellites) due to atmospheric interference on ground-based systems and the physical limitations of high atmospheric aircraft.

This budget reflects a reorganization by program/project to better support the acquisition process.

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
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

Precise Timing & Astrometry	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	1.517	1.206	1.270
RDT&E Articles Quantity			

FY07 - Began development of the algorithm for the atomic fountain timescale. Began a 24/7 demonstration of the Ensemble Fountain Clock Systems. Completed and demonstrated the Prototype M Code GPS receiver. Began development of the USNO Robotic Astrometric Telescope (URAT) Focal Plane Array (FPA). Conducted a pre-operational demonstration of the Charge Coupled Device (CCD) array for the USNO Robotic Astrometric Telescope. Formerly part of "Time Transfer/Precise Timing, Astrometry, & Reference Frames".

FY08 - Complete development of algorithm for ensemble clock system. 24/7 demonstration of fountain ensemble clock. Mod M-code GPS receiver to meet final specifications. Demo URAT focal plane. Formerly part of "Time Transfer/Precise Timing, Astrometry, & Reference Frames".

FY09 - Initiate ensemble demo at Alternate Master Clock (AMC) facility. Demo final M-Code receiver. Design astrometric space mission. Formerly part of "Time Transfer/Precise Timing, Astrometry, & Reference Frames".

Joint Milli-Arcsecond Pathfinder Survey (J-MAPS)	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost			19.000
RDT&E Articles Quantity			

FY09 - Joint Milli-Arcsecond Pathfinder Survey (J-MAPS) will be used to complete Phase A (conceptual design) and Phase B (preliminary design) of the overall spacecraft and mission. In addition, long lead item developments will begin immediately after the System Requirements Review (SRR). Developments will include focal plane assemblies, readout and processing electronics, and optical components. By the end of FY09, as a result of this funding, a preliminary design for the spacecraft will be delivered.

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
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	

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name

Not applicable.

(U) D. ACQUISITION STRATEGY:

Acquisition, management and contracting strategies are to support 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 Program Executive Officer for Command, Control, Communications, Computers, and Intelligence (PEO C4I).

(U) E. MAJOR PERFORMERS:

N/A

Exhibit R-3 Cost Analysis (page 1)

DATE: February 2008

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 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software/Product Development	WX	Naval Observatory	10.646	1.235	N/A	1.051	N/A	1.270	N/A	CONT	CONT	
	N/A	MISC	0.094	0.282	N/A	0.155	N/A	0.000	N/A	CONT	CONT	
	TBD	TBD						19.000				
Subtotal Software/Product Development			10.740	1.517	N/A	1.206	N/A	20.270	N/A	CONT	CONT	

Remarks:

Systems Engineering					N/A		N/A		N/A	CONT	CONT	
Subtotal Systems Engineering			0.000	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	

Remarks:

Exhibit R-3 Cost Analysis (page 2)

DATE: February 2008

APPROPRIATION/BUDGET ACTIVITY	**PROGRAM ELEMENT**	**PROJECT NUMBER AND NAME**
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2344 Precise Timing and Astrometry

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation					N/A		N/A		N/A	CONT	CONT	
Subtotal Developmental T & E			0.000	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	

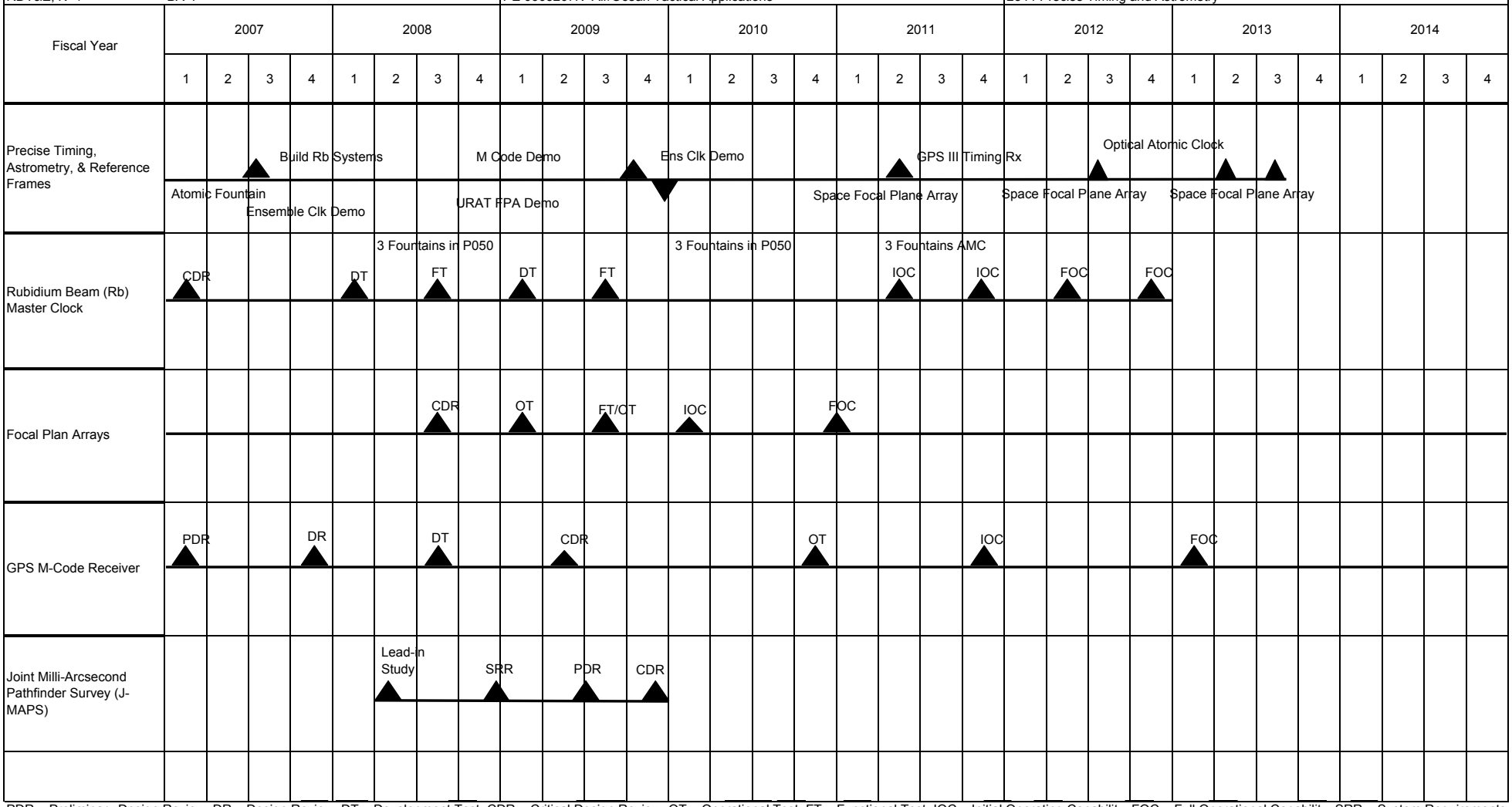
Remarks:

Management												
Subtotal Management			0.000	0.000		0.000		0.000				

Remarks:

Total Cost			10.740	1.517	N/A	1.206	N/A	20.270	N/A	CONT	CONT	

EXHIBIT R4, Schedule Profile		DATE: February 2008
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



PDR = Preliminary Design Review, DR = Design Review, DT = Development Test, CDR = Critical Design Review, OT = Operational Test, FT = Functional Test, IOC = Initial Operating Capability, FOC = Full Operational Capability, SRR = System Requirements

Exhibit R-4a, Schedule Detail					**DATE:** February 2008			
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 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Precise Timing, Astrometry & Reference Frames	3Q		4Q		2Q	3Q	2Q/3Q	
Rubidium Beam (Rb) Master Clock	1Q	1Q/3Q	1Q/3Q		2Q/4Q	2Q/4Q		
Focal Plan Arrays		3Q	1Q/3Q	1Q	1Q			
GPS M-Code Receiver	1Q/4Q	3Q	2Q	4Q	4Q		1Q	
Joint Milli-Arcsecond Pathfinder Survey (J-MAPS)			1Q/3Q/4Q					

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications				PROJECT NUMBER AND NAME 3207 Fleet Synthetic Training		
COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost			**1.000**	**1.023**	**1.054**	**1.085**	**1.126**
RDT&E Articles Qty							

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

Fleet Synthetic Training (FST) is a CNO initiative that is intended to provide naval forces with an enhanced in-port training capability. Integrating embedded shipboard training devices, aircraft and submarine simulators into an interoperable network with Joint, Coalition and Interagency partners is expected to provide more effective training for our deploying naval forces.

A key factor in achieving this new way of training our naval forces is to ensure that the required training is based on realistic characterizations of the physical environment. This project is intended to develop and deliver software that characterizes the ocean and atmospheric environments; adjusts to meet Fleet-required training scenarios; allows synthetic training to be conducted in areas of planned and contingency operations; and, provides sufficient detail to simulate the real-world conditions of the physical environment in those areas of interest.

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY	**PROGRAM ELEMENT NUMBER AND NAME**	**PROJECT NUMBER AND NAME**	
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	3207 Fleet Synthetic Training	

(U) B. Accomplishments/Planned Program

Fleet Synthetic Training (FST)	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost			1.000
RDT&E Articles Quantity			

FY09 - Begin to develop software that provides a common ocean and atmospheric environment to the federation of systems within the Fleet Synthetic Training compliant High Level Architecture. Start to enhance underwater acoustic propagation model and database software that is required to stimulate active sonar displays aboard ships. Start to develop software that is required to connect the sensor performance surface to the federation of Fleet Synthetic trainers. Initiatie software development of land mass effects (e.g., island effects) on ocean and atmospheric environments.

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications	PROJECT NUMBER AND NAME 3207 Fleet Synthetic Training	

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name

Not Applicable

RELATED RDT&E: PE 0603207N / 2342

(U) D. ACQUISITION STRATEGY:

(U) E. MAJOR PERFORMERS:

Not applicable

(U) F. METRICS:

Exhibit R-3 Cost Analysis (page 1)

DATE: February 2008

APPROPRIATION/BUDGET ACTIVITY	**PROGRAM ELEMENT**	**PROJECT NUMBER AND NAME**
RDT&E, N / BA-4	0603207N Air/Ocean Tactical Applications	3207 Fleet Synthetic Training

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software/Product Development	WX	Naval Oceanographic Office -			N/A		N/A	0.600	N/A	CONT	CONT	
		Stennis Space Center, MS										
	CP	Applied Research Laboratory -						0.400				
		University of Texas										
Subtotal Software/Product Development			0.000	0.000	N/A	0.000	N/A	1.000	N/A	CONT	CONT	

Remarks:

Systems Engineering					N/A		N/A		N/A	CONT	CONT	
Subtotal Systems Engineering			0.000	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	

Remarks:

Exhibit R-3 Cost Analysis (page 2)											DATE: February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 3207 Fleet Synthetic Training						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation					N/A		N/A		N/A	CONT	CONT	
Subtotal Developmental T & E			0.000	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
Remarks:												
Management												
Subtotal Management			0.000	0.000		0.000		0.000				
Remarks:												
Total Cost			0.000	0.000	N/A	0.000	N/A	1.000	N/A	CONT	CONT	

EXHIBIT R4, Schedule Profile			**DATE:** February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	**PROGRAM ELEMENT NUMBER AND NAME** PE 0603207N Air/Ocean Tactical Applications		**PROJECT NUMBER AND NAME** 3207 Fleet Synthetic Training

Fiscal Year	2007				2008				2009				2010				2011				2012				2013				2014			
	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
Software/Product Development for Realistic Sybthetic Environment									▲				▲				▲				▲				▲							
Acoustic Model & Database Enhancements for SQS-53c Active Sonar Displays										▲				▲				▲				▲				▲						
Software/Product Development to Connect the Sensor Performance Surface to the Federation of Trainers									▲				▲				▲				▲				▲							

Exhibit R-4a, Schedule Detail					**DATE:** February 2008			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	**PROGRAM ELEMENT** PE 0603207N Air/Ocean Tactical Applications				**PROJECT NUMBER AND NAME** 3207 Fleet Synthetic Training			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Software/Product development for Realistic Synthetic Environment			1Q	1Q	1Q	1Q	1Q	
Acoustic Model & Database Enhancements for SQS-53c Active Sonar			2Q	2Q	2Q	2Q	2Q	
Displays								
Software/Product development to connect the Sensor Performance			1Q	1Q	1Q	1Q	1Q	
Surface to the Federation of trainers								

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY	**PROGRAM ELEMENT NUMBER AND NAME**	**PROJECT NUMBER AND NAME**	
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	9999 Congressional Increases	

(U) B. Accomplishments/Planned Program

9891 Gateway Concept	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	0.975	1.594	
RDT&E Articles Quantity			

FY07: Developed a new design for underwater cable connections.

FY08: Continue the development of a new design for underwater cable connections.

9999 Semi-Submersible UUV	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost		0.994	
RDT&E Articles Quantity			

FY08: Begin design and development efforts for a Semi-Submersible Unmanned Underwater Vehicle (UUV)

9999 Naval Observatory Joint Milli-Arcsecond Pathfinder Survey (J-MAPS) Program	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost		3.970	
RDT&E Articles Quantity			

FY08: Begin system engineering and technology development efforts, to include the development of the focal plane array, for the Naval Observatory Joint Milli-Arcsecond Pathfinder Survey (J-MAPS) Program.

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2008	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4						R-1 ITEM NOMENCLATURE 0603216N, AVIATION SURVIVABILITY		
COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	
Total PE Cost	28.861	21.625	5.917	6.576	6.720	6.859	7.000	
0584 ACFT PROTECTIVE CLOTHING	2.348	2.373	1.981	2.537	2.594	2.649	2.705	
0591 ACFT SURVIVABILITY, VULNERABILITY & SAFETY	1.520	1.547	1.608	1.639	1.677	1.710	1.747	
0592 ACFT & ORDNANCE SAFETY	1.519	1.509	1.594	1.644	1.677	1.713	1.746	
1819 CV ACFT FIRE SUPPRESSION	.698	.696	.734	.756	.772	.787	.802	
9999 CONGRESSIONAL ADDS	22.776	15.5						

(U) 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.

B. PROGRAM CHANGE SUMMARY

Funding:	FY 2007	FY 2008	FY 2009
Previous President's Budget:	29.513	6.252	5.985
Current President's Budget:	28.861	21.625	5.917
Total Adjustments	-0.652	15.373	-0.068

Summary of Adjustments			
Congressional Reductions			
Congressional Rescissions			
Congressional Undistributed Reductions	-0.637	-0.139	
Congressional Increases		15.600	
Economic Assumptions			-0.023
Miscellaneous Adjustments	-0.015	-0.088	-0.045
Subtotal	-0.652	15.373	-0.068

Schedule: Not Applicable

Technical: Not Applicable

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N, AVIATION SURVIVABILITY	PROJECT NUMBER AND NAME 0584, ACFT PROTECTIVE CLOTHING

COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	
0584 ACFT PROTECTIVE CLOTHING	2.348	2.373	1.981	2.537	2.594	2.649	2.705	
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Project 0584 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.

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

Advanced Technology Crew Station	FY 2007	FY 2008	FY 2009	
Accomplishments / Effort / Sub-total Cost	1.206	1.254	1.170	
RDT&E Articles Qty				

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 flighttesting. 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.

Advanced Integrated Life Support System	FY 2007	FY 2008	FY 2009	
Accomplishments / Effort / Sub-total Cost	1.142	1.119	.811	
RDT&E Articles Qty				

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.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N, AVIATION SURVIVABILITY	PROJECT NUMBER AND NAME 0584, ACFT PROTECTIVE CLOTHING

C. OTHER PROGRAM FUNDING SUMMARY:

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
Not Applicable									

D. ACQUISITION STRATEGY: Not Applicable

Exhibit R-3 Cost Analysis (page 1)											DATE: February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4		PROGRAM ELEMENT 0603216N, AVIATION SURVIVABILITY					PROJECT NUMBER AND NAME 0584, ACFT PROTECTIVE CLOTHING						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
PRODUCT DEVELOPMENT													
Licenses	VARIOUS	VARIOUS	.180	.180	DEC 06	.180	DEC 07	.180	DEC 08	CONTINUING	CONTINUING		
Primary Hdw Development	VARIOUS	VARIOUS	1.097	1.023	JAN 07	1.100	JAN 08	.656	JAN 09	CONTINUING	CONTINUING		
Systems Eng	WR	NAWCAD, PATUXENT RIVER MD	25.890	.515	DEC 06	.463	DEC 07	.515	DEC 08	CONTINUING	CONTINUING		
Systems Eng	VARIOUS	VARIOUS	13.900								13.900		
SUBTOTAL PRODUCT DEVELOPMENT			41.067	1.718		1.743		1.351		CONTINUING	CONTINUING		

Remarks:

SUPPORT												
CONFIGURATION MGMT	WR	NAWCAD, PATUXENT RIVER MD	.532								.532	
CONFIGURATION MGMT	VARIOUS	VARIOUS	3.232								3.232	
SUBTOTAL SUPPORT			3.764								3.764	

Remarks:

TEST & EVALUATION												
Dev Test & Eval	WR	NAWCAD, PATUXENT RIVER MD	1.018	.200	DEC 06	.200	DEC 07	.200	DEC 08	CONTINUING	CONTINUING	
Dev Test & Eval	VARIOUS	VARIOUS	18.240								18.240	
SUBTOTAL TEST & EVALUATION			19.258	.200		.200		.200		CONTINUING	CONTINUING	

Remarks:

MANAGEMENT												
Program Mgmt Sup	WR	NAWCAD, PATUXENT RIVER MD	.410	.410	DEC 06	.380	DEC 07	.380	DEC 08	CONTINUING	CONTINUING	
Travel	TO	NAVAIR, PAXTUXENT RIVER MD	.165	.020	OCT 06	.050	DEC 07	.050	DEC 08	CONTINUING	CONTINUING	
SUBTOTAL MANAGEMENT			.575	.430		.430		.430		CONTINUING	CONTINUING	

Remarks:

Total Cost			64.664	2.348		2.373		1.981		CONTINUING	CONTINUING	

Remarks:

CLASSIFICATION:

EXHIBIT R4, Schedule Profile			DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N, AVIATION SURVIVABILITY	PROJECT NUMBER AND NAME 0584, ACFT PROTECTIVE CLOTHING	

Fiscal Year	FY 2007				FY 2008				FY 2009				FY 2010				FY 2011				FY 2012				FY 2013			
	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 Milestone Agile Laser Eye Protection Intensified Unity Mag Goggle																												
Advance Helmet Vision Systems																												
Advanced Integrated Life Support System (AILSS)																												
Smart AILSS (SAILSS)																												
Injury Prevention																												
Test & Evaluation Milestones AHVS Laboratory testing ANGEL																												
Advanced Technology Crew Station (ATCS)																												
Deliveries																												

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4				PROJECT NUMBER AND NAME 0584, ACFT PROTECTIVE CLOTHING			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Advanced Technology Crew Station (ATCS)	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Agile Laser Eye Protection	1Q-4Q	1Q-4Q	1Q-2Q				
Intensified Unity Mag Goggle	1Q-4Q	1Q-4Q	1Q-2Q				
Advanced Helmet Vision System (AHVS)	1Q-4Q						
Advanced Integrated Life Support System (AILSS)	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Smart AILSS (SAILSS)	1Q-4Q						
Injury Prevention	1Q-4Q						
AHVS Laboratory Testing	1Q-4Q						

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N, AVIATION SURVIVABILITY	PROJECT NUMBER AND NAME 0591, ACFT SURVIVABILITY, VULNERABILITY & SAFETY

COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	
0591, ACFT SURVIVABILITY, VULNERABILITY & SAFETY	1.520	1.547	1.608	1.639	1.677	1.710	1.747	
RDT&E Articles Qty								

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.

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

Technology Requirements	FY 2007	FY 2008	FY 2009	
Accomplishments / Effort / Sub-total Cost	.264	.150	.160	
RDT&E Articles Qty				

Technology Requirements: Determine future survivability technology requirements through trade studies that result in program master plans or specific system improvement plans. Data gathering and analysis that determines specific survivability improvements for a platform or platform types. Technology reviews that determine current state of survivability technology development for USN, USMC, US Army, US Air Force, and industry. Trade studies include transport aircraft infrared signature analysis, rotary wing survivability requirements, advanced threat assessments, and methodology improvements. Support the program manager by performing survivability related systems engineering support.

Technology Design & Development	FY 2007	FY 2008	FY 2009	
Accomplishments / Effort / Sub-total Cost	.611	.997	.951	
RDT&E Articles Qty				

Technology Design & Development: Design of susceptibility and/or vulnerability reduction prototype hardware. Fabrication and integraton/installation of prototype hardware in mockups, aircraft, test fixtures, or as part of larger subsystems. Prototype hardware includes fire and fuel protection systems, transparent and opaque armors, exhaust suppressors,counter-asymmetric threat hardware.

Technology Test and Evaluation	FY 2007	FY 2008	FY 2009	
Accomplishments / Effort / Sub-total Cost	.645	.400	.497	
RDT&E Articles Qty				

Technology Test & Evaluation: Integration, laboratory, ground, and flight tests of prototype hardware.
Includes ballistic testing of coupons,samples, and production representative hardware. Radio frequency, Infrared, visual, and acoustic signature measurements of components and fully installed systems. Testing of hardware uses surrogate or real threats or threat systems at major range and test facilities. All tests are designed to demonstrate prototype's technology readiness level indicating maturity level and ability to transition to production (through engineering change proposal (ECP) or spiral development).

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N, AVIATION SURVIVABILITY	PROJECT NUMBER AND NAME 0591, ACFT SURVIVABILITY, VULNERABILITY & SAFETY

C. OTHER PROGRAM FUNDING SUMMARY: FY 2007 FY 2008 FY 2009 FY 2010 FY 2011 FY 2012 FY 2013 To Complete Total Cost

Not Applicable

D. ACQUISITION STRATEGY: NOT APPLICABLE

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4		PROGRAM ELEMENT 0603216N, AVIATION SURVIVABILITY				PROJECT NUMBER AND NAME 0591, ACFT SURVIVABILITY, VULNERABILITY & SAFETY						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
PRODUCT DEVELOPMENT												
Primary Hardware Development	SS-CPFF	BELL HELICOPTER				.582	JAN 08	.541	JAN 09		1.123	1.123
Primary Hardware Development	SS-CPFF	VARIOUS	9.381	.361	DEC 06						9.742	9.742
Systems Eng	VARIOUS	VARIOUS	8.928	.250	NOV 06	.100	NOV 07	.100	NOV 08	CONTINUING	CONTINUING	
Systems Eng	MP	US ARMY				.125	NOV 07	.075	NOV 08	CONTINUING	CONTINUING	
Systems Eng	WR	NSWC CARDEROCK D, WST BETHESDA	4.520								4.520	
SUBTOTAL PRODUCT DEVELOPMENT			22.829	.611		.807		.716		CONTINUING	CONTINUING	

Remarks:

SUPPORT												
Development Support, MFOQA	WX	NSWC, CARDEROCK, MD	2.483								2.483	
Software Development, MFOQA	SS-CPFF	BOEING, ST LOUIS, MO	1.012								1.012	1.012
Technical Data	WX	VARIOUS	.279								.279	
Studies & Analyses (DC)	CPFF	SURVICE, INC	.400	.185	NOV 06						.585	.585
Systems Eng (DC)	CPFF	SURVICE, INC				.150	DEC 07	.175	DEC 08		.325	.325
Systems Eng (DC)	TBD	WYLE				.060	DEC 07	.060	DEC 08	CONTINUING	CONTINUING	
SUBTOTAL SUPPORT			4.174	.185		.210		.235		CONTINUING	CONTINUING	

Remarks:

TEST & EVALUATION												
Dev Test & Eval (RB)	WX	NAWCAD, PATUXENT RIVER MD	.198								.198	
Dev Test & Eval	WX	VARIOUS	1.922								1.922	
Live Fire Test & Evaluation	WX	NAWCWD CHINA LAKE CA	.550	.645	NOV 06	.300	NOV 07	.372	NOV 08	CONTINUING	CONTINUING	
Live Fire Test & Evaluation	MP	ARMY RESEARCH LAB				.100	NOV 07	.125	NOV 08	CONTINUING	CONTINUING	
SUBTOTAL TEST & EVALUATION			2.670	.645		.400		.497		CONTINUING	CONTINUING	

Remarks:

MANAGEMENT												
Program Mgmt Support	VARIOUS	VARIOUS	.384	.069	VARIOUS	.070	DEC 07	.100	DEC 08	CONTINUING	CONTINUING	
Program Mgmt Support	TBD	J F TAYLOR, LEXINGTON PARK, MD				.030	JAN 08	.030	JAN 09		.060	.060
Travel (RB)	TO	NAVAIR HQ, PATUXENT RIVER MD	.254	.010	NOV 06	.030	NOV 07	.030	NOV 08	CONTINUING	CONTINUING	
SUBTOTAL MANAGEMENT			.638	.079		.130		.160		CONTINUING	CONTINUING	

Remarks:

Total Cost			30.311	1.520		1.547		1.608		CONTINUING	CONTINUING	

CLASSIFICATION:

EXHIBIT R4, Schedule Profile

DATE: February 2008

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E,N / BA-4	0603216N, AVIATION SURVIVABILITY	0591, ACFT SURVIVABILITY, VULNERABILITY & SAFETY

Fiscal Year	FY 2007				FY 2008				FY 2009				FY 2010				FY 2011				FY 2012				FY 2013			
	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																												
Survivability Master Plan Updates																												
Asymmetric Threat Evaluations																												
Advanced Fire Protection Program																												
Technology Design & Development																												
Rotary Wing Prototype Hardware																												
Survivability Improvements																												
Advanced Fire Protection Program																												
Technology Test & Evaluation																												
Rotary Wing Ballistic Testing																												
Rotary Wing Signature Tests																												
Prototype Hardware Tests																												
Advanced Fire Protection Test																												
Production Milestones																												
Deliveries																												

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4				PROJECT NUMBER AND NAME 0591, ACFT SURVIVABILITY, VULNERABILITY & SAFETY			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Technology Requirement							
Survivability Master Plan Updates	4Q		4Q		4Q		4Q
Asymmetric Threat Evaluations	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Advanced Fire Protection Program		1Q-4Q					
Technology Design & Development							
Rotary Wing Prototype Hardware	1Q-4Q	1Q-4Q	1Q-4Q				
Survivability Improvements		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Advanced Fire Protection Program			1Q-4Q	1Q-4Q			
Technology Test & Evaluation							
Rotary Wing Ballistic Testing	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q			
Rotary Wing Signature Tests	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q		
Prototype Hardware Tests		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Advanced Fire Protection Test					1Q-2Q		

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N, AVIATION SURVIVABILITY	PROJECT NUMBER AND NAME 0592, ACFT & ORDNANCE SAFETY

COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	
0592, ACFT & ORDNANCE SAFETY	1.519	1.509	1.594	1.644	1.677	1.713	1.746	
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Aircraft and Ordnance Safety Program transitions innovative munitions safety 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.

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

Insensitive Munitions	FY 2007	FY 2008	FY 2009	
Accomplishments / Effort / Sub-total Cost	1.519	1.509	1.594	
RDT&E Articles Qty				

INSENSITIVE MUNITIONS
*Conduct improved air to air missile propulsion demonstration and testing. Output: baseline Insensitive Munitions (IM) performance of air breathing systems.
*Conduct shock/blast barrier protection demonstration and testing. Demonstrate pumice as a sympathetic detonation barrier for weapon shipping containers. Investigate alternative mitigation materials.
Output: Design, modeling and demonstration of shock absorbent materials for the protection of weapons and weapon platforms.
*Demonstrate improved air launched munitions for force protection and homeland defense. Analysis, Design, Demonstration of an improved Navy IM bomb that will mitigate Sympathetic Detonation and cook-off threats. Output: Demonstrate/determine the IM and safety characteristics of improved air launched munitions.
*Develop and validate insensitive munitions solutions to advanced energetic material warheads and rocket motors. Hyperbaric materials, New binding materials, Novel fuses and high energy density materials. Continue Improved Navy IM bomb analysis/design/demo. Output: Design, modeling and demonstration of insensitive munitions solutions to new advanced energetic materials.
*Develop and validate insensitive munitions solutions for advanced containment/case/warhead materials. Metal matrix composite materials, High temperature cases, Reactive warheads, Composite cases. Continue evaluating reactive material warheads for IM compliance. Output: Design, modeling and demonstration of insensitive munitions solutions to new advanced containment/case/warhead materials.

C. OTHER PROGRAM FUNDING SUMMARY:	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
Not Applicable									

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N, AVIATION SURVIVABILITY	PROJECT NUMBER AND NAME 0592, ACFT & ORDNANCE SAFETY

D. 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 program offices, 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.

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4		PROGRAM ELEMENT 0603216N, AVIATION SURVIVABILITY				PROJECT NUMBER AND NAME 0592, ACFT & ORDNANCE SAFETY						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
PRODUCT DEVELOPMENT												
Systems Eng	WX	NAWCWD, CHINA LAKE CA	21.987	1.519	OCT 06	1.509	OCT 07	1.594	OCT 08	CONTINUING	CONTINUING	
SUBTOTAL PRODUCT DEVELOPMENT			21.987	1.519		1.509		1.594		CONTINUING	CONTINUING	

Remarks:

SUPPORT												
SUBTOTAL SUPPORT												

Remarks:

TEST & EVALUATION												
SUBTOTAL TEST & EVALUATION												

Remarks:

MANAGEMENT												
SUBTOTAL MANAGEMENT												

Remarks:

Total Cost			21.987	1.519		1.509		1.594		CONTINUING	CONTINUING	

Remarks:

EXHIBIT R4, Schedule Profile																												DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4					PROGRAM ELEMENT NUMBER AND NAME 0603216N, AVIATION SURVIVABILITY												PROJECT NUMBER AND NAME 0592, ACFT & ORDNANCE SAFETY											
Fiscal Year	FY 2007				FY 2008				FY 2009				FY 2010				FY 2011				FY 2012				FY 2013			
	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
Air to Air Missile Propulsion System Demo Testing																												
Shock/Blast Barrier Protection Modeling and Demo/Testing																												
Improved Air Launched Weapons																												
Advanced Energetic Materials																												
Advanced Containment/Case/Warhead Materials																												
Deliveries																												

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4				PROJECT NUMBER AND NAME 0592, ACFT & ORDNANCE SAFETY			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Air to Air Missile Propulsion System Demo/Testing	1Q-4Q	1Q-4Q	1Q-4Q				
Shock/Blast Barrier Protection Modeling and Demo/T	1Q-4Q	1Q-4Q	1Q-4Q				
Improved Air Launched Weapons	1Q-4Q	1Q-4Q	1Q-4Q				
Advanced Energetic Materials	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Advanced Containment/Case/Warhead Materials	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N, AVIATION SURVIVABILITY	PROJECT NUMBER AND NAME 1819, CV ACFT FIRE SUPPRESSION

COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	
1819 CV ACFT FIRE SUPPRESSION	.698	.696	.734	.756	.772	.787	.802	
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.

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

Fire Fighting	FY 2007	FY 2008	FY 2009	
Accomplishments / Effort / Sub-total Cost	.698	.696	.734	
RDT&E Articles Qty				

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.

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.

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.

C. OTHER PROGRAM FUNDING SUMMARY:	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
Not Applicable									

D. ACQUISITION STRATEGY: Not Applicable

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2008**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME **0603216N, AVIATION SURVIVABILITY**				PROJECT NUMBER AND NAME 9999, CONGRESSIONAL ADDS			
COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	
Project Cost	**22.776**	**15.500**						
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

CONGRESSIONAL ADDS

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA4	0603216N, AVIATION SURVIVABILITY	9999, CONGRESSIONAL ADDS

B. Accomplishments/Planned Program

9173C	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	2.914		
RDT&E Articles Quantity			

Rotorcraft External Airbag Protection

Rotocraft application will require larger airbags integrated into the aircraft and development of a "predictive" crash sensors and algoritms. Initial impact studies (water and ground) have already been conducted. Two flight tests of the REAPS system onboard H-53 will be conducted.

9346C	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	1.164	1.189	
RDT&E Articles Quantity			

Equipment Life Extension Project

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.

9507C	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	1.749	1.988	
RDT&E Articles Quantity			

Intellegent Autonomy Transition Program

A high level of autonomy is required to achieve manpower reduction goals, data-link bandwidth limitations, and covert operations. The challenge is integrating new technology into existing military unmanned craft and finding a Research and Development/Test and Integration Center to host developmental testing. Autonomous systems are non-deterministic which are very difficult to test/certify. The current effort attempts to break this cycle of cost increases for unmanned systems by developing control algorithms and low cost high bandwidth data links to connect the UAVs to the control system.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA4	0603216N, AVIATION SURVIVABILITY	9999, CONGRESSIONAL ADDS

B. Accomplishments/Planned Program

9510C	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	1.749	0.789	
RDT&E Articles Quantity			

Silver Fox UAV

Support the assessment of Silver Fox's ability to provide surveillance during mine clearing operations. In particular, search and scan patterns will be assessed and optimized. Key areas of study include determining resolution and field of view of the sensor as a function of altitude and mission profile.

9763C	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	0.971	1.589	
RDT&E Articles Quantity			

Smart Visor

The Smart Visor will integrate emerging liquid crystal and or thin film technologies into a visor substrate to improve laser eye protection. The approach is based on a polymeric stack that can be molded into the visor substrate. The second approach that could provide variable attenuation in real time is a spherical liquid crystal visor. Both approaches will provide cost effective broadband, variable density protection.

9961N	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	1.554		
RDT&E Articles Quantity			

AIR SENTINEL

Funding will develop an automated system that resides in the ground control station of a UAV system for the detection and management of unmanned aircraft emegencies.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA4	0603216N, AVIATION SURVIVABILITY	9999, CONGRESSIONAL ADDS

B. Accomplishments/Planned Program

9962N	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	3.885		
RDT&E Articles Quantity			

Integrated Command Decision Work Environment

The concept is based on complete integration of isolation, computer, Multi-Layered Displays, controls and secure seating into one structure that will decrease the cost over conventional workstations significantly, while increasing reliability. This new form of operational workstation when combined with a Common Display Open Architecture and next generation visualization w ensure alignment of the technology to meet the emerging requirements of U.S. Navy new ship construction and modernization plans.

9963N	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	1.942	1.589	
RDT&E Articles Quantity			

Intelligence Gathering Uninhabited System

Funds to provide an operational system to joint ground forces for localized Intelligence, Surveillance, and Reconnaissance System that are based on an open and scalable systems architecture in a low impact and cost effective manner.

9964N	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	3.157		
RDT&E Articles Quantity			

Joint Helmet Mounted Cueing System QuadEye

To develop a light weight, modular night vision camera capable of being integrated into current and future helmet-mounted displays .

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA4	0603216N, AVIATION SURVIVABILITY	9999, CONGRESSIONAL ADDS

B. Accomplishments/Planned Program

9965N	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	2.719	2.789	
RDT&E Articles Quantity			

Unmanned Aircraft Systems Optimization Tech

To optimize the performance of the sensors onboard both manned and unmanned vehicles, stationary systems and smart dust.

9966N	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	0.971	2.389	
RDT&E Articles Quantity			

Unmanned Force Augmentation System

To continue research, development and testing of advanced Unmanned Air System technologies that facilitate the rapid transition of Unmanned Air Vehicle systems to the warfighters that offer order-of-magnitude improvements in usability, capability, and operational effectiveness.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA4	0603216N, AVIATION SURVIVABILITY	9999, CONGRESSIONAL ADDS

B. Accomplishments/Planned Program

	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	0.000	1.589	
RDT&E Articles Quantity			

Modular Advanced Helmet Vision System

The Modular Advanced Helmet Vision Systems (MAVS) will provide significantly improved impact, hearing, laser eye, and chem-bio protection, along with communications and oxygen delivery, in a versatile, low-cost, mission reconfigurable design.

	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	0.000	1.589	
RDT&E Articles Quantity			

Technology Collaboration for Aerospace

The Technology Collaboration for Aerospace will develop new and better system modeling software or processes for human systems integration (HIS) oriented engineering with initial emphasis on physical modeling of human body and human body components.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification				DATE: February 2008			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA4**		R-1 ITEM NOMENCLATURE 0603237N Deployable Joint Command & Control (DJC2)					
COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	**15.975**	**9.303**	**5.905**	**6.090**	**6.185**	**6.276**	**6.374**
3050 Deployable Joint Command & Control	**15.975**	**9.303**	**5.905**	**6.090**	**6.185**	**6.276**	**6.374**
Quantity of RDT&E Articles							

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Deployable Joint Command and Control (DJC2) is a Secretary of Defense (SECDEF) and Chairman, Joint Chiefs of Staff (CJCS) priority DoD transformation initiative that provides a deployable, scalable and tailorable headquarters command and control (C2) capability for selected Regional Combatant Commander (RCC). It is the materiel solution to Standing Joint Force Headquarters (SJFHQ), a new capability that began implementation 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. The DJC2 program addresses both the Quadrennial Defense Review (QDR) finding that a joint command and control architecture needs to be developed for standing Joint Task Forces (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. The JCS/Joint Requirement Oversight Council (JROC) has approved the DJC2 Mission Needs Statement (MNS), Operational Requirements Document (ORD) and a Capabilities Production Document (CPD).

DJC2 seeks to provide standing, and standardized, joint C2 systems that can be deployed by RCCs or JTFs and the new SJFHQ concept and doctrine being developed by Joint Forces Command in coordination with other RCCs and the Joint Staff, as tasked by Defense Program Guidance (DPG). RCC and JTF commanders will use a deployable joint command and control capability for day-to-day operations, 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.

DJC2 will utilize Global Command and Control System (GCCS) in its core suite of applications, ensuring interoperability with the worldwide-installed base of GCCS-J.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification		DATE: **February 2008**
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; technology insertion of each DJC2 suite will be made approximately every three years. The baseline Increment I configuration will be based upon existing Science and Technology (S&T) initiatives, Advanced Concepts Technology Demonstration (ACTD) Programs, programs of record, and fielded capabilities of the services and defense agencies, scaled to the Regional Combatant Commander (RCC) level. 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**) **A. 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.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification			DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA 4	0603237N Deployable Joint Command & Control	3050 Deployable Joint Command & Control (DJC2)	

(U) B. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2007	FY 2008	FY 2009
FY08/09 President's Budget	16.321	9.475	7.998
FY09 President's Budget	15.975	9.303	5.905
Total Adjustments	-0.346	-0.172	-2.093
Summary of Adjustments			
SBIR	-0.046	-0.112	
Misc. Adjustments	-0.300		-2.093
Misc. Congressional Adjustments		-0.060	
Subtotal	-0.346	-0.172	-2.093

(U) Schedule:

Moved Full Deployment Decision Review (FDDR) from third quarter of FY07 to second quarter of FY08 to accommodate MDA calendar.

(U) Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2008**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA 4	0603237N Deployable Joint Command & Control	3050 Deployable Joint Command & Control (DJC2)	

(U) B. Accomplishments/Planned Program

Systems Engineering & Integration	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	4.616	3.413	1.621
RDT&E Articles Quantity			

FY07 ACCOMPLISHMENTS: Completed prototyping and testing of R2C2 capability. Completed development of EOIP capability for DJC2 as part of the migration toward net-centricity.

FY08 PLAN: Identify upgrades to the Increment I DJC2 Systems. Continue Increment I migration to Net-Centricity and update design documentation and training material to reflect changes driven by emerging and required Enterprise Services Key Information Profiles. Update system to meet Transport KIP requirements mandated by the Net Ready Key Performance Parameter levied on DJC2 by the Joint Requirements Oversight Council. Obtain prototype upgrade equipment and conduct trade studies per the system engineering guidelines. Document system performance and finalize a design for DJC2 Increment I Upgrade. Conduct Critical Design Review for upgrade plan and upon design approval, prepare the mandatory Engineering Change Proposal, identifying all testing, training, support and sparing requirements. Construct, integrate and test an alternative packing capability for DJC2. Identify, integrate and test world-wide power modification to DJC2.

FY09 PLAN: Complete Critical Design Reviews for upgrade plan. Continue with system engineering analysis and Integration activities. Operational test technology insertion/technology refresh design modifications.

DJC2 RDT&E Test Bed	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	6.846	3.940	3.028
RDT&E Articles Quantity			

FY07 ACCOMPLISHMENTS: Developed and implemented changes in the DJC2 RDT&E test bed based on lessons learned in ACTDs and operations/exercises. Utilized the test bed in realistic military demonstrations and, on that basis, made assessments of the military utility.

FY08 PLAN: Conduct field testing and developmental testing of final Increment I Upgrade system. Test integrated alternate C2 packaging arrangement. Upgrade the Developmental Test Unit to production representation in order to be used for operational testing. Support the operational testing of the new design in a operational scenario to validate measures of effectiveness and measures of suitability.

FY09 PLAN: Identify and incorporate changes in the DJC2 test bed based upon lessons learned from fielded systems and operational testing

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA 4	0603237N Deployable Joint Command & Control	3050 Deployable Joint Command & Control (DJC2)	

(U) B. Accomplishments/Planned Program

Acquisition Documentation Activities	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	2.083	1.300	0.800
RDT&E Articles Quantity			

FY07 ACCOMPLISHMENTS: Analyzed, prepared, and performed In-Process Review (IPR), and Milestone acquisition activities.

FY08 PLAN: Continue to analyze, prepare, and perform In-Process Review (IPR), and Milestone acquisition activities.

FY09 PLAN: Continue to analyze, prepare, and perform In-Process Review (IPR), and Milestone acquisition activities.

CONOPS Experimentation System	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	2.430	0.650	0.456
RDT&E Articles Quantity			

FY07 ACCOMPLISHMENTS: Completed technology refresh and component upgrade for the CONOPS Experimentation System at JFCOM.

FY08 PLAN: Component upgrade for CONOPS System at JFCOM.

FY09 PLAN: Continue component upgrade for CONOPS System at JFCOM.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2008**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA 4	0603237N Deployable Joint Command & Control	3050 Deployable Joint Command & Control (DJC2)	

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
OPN BLI 2804	0	0	9.031	8.951	9.399	9.842	10.198	Cont.	Cont.

(U) D. 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 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.

(U) E. METRICS:

Earned Value Management (EVM) is used for metrics reporting and risk management.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)						DATE: **February 2008**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA 4**			PROGRAM ELEMENT 0603237N Deployable Joint Command & Control			PROJECT NUMBER AND NAME 3050 Deployable Joint Command & Control (DJC2)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Hardware Development	VAR	NSWC, Crane, USA, & VAR	15.931	2.430	VAR	0.650	VAR	0.456	VAR	Continuing	Continuing	
Ancillary Hardware Development												
Aircraft Integration												
Ship Integration												
Ship Suitability												
Systems Engineering	VAR	VAR	37.390	2.116	VAR	2.443	VAR	1.321	VAR	Continuing	Continuing	
Training Development												
Engineering Facility Development	WX	NSWC, CSS	23.945	2.291	VAR	2.000	VAR	1.953	VAR	Continuing	Continuing	
Tooling												
GFE												
Award Fees												
Subtotal Product Development			77.266	6.837		5.093		3.730		Continuing	Continuing	
Remarks:												
Development Support												
Software Integration	VAR	NSWC, CSS & VAR	35.149	2.500	VAR	1.000	VAR	0.300	VAR	Continuing	Continuing	
Integrated Logistics Support												
Configuration Management												
Technical Investigations	VAR	NTA & VAR	12.309	1.117	VAR					Continuing	Continuing	
Trade-off Studies & Analyses	VAR	NTA & VAR	9.000							Continuing	Continuing	
GFE												
Award Fees												
Subtotal Support			56.458	3.617		1.000		0.300		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)						DATE: **February 2008**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA 4**			PROGRAM ELEMENT 0603237N Deployable Joint Command & Control			PROJECT NUMBER AND NAME 3050 Deployable Joint Command & Control (DJC2)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	MPR	46th Test Wing & VAR	7.000	1.000	VAR	0.970	VAR	0.500	VAR	Continuing	Continuing	
Operational Test & Evaluation	VAR	OPTEVFOR & VAR	7.500	1.438	VAR	0.940	VAR	0.575	VAR	Continuing	Continuing	
Live Fire Test & Evaluation												
Test Assets	MPR	Eglin AFB & VAR	3.000	1.000	VAR					Continuing	Continuing	
Tooling												
GFE												
Award Fees												
Subtotal T&E			17.500	3.438		1.910		1.075		Continuing	Continuing	
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support	VAR	NSWC, CSS & VAR	26.358	2.083	VAR	1.300	VAR	0.800	VAR	Continuing	Continuing	
Travel												
Transportation												
Subtotal Management			26.358	2.083		1.300		0.800		Continuing	Continuing	
Remarks:												
Total Cost			177.582	15.975		9.303		5.905		Continuing	Continuing	
Remarks:												

Exhibit R-3, Project Cost Analysis

CLASSIFICATION:

EXHIBIT R4, Schedule Profile			DATE: **February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA 4**	PROGRAM ELEMENT NUMBER AND NAME 0603237N Deployable Joint Command & Control	PROJECT NUMBER AND NAME 3050 Deployable Joint Command & Control (DJC2)	

Fiscal Year	2005				2006				2007				2008				2009				2010				2011				2012				2013			
	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	1	2	3	4
Acquisition Milestones																																				
MILESTONE C		Increment I																																		
IOC										Increment I																										
FDDR														Increment I																						
Test & Evaluation Milestones																																				
Development Test			DT											DT																						
Operational Test							OT								OT			D / OT																		
Production Milestones																																				
Deliveries																																				

Exhibit R-4, Schedule Profile

CLASSIFICATION:

Exhibit R-4a, Schedule Detail				DATE: February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA 4**	PROGRAM ELEMENT NUMBER AND NAME 0603237N Deployable Joint Command & Control			PROJECT NUMBER AND NAME 3050 Deployable Joint Command & Control (DJC2)			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
MILESTONE C							
INCREMENT I							
IOC							
INCREMENT I	2Q						
FDDR							
INCREMENT I		2Q					
TEST AND EVALUATION MILESTONES							
DEVELOPMENTAL TEST		2Q	2Q				
OPERATIONAL TEST		3Q	2Q				

Exhibit R-4a, Schedule Profile

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4						R-1 ITEM NOMENCLATURE 0603254N, ASW SYSTEMS DEVELOPMENT	
COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	24.840	20.378	28.799	13.761	12.523	12.793	13.181
0490 PROJECT BEARTRAP	3.828	3.582	3.782	3.590	2.310	2.340	2.467
1292 ADV ASW SENSORS & PROC	2.850	3.217	10.320	10.171	10.213	10.453	10.714
9177 EPAS	7.144	6.623	9.697				
9347 CLAYMORE MARINE	1.600	2.981	5.000				
9999 CONGRESSIONAL ADD	9.418	3.975					

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

0490. The mission of Project BEARTRAP (CNO Project K-0416) is to provide Sound Pressure Level (SPL) quality recordings of targets of interest and an associated new technology, rapid prototyping mechanism for the application of state-of-the-art collection sensors. The program will develop and rapidly deploy new technology concepts in hardware and software to effectively address emerging littoral threats and to improve the present Undersea Warfare capability in support of Sea Shield/Sea Trial Initiatives. BEARTRAP also provides a measurement analysis capability to reconstruct, analyze, and develop active and target strength measurement validation. The BEARTRAP data collection program provides passive and active acoustic and non-acoustic data essential for the design and development of environmental models, sensors, weapons, software algorithms, and tactical decision aids. BEARTRAP employs developmental and prototypical hardware installed in uniquely configured ASW aircraft to collect data of interest, and specially configured ground support facilities to conduct reconstruction and analysis of this data. BEARTRAP includes calibrated recording systems, advanced detection and tracking systems, special sensors, advanced processing systems and techniques and specially derived operational tactics.

1292. This program provides Anti-submarine Warfare (ASW) platform effectiveness through development of advanced hardware and software associated with airborne acoustic systems. This includes sensors, processing, post-processing, data recording and display capabilities to address regional threat scenarios against conventionally and nuclear powered submarines. Key objectives are platform accommodations of advanced active and passive sensors, improved detection, classification, localization, tracking, and increased capacity and flexibility to handle multi-sensor data loads. Programs being funded during the FYDP will investigate technologies such as: the exploitation of forward scatter, transient signals, and source and receiver improvement technologies that will enhance passive and Multi-Static Active Sensor Systems capabilities. Other programs being funded during the FYDP will provide for the development of technologies that will allow transition from the cued search phase to the localization and attack phase in the harsh shallow water areas. In addition, the program will provide for the development and subsequent experimentation of Multi-Static Active (MSA) sources and receivers with the associated USQ-78B processor.

9177. The objective of this program is to 1) demonstrate the concept that an integrated suite of non-acoustic sensors will provide an effective real time, day and night air ASW detection, localization and tracking capability in acoustically challenged shallow regions and deep water areas of uncertainty (AOU). 2) develop and demonstrate a cross platform non-acoustic system for fixed wing, helicopter, aerostat, and unmanned aerial vehicle ASW platforms. Planned Navy funding for FY07-09 will provide the development, integration, and demonstration testing of four (4) second generation prototype Electro-optic Passive ASW Sensor (EPAS) systems (EPAS/Joint Multi-Mission Electro-optic System (JMMES)) with algorithm based integrated sensor operation and ASW automatic target recognition/operator cueing software modules. The EPAS technology and ASW mission module software has been leveraged to develop multi-mission capability for other targets of Naval interest including maritime and overland surface warfare, maritime interdiction operations, mine counter measures in a FY07 new start Joint Capability Technology Demonstration (JCTD) sponsored by the Deputy Undersecretary of Defense for Acquisition, Technology and Logistics.

9347. Funding for FY07-09 will support development of a blue laser brass board Lidar ASW system, data collections and data reductions to validate the Claymore Marine phenomonology.

9999. Congressional Adds.

B. PROGRAM CHANGE SUMMARY

Funding:	FY 2007	FY 2008	FY 2009
FY2008 President's Budget:	25.337	16.706	29.104
FY2009 President's Budget:	24.840	20.378	28.799
Total Adjustments	-0.497	3.672	-0.305

Summary of Adjustments			
Congressional Reductions			
Congressional Rescissions			
Congressional Undistributed Reductions	-0.336		
Congressional Increases		4.000	
Economic Assumptions		-0.132	-0.079
Miscellaneous Adjustments	-0.161	-0.196	-0.226
Subtotal	-0.497	3.672	-0.305

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4	R-1 ITEM NOMENCLATURE 0603254N, ASW SYSTEMS DEVELOPMENT

Schedule:
0490. N/A.

1292. Schedule updated to reflect timelines versus events.

9177. EPAS System not ready for POM08. Issue sheets submitted for POM10. EPAS System Field Development Testing increased to 3Q/09 to support system target data collections for JCTD mission algorithm development in seven additional mission areas. EPAS System Fleet Aircraft Testing delayed from 4Q/07 to 4Q/08 for second generation, EPAS/JMMES certification. Development of four (4) Second Generation EPAS/JMMES systems versus build of eight (8) EPAS ASW systems as a result of RDT&E FY07-09 $11M budget reduction and JMMES JCTD Award: EPAS/JMMES deliveres: two (2) 1Q/FY08, one (1) 1Q/09, and one (1) 3Q/09.

9347. Schedule added to reflect OPNAV N885 CFT redirection of funds to the Claymore Marine program.

Technical:
0490. Defined Active Measurement Validation as a separate cost category for improved programmatic tracking. Active Measurement Validation is an output product of the Active Target Strength (T.S.) project.

9177. Technical complexity of increasing sensor payload in the second generation EPAS/JMMES prototype resulted in increased non-recurring engineering redesign costs associated with the development.

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603254N, ASW SYSTEMS DEVELOPMENT			PROJECT NUMBER AND NAME 0490, PROJECT BEARTRAP			
COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0490 PROJECT BEARTRAP	3.828	3.582	3.782	3.590	2.310	2.340	2.467
RDT&E Articles Qty	10	3	2	4	3	3	3

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
0490. The mission of Project BEARTRAP (CNO Project K-0416) is to provide SPL quality recordings of targets of interest and an associated new technology, rapid prototyping mechanism for the application of state-of-the-art collection sensors. The program will develop and rapidly deploy new technology concepts in hardware and software to effectively address emerging littoral threats and to improve the present Undersea Warfare capability in support of Sea Shield/Sea Trial Initiatives. BEARTRAP also provides a measurement analysis capability to reconstruct, analyze, and develop active target strength measurement validation. The BEARTRAP data collection program provides passive and active acoustic and non-acoustic data essential for the design and development of environmental models, sensors, weapons, software algorithms, and tactical decision aids. BEARTRAP employs developmental and prototypical hardware installed in uniquely configured ASW aircraft to collect data of interest, and specially configured ground support facilities to conduct reconstruction and analysis of this data. BEARTRAP includes calibrated recording systems, advanced detection and tracking systems, special sensors, advanced processing systems and techniques and specially derived operational tactics. The 28 RDT&E articles consist of aircraft calibration units, SPL collection suites, and post mission processors that will support the collection mission.

B. ACCOMPLISHMENTS / PLANNED PROGRAM:
Systems Engineering / Aircraft Mods

Commence Active Acoustic program	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	3.103	2.812	2.632
RDT&E Articles Qty	10	3	2

Integration of SPL Suite (Digital Recording), Post mission processor upgrade, and aircraft calibration unit enhancements for active target strength. Engineering development of Target Strength processing and prototype processor.

Data Collection and Analysis	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	.725	.770	.750
RDT&E Articles Qty			

Data collection support at Operational Wings. Ongoing collection of high interest acoustic and non-acoustic data in support of Measurement/Measuring and Signature Intelligence (MASINT)/Office of Naval Intelligence (ONI) threat assessment requirements. Reduction, Analysis and Fleet Rapid Feedback. Conduct airborne special operations support. Essential performance modeling and evaluation for advanced technology sensor systems design and Fleet tactics development.

Active Measurement Validation	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost			.400
RDT&E Articles Qty			

Active Measurement Validation of targets of interest. Provides the acoustic analysis of echo characterization (which includes:
signal excess (SE) measurements, peak frequency (PF), trend analysis and pulse duration measurements) and target strength.

C. OTHER PROGRAM FUNDING SUMMARY:	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
Not Applicable									

D. ACQUISITION STRATEGY:
BEARTRAP is a CNO Special Project. The included technology developments are primarily in-house with contractor participation through existing vehicles.

Exhibit R-3 Cost Analysis (page 1)									DATE: February 2008			
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4		PROGRAM ELEMENT 0603254N, ASW SYSTEMS DEVELOPMENT				PROJECT NUMBER AND NAME 0490, PROJECT BEARTRAP						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
PRODUCT DEVELOPMENT												
Active Measurement Validation	WX	NAWCAD, PATUXENT RIVER MD						.400	10/08		.400	
Ancillary Hdw Development	VARIOUS	VARIOUS	2.599	.700	10/06	.770	10/07	.750	10/08	1.957	6.776	6.776
Systems Engineering	WX	NAWCAD, PATUXENT RIVER MD	62.473	3.103	10/06	2.812	10/07	2.632	10/08	8.750	79.770	
SUBTOTAL PRODUCT DEVELOPMENT			65.072	3.803		3.582		3.782		10.707	86.946	

Remarks:

SUPPORT												
SUBTOTAL SUPPORT												

Remarks:

TEST & EVALUATION												
SUBTOTAL TEST & EVALUATION												

Remarks:

MANAGEMENT												
Travel	TO	NAVAIR, PAXTUXENT RIVER MD	.070	.025	10/06						.095	
SUBTOTAL MANAGEMENT			.070	.025							.095	

Remarks:

Total Cost			65.142	3.828		3.582		3.782		10.707	87.041	

Remarks:

EXHIBIT R4, Schedule Profile

Data Collection and Analysis/ Prototype & Installation

DATE: February 2008

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E,N / BA-4	0603254N, ASW SYSTEMS DEVELOPMENT	0490, PROJECT BEARTRAP

Fiscal Year	FY 2007				FY 2008				FY 2009				FY 2010				FY 2011				FY 2012				FY 2013			
	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																												
Systems Engineering P-3 Avionics Suite		(4)	△	(4) ▽									△		(1) ▽				(1)				(1)				(1)	▽
Tactical Acoustic Processor(TAPS)		(1)				(1)				(1)				(1)				(1)				(1)				(1)		
T.S Processor Development/Prototype	△			(1)				(2)			(1)				(2)				(1)				(1)				(1)	▽
Test & Evaluation Milestones																												
Production Milestones																												
Product Development Data Collection/Analysis																												
Deliveries																												
P-3 Avionics		(4)		(4)											(1)				(1)				(1)				(1)	
Tactical Acoustic Processor		(1)				(1)				(1)				(1)				(1)				(1)				(1)		
T.S. Processor				(1)				(2)			(1)				(2)				(1)				(1)				(1)	

Exhibit R-4a, Schedule Detail Data Collection and Analysis/ Prototype & Installation						DATE: February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT 0603254N, ASW SYSTEMS DEVELOPMENT				PROJECT NUMBER AND NAME 0490, PROJECT BEARTRAP		
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Sys. Eng. Avionics Suite	1Q-4Q			1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Sys. Eng. Tactical Acoustic Processor	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Target Strength Processor Development	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Data Collection and Analysis	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Deliveries							
P-3 Avionics	2Q and 4Q			3Q	3Q	3Q	3Q
Tactical Acoustic Processor	2Q	2Q	2Q	2Q	2Q	2Q	2Q
T.S. Processor	4Q	4Q	3Q	3Q	3Q	3Q	3Q

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603254N, ASW SYSTEMS DEVELOPMENT	PROJECT NUMBER AND NAME 1292, ADV ASW SENSORS & PROC

COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
1292 ADV ASW SENSORS & PROC	2.850	3.217	10.320	10.171	10.213	10.453	10.714
RDT&E Articles Qty		100	350	350	350	350	350

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This program provides Anti-submarine Warfare (ASW) platform effectiveness through development of advanced hardware and software associated with airborne acoustic systems. This includes sensors, processing, post-processing, data recording and display capabilities to address regional threat scenarios against conventional and nuclear powered submarines. Key objectives are platform accommodations of advanced active and passive sensors, improved detection, classification, localization, tracking, and increased capacity and accommodations to handle multi-sensor data loads. Programs being funded during the FYDP will investigate technologies such as: the exploitation of forward scatter, transient signals, and source and receiver improvement technologies that will enhance passive and Multi-Static Active Sensor Systems capabilities. Other programs being funded during the FYDP will provide for the development of technologies that will allow transition from the cued search phase to the localization and attack phase in the harsh shallow water areas, will allow for automation of concurrent active and passive processing, and make improvements in battery technology. In addition, the program will provide for the development and subsequent experimentation of Multi-Static Active (MSA) sources and receivers with the associated USQ-78B processor. The 1850 test articles, which consist of passive/active sensors and associated processors, will support a sea trials and experiments.

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

Reassess loc/attack capability in shallow water	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	2.850	3.217	10.320
RDT&E Articles Qty		100	350

Reassessing localization and attack capabilities in shallow water areas. System performance assessments for multi-static ASW algorithms and system enhancements. Field test assessment for forward scatter. System performance assessment for multi-static active source and receivers technologies.

C. OTHER PROGRAM FUNDING SUMMARY:

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
Not Applicable									

D. ACQUISITION STRATEGY:

The included technology developments are primarily in-house with contractor participation through existing vehicles.

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4		PROGRAM ELEMENT 0603254N, ASW SYSTEMS DEVELOPMENT				PROJECT NUMBER AND NAME 1292, ADV ASW SENSORS & PROC						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
PRODUCT DEVELOPMENT												
Primary Hardware Development	TBD	TBD						.500	10/08	1.450	1.950	1.950
SUBTOTAL PRODUCT DEVELOPMENT								.500		1.450	1.950	

Remarks:

SUPPORT												
Software Development	WX	NAWCAD, PATUXENT RIVER MD		.500	11/06	.500	01/08	2.000	10/08	9.806	12.806	
Studies & Analyses	WX	NAWCAD, PATUXENT RIVER MD						4.582	10/08	17.405	21.987	
Studies & Analyses	VARIOUS	VARIOUS	.500								.500	.500
SUBTOTAL SUPPORT			.500	.500		.500		6.582		27.211	35.293	

Remarks:

TEST & EVALUATION												
Dev Test & Eval	VARIOUS	VARIOUS	13.481	.500	11/06	.450	10/07	1.000	10/08	3.250	18.681	18.681
SUBTOTAL TEST & EVALUATION			13.481	.500		.450		1.000		3.250	18.681	

Remarks:

MANAGEMENT												
Contractor Engineering Support	VARIOUS	VARIOUS	5.276	.401	12/06						5.677	5.677
Gov Eng Support	WX	NAWCAD, PATUXENT RIVER MD	40.760	1.199	11/06	1.883	01/08	1.203	10/08	5.059	50.104	
Program Management Support (Cont)	VARIOUS	VARIOUS	2.072			.100	01/08	.232	10/08	1.278	3.682	3.682
Program Management Support (Govt)	WX	NAWCAD, PATUXENT RIVER MD	7.191	.230	11/06	.234	01/08	.728	10/08	2.983	11.366	
Travel	TO	NAVAIR, PAXTUXENT RIVER MD	.020	.020	10/06	.050	01/08	.075	10/08	.320	.485	
SUBTOTAL MANAGEMENT			55.319	1.850		2.267		2.238		9.640	71.314	

Remarks:

Total Cost			69.300	2.850		3.217		10.320		41.551	127.238	

Remarks:

EXHIBIT R4, Schedule Profile

ADVANCED DICASS

DATE: February 2008

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E,N / BA-4	0603254N, ASW SYSTEMS DEVELOPMENT	1292, ADV ASW SENSORS & PROC

Fiscal Year	FY 2007				FY 2008				FY 2009				FY 2010				FY 2011				FY 2012				FY 2013			
	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																												
Performance Assessment		Coherent sound processing								Multi-Static Target Recognition								Concurrent Processing							Battery Technology			
System Development																												
Transition Decision								△	Coherent sound processing							△	Multi-Static Target Recognition							△	Concurrent Processing			
Software																												
Experiment/Exercise Participation																												
Test & Evaluation Milestones																												
Development Test																												
Operational Test																												
Production Milestones																												
LRIP I																												
LRIPII																												
FRP																												
Deliveries																												

Exhibit R-4a, Schedule Detail ADVANCED DICASS						DATE: February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT 0603254N, ASW SYSTEMS DEVELOPMENT				PROJECT NUMBER AND NAME 1292, ADV ASW SENSORS & PROC		
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Performance Assessment	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
Transition Decision		4Q		4Q		4Q	
Experiment/Exercise Participation			1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603254N, ASW SYSTEMS DEVELOPMENT	PROJECT NUMBER AND NAME 9177, EPAS	

COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
9177 EPAS	7.144	6.623	9.697				
RDT&E Articles Qty		2	2				

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The objective of this program is to 1) demonstrate the concept that an integrated suite of non-acoustic sensors will provide an effective real time, day and night air ASW detection, localization and tracking capability in acoustically challenged shallow regions and deep water areas of uncertainty (AOU). 2) develop and demonstrate a cross platform non-acoustic system for fixed wing, helicopter, aerostat, and unmanned aerial vehicle ASW platforms. Planned Navy funding for FY07-09 will provide the development, integration and demonstration testing of four (4) second generation prototype Electro-Optic Passive ASW Sensor (EPAS) systems (EPAS/Joint Multi-Mission Electro-optic system (JMMES)) with algorithm based integrated sensor operation and ASW automatic target recognition/operator cueing software modules. The EPAS technology and ASW mission module software has been leveraged to develop multi-mission capability for other targets of Naval interest including maritime and overland surface warfare, maritime interdiction operations, mine counter measures in a FY07 new start Joint Capability Technology Demonstration (JCTD) sponsored by the Deputy Undersecretary of Defense for Acquisition, Technology and Logistics.

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

Complete dev./demo of EPAS turret	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	7.144	6.623	9.697
RDT&E Articles Qty		2	2

This effort supports improvement in AIR ASW capability and Naval Multi-Mission Electro-Optic intelligence, surveillance and reconnaissance capability.

C. OTHER PROGRAM FUNDING SUMMARY:	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
Line item No. and Name									
Related RDT&E									
(U) PE 0603648D8Z	4.000	4.000	4.000						12.000

D. ACQUISITION STRATEGY:
Sole source modification to the existing contract with BAE to add Navy funded system. Issued new sole source contract for EPAS/JMMES development and demonstration.

Exhibit R-3 Cost Analysis (page 1)									DATE: February 2008			
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4		PROGRAM ELEMENT 0603254N, ASW SYSTEMS DEVELOPMENT				PROJECT NUMBER AND NAME 9177, EPAS						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
PRODUCT DEVELOPMENT												
Primary Hdw Development	C-CPFF	BAE SYSTEMS CONTROLS INC., JOHNSON	3.300	5.886	12/06	4.500	01/08	4.500	12/08		18.186	18.186
SUBTOTAL PRODUCT DEVELOPMENT			3.300	5.886		4.500		4.500			18.186	

Remarks:

SUPPORT												
SUBTOTAL SUPPORT												

Remarks:

TEST & EVALUATION												
Dev Test & Eval	VARIOUS	VARIOUS		.200	03/07	1.382	01/08	4.193	11/08		5.775	
SUBTOTAL TEST & EVALUATION				.200		1.382		4.193			5.775	

Remarks:

MANAGEMENT												
Government Engineering Support	WX	NAWCAD, PATUXENT RIVER MD	.616	1.058	10/06	.475	01/08	.732	11/08		2.881	
Program Management Support (Cont)	VARIOUS	VARIOUS	3.615			.206	01/08	.208	11/08		4.029	4.029
Travel	TO	NAVAIR, PAXTUXENT RIVER MD				.060	01/08	.064	10/08		.124	
SUBTOTAL MANAGEMENT			4.231	1.058		.741		1.004			7.034	

Remarks:

Total Cost			7.531	7.144		6.623		9.697			30.995	

EXHIBIT R4, Schedule Profile
EPAS

DATE: February 2008

APPROPRIATION/BUDGET A	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	**0603254N, EPAS ASW SYSTEMS DEVELOPMENT**	9177, EPAS ASW

Fiscal Year	FY 2007				FY 2008				FY 2009				FY 2010				FY 2011				FY 2012				FY 2013			
	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	**EPAS is a Technology Development Non-ACAT Program**																											
Program Decisions									**Navy POM10 Decision**																			
EPAS / JMMES System Test & Evaluation EPAS System Field Testing (Development)	**Flight Testing on Commercial (Bell Ranger/Aerostar/King Air/Piper Navajo) and Research Test Aircraft**																											
EPAS/JMMES Fieldable Prototype Flight Testing									**Flight Testing on P-3C amd SH-60B Fleet Aircraft**																			
EPAS/JMMES Fieldable Prototype Procurements	Procurement of 2 EPAS/JMMES Systems				Procurement of 1 EPAS/JMMES System				Procurement of 1 EPAS/JMMES System																			
EPAS/JMMES Fieldable Prototype Deliveries					EPAS/JMMES-1 EPAS/JMMES-2				EPAS/JMMES-3			EPAS/JMMES-4																

Exhibit R-4a, Schedule Detail EPAS						DATE: February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT 0603254N, ASW SYSTEMS DEVELOPMENT				PROJECT NUMBER AND NAME 9177, EPAS		
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
POM Decision			1Q				
Field Testing (Development)	1Q - 4Q	1Q-4Q	1Q-3Q				
Fieldable Prototype Flight Testing		4Q	1Q - 4Q				
Fieldable Prototype Procurement	1Q	1Q	1Q				
Fieldable Prototype Deliveries		1Q	1Q-3Q				

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603254N, ASW SYSTEMS DEVELOPMENT			PROJECT NUMBER AND NAME 9347, CLAYMORE MARINE			
COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
9347 CLAYMORE MARINE	1.600	2.981	5.000				
RDT&E Articles Qty		1					

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
Funding for FY07-09 will support development of one blue laser brassboard Lidar ASW system for data collections and data reductions to validate phenomena of the environmental detection concept or Claymore Marine signatures

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

Develop Brassboard	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	1.600	2.981	5.000
RDT&E Articles Qty		1	

Develop blue laser brassboard Lidar ASW system.

C. OTHER PROGRAM FUNDING SUMMARY:

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
Not Applicable							

D. ACQUISITION STRATEGY:
BAE, Nashua, NH, is the prime contractor for building the real time processor and implementing the data collection system. BAE is the historical incumbent from previous CM work. NAVAIR is building the LIDAR system that will feed data to the BAE data collection system. Johns Hopkins APL is developing the detection algorithms that will be supported on the BAE system.

Exhibit R-3 Cost Analysis (page 1)									DATE: February 2008			
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4		PROGRAM ELEMENT 0603254N, ASW SYSTEMS DEVELOPMENT				PROJECT NUMBER AND NAME 9347, CLAYMORE MARINE						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
PRODUCT DEVELOPMENT	C-CPFF	BAE SYSTEMS CONTROLS INC., Nashua, NH				.750	01/08	1.200	10/08		1.950	1.950
H/W Development & Integration	WX	NAWCAD, PATUXENT RIVER MD				.800	01/08	1.264	10/08		2.064	
SUBTOTAL PRODUCT DEVELOPMENT						1.550		2.464			4.014	

Remarks:

SUPPORT												
Software Development	C-CPFF	Johns Hopkins/ APL				.740	01/08	1.250	10/08		1.990	1.990
SUBTOTAL SUPPORT						.740		1.250			1.990	

Remarks:

TEST & EVALUATION												
SUBTOTAL TEST & EVALUATION												

Remarks:

MANAGEMENT												
Contractor Eng Sup	VARIOUS	VARIOUS		.800	01/07	.550	01/08	1.086	10/08		2.436	2.436
Government Engineering Support	WX	NAWCAD, PATUXENT RIVER MD	2.498	.800	02/07	.141	01/08	.200	10/08		3.639	
SUBTOTAL MANAGEMENT			2.498	1.600		.691		1.286			6.075	

Remarks:

Total Cost			2.498	1.600		2.981		5.000			12.079	

Remarks:

EXHIBIT R4, Schedule Profile			DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E,N / BA-4	0603254N, ASW SYSTEMS DEVELOPMENT	9347, CLAYMORE MARINE	

Fiscal Year	FY 2007				FY 2008				FY 2009				FY 2010				FY 2011				FY 2012				FY 2013			
	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																												
Fabricate P3 Brassboard System	△	———	———	———	△																							
Test & Evaluation Milestones																												
Install/Test Fixed Wing System						△	———	———	△																			
Data Collection						△	———	———	———	———	△																	
Algorithm Development/ System Integration					△	———	———	———	———	———	△																	
Real Time Processing												△																
Production Milestones																												
Deliveries																												

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603254N, ASW SYSTEMS DEVELOPMENT			PROJECT NUMBER AND NAME 9999, Congressional Adds			
COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY2013
9999 Congressional Adds	9.418	3.975					
RDT&E Articles Qty							

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

9999. Congressional Adds.

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

Develop, Demonstrate & Evaluate EPAS technology

9177C	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	6.675		
RDT&E Articles Qty			

Electro-optic Passive ASW (EPAS). Continue development, demonstration, and evaluation of EPAS technology for ASW applications. This effort supports improvement in Air ASW capability.

Develop & Test E-Field signal

9512C	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	2.743		
RDT&E Articles Qty			

Tactical E-Field Buoy Development. Continue development and testing of an air deployable tactical electric field buoy system to detect the electric field (E-Field) signal produced by a submarine.

Develop & Test E-Field signal, Reduce marine mammal risk

9999 (TBD)	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost		3.975	
RDT&E Articles Qty			

$1.600M for Tactical E-Field Buoy Development. Continue development and testing of an air deployable tactical electric field buoy system to detect the electric field (E-Field) signal produced by a submarine.

$2.375M for Marine Mammal Awareness & Alert Response System (MMAARS). Provide decision support to reduce the risk that a selected exercise or test area has marine mammals within the range of harm from active airborne ASW systems.

Exhibit R-4a, Schedule Detail						DATE: February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT 0603254N, ASW SYSTEMS DEVELOPMENT				PROJECT NUMBER AND NAME 9347, CLAYMORE MARINE		
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Fabricate P3 Brassboard System	1Q-4Q						
Install/Test Fixed Wing system		2Q-4Q	1Q				
Data Collection		2Q-4Q	1Q-3Q				
Algorithm Development/System Integration		1Q-4Q	1Q-3Q				
Real Time Processing Demonstration			4Q				

EXHIBIT R-2, RDT&E Budget Item Justification						DATE: February 2008	
APPROPRIATION / BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4					R-1 ITEM NOMENCLATURE 0603261N, TACTICAL AIRBORNE RECONNAISSANCE		
COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	3.944	4.037	4.298	4.311	4.360	4.452	4.545
2467 UAV CONOPS	3.944	4.037	4.298	4.311	4.360	4.452	4.545

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

The Naval Unmanned Aircraft Systems (UAS) Strategy employs a family of UASs to perform tactical, persistent and penetrating Intelligence, Surveillance, and Reconnaissance (ISR) in support of Naval and Joint missions from forward bases/platforms and naval ships.

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

- Develops, demonstrates, and evaluates CONOPS, and assesses manning requirements of ship-based tactical UASs.
- Leverages and assesses joint utility of Global Hawk Maritime Demonstration (GHMD) System.
- Demonstrates UAS integration into USN battlespace dominance operations and network centric warfare.
- Demonstrates UAS integration into USN sensor-to-shooter and Sea Strike.
- Develops Intelligence, Surveillance, and Reconnaissance (ISR) CONOPS in support of strike, Military Operations Other Than War (MOOTW), Anti-Air Warfare (AAW), and Combat Search and Rescue (CSAR).
- Demonstrates UAS cross-cueing capability with theater and strategic intelligence sources.
- Develops Tactics, Techniques, and Procedures for multi-dissimilar UAS control, operations, and data dissemination utilizing NATO STANAG 4586.
- Conducts studies for UAS task, data management, airspace integration, Sense & Avoid, and Focused Flying efforts.
- Conducts CONOPS studies, demonstrations, and exercises for data relay, comm relay, time sensitive targets, and weapons employment.
- Utilize a UAS CONOPS demonstration system for CONOPS development, test and evaluation, and expediting technology transition. The demonstration system consists of a ground control station, launch and recovery equipment, air vehicles, spares and associated equipment.

B. PROGRAM CHANGE SUMMARY

Funding:	FY 2007	FY 2008	FY 2009
Previous President's Budget:	3.944	4.063	4.308
Current President's Budget:	3.944	4.037	4.298
Total Adjustments	0.000	-0.026	-0.010
Summary of Adjustments			
Congressional Reductions			
Congressional Rescissions			
Congressional Undistributed Reductions		-0.026	
Congressional Increases			
Economic Assumptions			-0.009
Miscellaneous Adjustments			-0.001
Subtotal	0.000	-0.026	-0.010

Schedule:
Not applicable

Technical:
Not applicable

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603261N, TACTICAL AIRBORNE RECONNAISSANCE	PROJECT NUMBER AND NAME 2467, UAV CONOPS

COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
2467 UAV CONOPS	3.944	4.037	4.298	4.311	4.360	4.452	4.545
RDT&E Articles Qty		1					

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

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

- Develops, demonstrates, and evaluates CONOPS, and assesses manning requirements of ship-based tactical UASs.
- Leverages and assesses joint utility of Global Hawk Maritime Demonstration (GHMD) System.
- Demonstrates UAS integration into USN battlespace dominance operations and network centric warfare.
- Demonstrates UAS integration into USN sensor-to-shooter and Sea Strike.
- Develops Intelligence, Surveillance, and Reconnaissance (ISR) CONOPS in support of strike, Military Operations Other Than War (MOOTW), Anti-Air Warfare (AAW), and Combat Search and Rescue (CSAR).
- Demonstrates UAS cross-cueing capability with theater and strategic intelligence sources.
- Develops Tactics, Techniques, and Procedures for multi-dissimilar UAS control, operations, and data dissemination utilizing NATO STANAG 4586.
- Conducts studies for UAS task, data management, airspace integration, Sense & Avoid, and Focused Flying efforts.
- Conducts CONOPS studies, demonstrations, and exercises for data relay, comm relay, time sensitive targets, and weapons employment.
- Utilize a UAS CONOPS demonstration system for CONOPS development, test and evaluation, and expediting technology transition. The demonstration system consists of a ground control station, launch and recovery equipment, air vehicles, spares and associated equipment.

B. ACCOMPLISHMENTS / PLANNED PROGRAM

STUDIES AND DEMONSTRATIONS	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	.700	.962	1.800
RDT&E Articles Qty		1	

Studies and Demonstrations to develop CONOPS for manned-unmanned integration of UAS and aircraft systems. Purchase a UAS CONOPS demonstration system for CONOPS development, test and evaluation, and technology transition.

SHIPBOARD CONOPS	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	1.425	1.241	1.281
RDT&E Articles Qty			

Shipboard CONOPS - Conduct CONOPS studies, demonstrations, and exercises for data relay, comm relay, time sensitive targets, and weapons employment. Assess manning requirements of ship-based tactical UAS to identify manpower reduction opportunities.

ENGINEERING AND PROGRAM SUPPORT	FY 2007	FY 2008	FY2009
Accomplishments / Effort / Sub-total Cost	.884	.884	1.002
RDT&E Articles Qty			

Government engineering support, program office travel and contract support services.

NATO STANAG 4586 AND INTEROPERABILITY	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	.935	.950	0.215
RDT&E Articles Qty			

Develop standards-based NATO STANAG 4586 tool and validation capability to certify interoperability compliance. Conduct CONOPS studies for multiple, dissimilar UAS interoperability. Conduct studies for UAS task, data management and Focused Flying efforts.

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603261N, TACTICAL AIRBORNE RECONNAISSANCE	PROJECT NUMBER AND NAME 2467, UAV CONOPS	

C. OTHER PROGRAM FUNDING SUMMARY:

	FY 2007	FY 2009	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
Not Applicable									

D. ACQUISITION STRATEGY:
Not Applicable

Exhibit R-3 Cost Analysis (page 1)											DATE: February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4		PROGRAM ELEMENT 0603261N, TACTICAL AIRBORNE RECONNAISSANCE				PROJECT NUMBER AND NAME 2467, UAV CONOPS						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
PRODUCT DEVELOPMENT												
Ship Integration	VARIOUS	VARIOUS	1.841	.845	11/06	1.000	11/07	1.000	11/08	Continuing	Continuing	
Systems Engineering Test Tool	WX	NAWCAD, PATUXENT RIVER MD	.664	.580	11/06	.241	11/07	.281	11/08	Continuing	Continuing	
SUBTOTAL PRODUCT DEVELOPMENT			2.505	1.425		1.241		1.281		Continuing	Continuing	

Remarks:

SUPPORT												
Development/ Demo Support	WX	VARIOUS	11.371	.400	12/06	.300	12/07	.700	12/08	Continuing	Continuing	
Software Development	C/CPFF	RAYTHEON COMPANY, FALLS CHURCH VA	2.250								2.250	2.250
Studies , Demo & Analysis	WX	NAWCAD, PATUXENT RIVER MD		.289	12/06	.275	12/07	.500	12/08	Continuing	Continuing	
Studies, Demo & Analysis	WX	NAWCWD, CHINA LAKE CA	.150	.855	12/06	.387	12/07	.600	12/08	Continuing	Continuing	
SUBTOTAL SUPPORT			13.771	1.544		.962		1.800		Continuing	Continuing	

Remarks:

TEST & EVALUATION												
Interoperability Testing	WX	VARIOUS	.650	.150	12/06	.950	12/07	.215	12/08	Continuing	Continuing	
SUBTOTAL TEST & EVALUATION			.650	.150		.950		.215		Continuing	Continuing	

Remarks:

MANAGEMENT												
Government Eng Sup	VARIOUS	VARIOUS	1.934	.300	12/06	.477	12/07	.611	12/08	Continuing	Continuing	
Program Management Support	VARIOUS	VARIOUS	.588	.484	12/06	.307	12/07	.300	12/08	Continuing	Continuing	
Travel	TO	NAVAIR, PAXTUXENT RIVER MD	.188	.041	10/06	.100	10/07	.091	10/08	Continuing	Continuing	
SUBTOTAL MANAGEMENT			2.710	.825		.884		1.002		Continuing	Continuing	

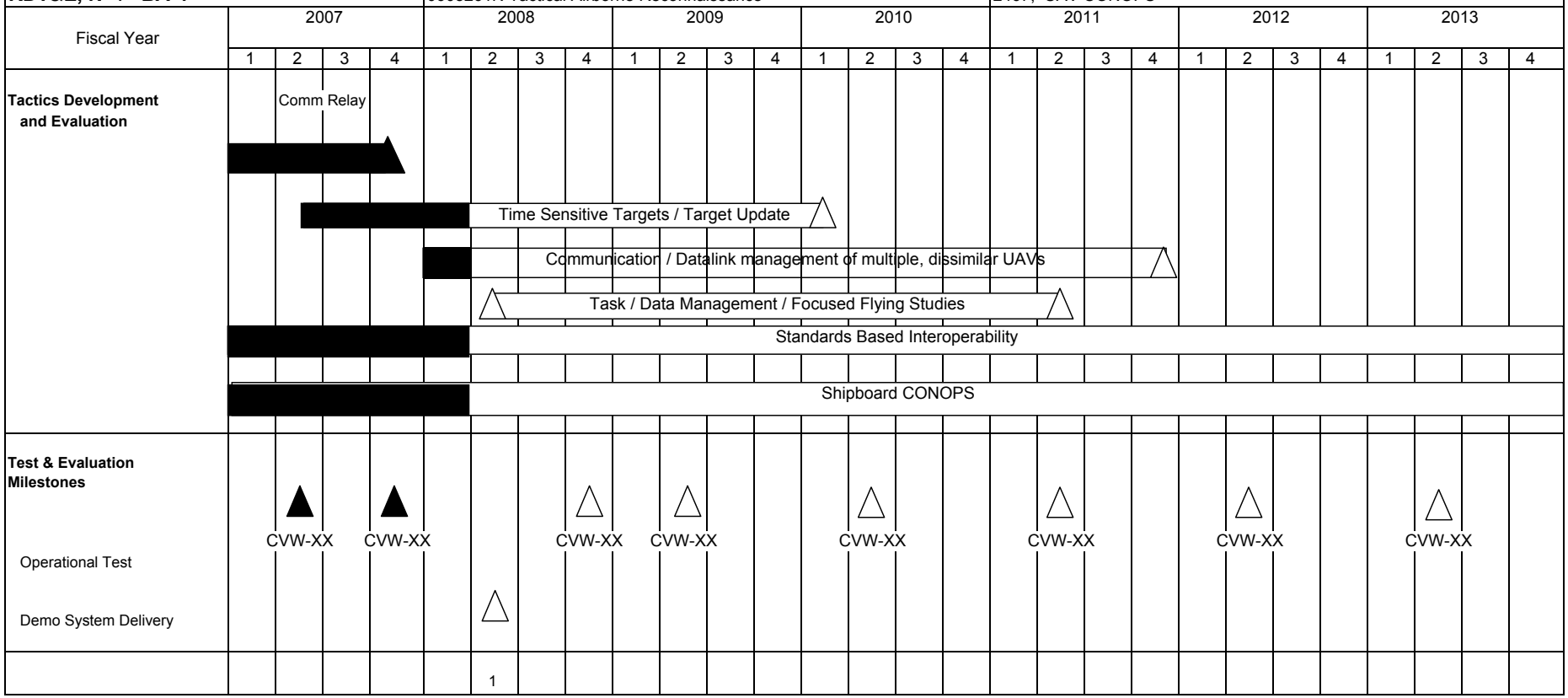
Remarks:

Total Cost			19.636	3.944		4.037		4.298		Continuing	Continuing	

Remarks:

CLASSIFICATION:

EXHIBIT R4, Schedule Profile			DATE: **February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603261N Tactical Airborne Reconnaissance	PROJECT NUMBER AND NAME 2467, UAV CONOPS	



CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2008**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**				PROJECT NUMBER AND NAME 2467, UAV CONOPS				
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	
Tactics Development & Evaluation:								
Standards Based Interoperability	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	
Shipboard CONOPS	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	
Comm Relay	1Q-4Q							
Time Sensitive Targets/Target Update	2Q-4Q	1Q-4Q	1Q-4Q	1Q				
Communication / Datalink management of multiple, dissimilar UASs		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q			
Task/Data Management/Focused Flying Studies		2Q-4Q	1Q-4Q	1Q-4Q	1Q-2Q			
Test & Evaluation:								
CVW-XX	2Q,4Q	4Q	2Q	2Q	2Q	2Q	2Q	
Demonstration System Delivery		2Q						

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		R-1 ITEM NOMENCLATURE **0603382N/ADVANCED COMBAT SYSTEMS TECHNOLOGY**					
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	20.251	11.515	4.367	10.086	12.058	12.082	10.113
0324 / ADV COMBAT SYSTEM TECHNOLOGY	18.988	9.130	4.367	10.086	12.058	12.082	10.113
9999 / CONGRESSIONAL ADDS	1.263	2.385	0.000	0.000	0.000	0.000	0.000

A. MISSION DESCRIPTION:

The Advanced Combat System Technology line provides engineering studies, real time instrumentation, risk reduction experiments conducted in a distributed computer architecture and Tactical Information Management (TIM) concepts in a computing testbed. The program matures both technical and business model integration for warfare systems programs of record in an open architecture environment. A priority is the design of the flow and display of tactical information through the "detect-control-engage" process to provide decision quality information.

Project Unit 0324: Funding is included to ensure all Naval systems, family of systems, and programs move to modular Open Architectures (OA) in accordance with DoDD 5000.1 dated 12 May 2003 which mandates all DoD programs to utilize open systems architecture in order to rapidly field affordable, interoperable systems. By direction of the Navy SAE, PEO IWS is assigned overall responsibility and authority to direct the Navy's OA effort which this project supports. This effort establishes acquisition strategies, develops guidance, and develops analysis of alternatives to determine OA software reuse practices within and across all Navy Communities of Interest (COI - surface, subsurface, air, space, and C4I). This project also works closely with the Test and Evaluation (T&E) and certification communities in defining regression testing and certification requirements for all OA Commercial Off-the-Shelf upgrades and software reuse applications. Ultimately, this project seeks to create a strategic shift in the acquisition process to facilitate cooperative cross-domain/COI business relationships. This will improve economies of scale throughout the Navy. This development effort will identify the business case and return on investment for moving the Navy towards an open systems approach, support the development of open systems technologies, and integrate best practices for open systems development within Naval acquisition. This Naval OA project will ensure Navy-wide system architectures are extensible and scaleable in function, capacity, and workload to meet Joint warfighting requirements. This also includes the identification and development of common software components, functions, and reuse methodologies. In summary, this funding supports systems engineering required across all Naval systems as they are migrated to function in a joint net centric warfare environment.

CLASSIFICATION:	UNCLASSIFIED

EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION (CONTINUATION)

DATE
February 2008

APPROPRIATION/BUDGET ACTIVITY
RDTEN/BA 4

R-1 ITEM NOMENCLATURE
0603382N/ADVANCED COMBAT SYSTEMS TECHNOLOGY

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
Previous Presidents Budget: (FY 08 Pres Controls)	12.319	9.331	9.586
Current PB Budget: (FY09 PB Controls)	20.251	11.515	4.367
Total Adjustments	7.932	2.184	-5.219
Summary of Adjustments:			
Program Adjustment	-0.316	-0.201	-5.219
Misc. Changes	0.000	0.000	0.000
Undistributed General Reductions	- 0.015	0.000	0.000
Congressional Action	1.263	2.385	0.000
Reprogramming	7.000	0.000	0.000
Subtotal	7.932	2.184	-5.219

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
								To	Total
PE 0604307N/ 1447 (AEGIS Surf Combatant Combat Sys Imp)	140.812	139.686	188.500	166.393	147.457	118.727	96.186	CONT.	997.761
PE 0604755N/ 2178 (Ship Self Defense System)	12.626	26.200	30.554	24.718	30.243	33.207	33.945	0.000	191.493
PE 0603582N/ 0164 (Common Network Integration)	20.200	14.500	13.500	0.000	0.000	0.000	0.000	CONT.	47.127
PE 0603658N/2039 (Cooperative Engagement Capability)	41.816	32.538	38.316	49.248	46.302	45.726	46.080	CONT.	300.026

D. ACQUISITION STRATEGY:

This risk reduction effort evolved and shifted from a PEO IWS 1.0 task to NSWC/Dahlgren to an ASN-RDA directed task to fund the Navy's OA Enterprise effort from this core OA Budget line (policy statement dated 5 August 2004). The strategy was further refined in the DCNO requirement of 23 December 2005 (N6/7) with guidance for this effort to assist the MDA, program managers, and resource sponsors in assessing enterprise program assets where appropriate. OPNAV has directed this program to provide objective, measurable, performance based assessments as baselines for future system changes and spiral developments. It is also directed to serve as the coordinator for end-to-end force level system engineering experiments (e.g., OA/Fn Experiment). Furthermore, it directs an OA asset repository capability that incorporates and enterprise configuration management process be built and maintained.

E. MAJOR PERFORMERS:

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

NSWC/Crane, Carderock, & ALION- Program Management Support

NUWC/Newport-OA Domain Support

NAVAIR - OA Domain Support

Industry: IBM, ANGLE

SPAWAR-OA Domain Support

MITRE & SEI-FFRDC

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603382N/ADVANCED COMBAT SYSTEMS TECHNOLOGY**				PROJECT NUMBER AND NAME **0324/ADV COMBAT SYSTEM TECHNOLOGY**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	18.988	9.130	4.367	10.086	12.058	12.082	10.113
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Project Unit 0324: Funding is included to ensure all Naval systems, family of systems, and programs move to modular Open Architectures (OA) in accordance with DoDD 5000.1 dated 12 May 2003 which mandates all DoD programs to utilize open systems architecture in order to rapidly field affordable, interoperable systems. By direction of the Navy SAE, PEO IWS is assigned overall responsibility and authority to direct the Navy's OA effort which this project supports. This effort establishes acquisition strategies, develops guidance, and develops analysis of alternatives to determine OA software reuse practices within and across all Navy Communities of Interest (COI - surface, subsurface, air, space, and C4I). This project also works closely with the Test and Evaluation (T&E) and certification communities in defining regression testing and certification requirements for all OA Commercial Off-the-Shelf upgrades and software reuse applications. Ultimately, this project seeks to create a strategic shift in the acquisition process to facilitate cooperative cross-domain/COI business relationships. This will improve economies of scale throughout the Navy. This development effort will identify the business case and return on investment for moving the Navy towards an open systems approach, support the development of open systems technologies, and integrate best practices for open systems development within Naval acquisition. This Naval OA project will ensure Navy-wide system architectures are extensible and scaleable in function, capacity, and workload to meet Joint warfighting requirements. This also includes the identification and development of common software components, functions, and reuse methodologies. In summary, this funding supports systems engineering required across all Naval systems as they are migrated to function in a joint net centric warfare environment.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603382N/ADVANCED COMBAT SYSTEMS TECHNOLOGY**	PROJECT NUMBER AND NAME **0324/ADV COMBAT SYSTEM TECHNOLOGY**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Multi-Mission Signal Processor (MMSP)	7.000	0.000	0.000
RDT&E Articles Quantity	0	0	0

Multi-Mission Signal Processor (MMSP) is an effort to support the development of a signal processor for DDG Modernization war fighting upgrades and to complete Aegis C&D software partitioning and migration to Open Architecture. This effort allows collaboration during development of Aegis Ballistic Missile Signal Processor.

	FY 2007	FY 2008	FY 2009
OA Enterprise Strategy and Governance	1.373	1.318	0.767
RDT&E Articles Quantity	0	0	0

OA Enterprise Strategy and Governance - This funding supports the quarterly/semiannual OA EXCOMM executive committee and continued activities of the OA Executive Team (OAET). The OAET is the key governance body that ensures the open systems approach is developed and applied across the Navy in a cohesive and implementable manner. The OAET is the single interface between PEO IWS and the rest of the OA community of interest. Also funds, OAET working groups such as the Business, Communications, Standards, and Architecture working groups. These groups work across Naval domains to ensure architectures will be extensible and scaleable in function, capacity, and workload to meet Joint warfighting requirements across Platforms in the Joint Net-Centric Environment.

	FY 2007	FY 2008	FY 2009
OA Enterprise Communications and Training	1.154	0.945	0.500
RDT&E Articles Quantity	0	0	0

OA Enterprise Communications and Training - This funding supports the activities to enable the cultural adoption of OA principles and practices through stakeholder management, communications, training, and OA Knowledge Management. Key activities include the development on an enterprise workforce training and education program and establishment of professional curricula (OA modular acquisition and OA systems engineering) with academia and Naval Institutes. This program plan includes participation, liaison, and coordination with multiple stakeholders including the OSD Open Systems Joint Task Force (OSJTF), Naval Post Graduate School, Defense Acquisition University (DAU), FORCEnet, Industry Days, and other communication vehicles, to ensure the optimal OA standards and technologies are identified and incorporated into Naval system acquisition.

	FY 2007	FY 2008	FY 2009
OA Program Maturity Development	4.530	2.721	0.600
RDT&E Articles Quantity	0	0	0

OA Program Maturity Development - This funding supports the assessment of systems, family of systems, and programs (ACAT I - IV) to determine the baseline OA maturity and compliance with Modular Open Systems Architecture (MOSA). This includes the identification of cross-domain and enterprise components and analysis of business and technical alternatives to determine return on investment for re-use. The OA Program Maturity Development includes the establishment of mission focused Communities of Interest to provide end-to-end mission based OA compliant capabilities. This includes the OA-Fn Experimentation which is an effort to develop an Enterprise level OA-Fn demonstration, test and certification testing capability to enable the Naval community to evaluate candidate components for interoperability reuse potential and NII Net-Ready KPP achievement in a timely and more affordable manner. In addition, this effort will assist in aligning the OA and Fn activities in a concrete and demonstrable manner oriented

to a Build-Assess-Build experimentation process to collect cross-domain reuse feasibility opportunities and potential interoperability metrics for early feedback into the acquisition and engineering process. Participation and contribution of key technical expertise that enables the development of an implementable OA design that incorporates reusable hardware and software and fulfills Net-Centric Warfare, GIG, FORCEnet, and other technical requirements, while ensuring the operator's capability needs are always met. Includes the collaborative development of OA design processes, architectures, and other engineering documents between System Commands and PEO's across Naval domains. Key areas of technical expertise included but are not limited to process development, Naval acquisition, information transfer, information management, resource management, information assurance, time synchronization, programming languages, development tools, and displays.

	FY 2007	FY 2008	FY 2009
OA Implementation and Integration across Naval Domains	4.096	3.396	1.800
RDT&E Articles Quantity	0	0	0

OA Implementation and Integration across Naval Domains- Continue supporting the integration of OA policy, design guidance, and technologies into specific Naval domains, system commands, and PEOs. Provide for the direct support of program to implement OA-related processes and technologies within legacy and developmental Naval systems.

Software/Hardware Asset Reuse Enterprise (SHARE) - Establish a functional process and asset repository to publish government owned assets central to the Open Architecture strategy. This repository is key to the health and maturity of the Navy OA effort and serves as a pilot project that will ultimately spiral to an enterprise wide asset repository.

OA Business Strategy - Development of an acquisition strategy addressing incentives, intellectual property issues, contracting (integrators vs. primes), and funding alternatives.

OA Test Facility - Study and recommendation of Test & Evaluation facilities and process changes required to support the fielding of OA-based products and systems. Continued participation of key technical expertise that enables OA application portability validation, Program of Record OA migration risk mitigation, OACE technology evaluations, verification of OA with legacy systems (connection with DEP), proof-of-concept for RCIP. Also includes evaluation of Jointly produced software, such as the IABM. Includes development, maintenance, and use of the OA Asset Repository, and configuration management of software within the repository.

OA Standards- Evaluation of domain standards and current commercial standards to identify enterprise OA standards and align domains accordingly (e.g. NESI, OACE). Activities include the development, maintenance, and issuance of enterprise standards and guidance.

OA Technology Bridging - Provides the new front-work required to prepare for tomorrow's OA technologies in support of OA COTS Technology Refresh. Work with Science & Technology (S&T) communities (e.g. DARPA and Office of Naval Research (ONR)) to provide domain specific 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. Ensure that emerging technology advances can be inserted at the proper time and pace to enable the management of COTS obsolescence.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603382N/ADVANCED COMBAT SYSTEMS TECHNOLOGY**	PROJECT NUMBER AND NAME **0324/ADV COMBAT SYSTEM TECHNOLOGY**

throughout the OA lifecycle via the Technology Refresh Process that meets the Fleet's Technology Insertion cycles.

	FY 2007	FY 2008	FY 2009
OA Financial, Technical, and Administrative Support Services	0.835	0.750	0.700
RDT&E Articles Quantity	0	0	0

OA Financial, Technical, and Administrative Support Services - Provides support services for OA development in the following areas: Contract financial management, war room operations, Integrated Development Environment (IDE), technical support, OA policy and instruction development, program-related Risk Management and Cost Analysis, and dedicated executive assistant support to government principles. Provides senior engineering architecture expertise. Includes coordination, planning, facility rental, VTC use, and other aspects of meeting support for the OAET, OAET subgroups, and the OA Executive Committee.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603382N/ADVANCED COMBAT SYSTEMS TECHNOLOGY**					PROJECT NUMBER AND NAME **0324/ADV COMBAT SYSTEM TECHNOLOGY**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
SE/OA Domain Support	SS/CPFF	APL / Baltimore, MD	0.550	0.175	NOV-06	0.075	DEC-07	0.100	OCT-08	0.000	0.900	0.000
Systems Engineering	WR	NSWC / Dahlgren, VA	5.891	1.700	NOV-06	1.700	DEC-07	1.900	NOV-08	CONT	CONT	0.000
Systems Engineering	WR	NSWC Indian Head	0.000	0.000	DEC-06	0.000		0.000		0.000	0.000	0.000
Systems Engineering	WR	NSWC/CRANE & Carderock	0.803	0.720	NOV-06	0.000	NOV-07	0.250	NOV-08	0.000	1.773	0.000
Systems Engineering	CPAF	Miscellaneous	2.695	0.878	NOV-06	3.846	JAN-08	0.000		0.000	7.419	0.000
OA DOMAIN SUPPORT	WR	NUWC/Newport, Spawar, Navair	8.121	3.790	NOV-06	0.175	JAN-08	0.000		0.000	12.086	0.000
SE/Signal Processor	CPAF	Lockheed Martin	0.000	6.000	JUL-07	0.000		0.000		0.000	6.000	0.000
SE/Signal Processor	CPAF	BAE	0.000	0.300	JUL-07	0.000		0.000		0.000	0.300	0.000
SE/Signal Processor	CPAF	Raytheon	0.000	0.100	JUL-07	0.000		0.000		0.000	0.100	0.000
SE/Signal Processor	WR	NSWC/DD, NRL, PHD	0.000	0.600	JUL-07	0.000		0.000		0.000	0.600	0.000
Subtotal Product Development			**18.060**	**14.263**		**5.796**		**2.250**		**CONT**	**CONT**	**0.000**
Remarks:												
Software Development	CPFF	MITRE,SEI	0.309	0.000	DEC-06	0.000		0.000		0.000	0.309	0.000
Industry Development	CPFF	IBM, ANGLE	2.799	2.300	NOV-06	2.184	NOV-07	1.300	OCT-08	0.000	8.583	0.000
Technical Data-Academia	WR	NPS-Monterey/DAU	0.500	0.548	NOV-06	0.300	NOV-07	0.100	NOV-08	0.000	1.448	0.000
Subtotal Support Costs			**3.608**	**2.848**		**2.484**		**1.400**		**0.000**	**10.340**	**0.000**
Remarks:												
Operational Test & Evaluation	WR	NSWC/DD	1.174	1.042	NOV-06	0.100	NOV-07	0.000		0.000	2.316	0.000
OA Asset Repository(SBIR Account)	WR	Miscellaneous	0.150	0.000	MAR-07	0.000		0.000		0.000	0.150	0.000
Subtotal Test and Evaluation			**1.324**	**1.042**		**0.100**		**0.000**		**0.000**	**2.466**	**0.000**
Remarks:												
Program Management Support	CPAF	Miscellaneous	1.192	0.835	NOV-06	0.750	JAN-08	0.717	NOV-08	CONT	CONT	0.000
SBIR Assessment(Cong Add)	CPAF	NSWC/CD	2.435	0.000	MAR-07	0.000		0.000		0.000	2.435	0.000
Subtotal Management Services			**3.627**	**0.835**		**0.750**		**0.717**		**CONT**	**CONT**	**0.000**
Remarks:												

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS												DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603382N/ADVANCED COMBAT SYSTEMS TECHNOLOGY**					PROJECT NUMBER AND NAME **0324/ADV COMBAT SYSTEM TECHNOLOGY**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Total Cost			**26.619**	**18.988**		**9.130**		**4.367**		**CONT**	**CONT**	**0.000**

CLASSIFICATION:

EXHIBIT R4, Schedule Profile	**DATE: February 2008**
APPROPRIATION/BUDGET ACTIVITY/PROGRAM ELEMENT **RDT&E, N /BA-4**	PROJECT NUMBER AND NAME 0324/Advanced Combat System Technology

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	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	
Acquisition Milestones																												
Naval OA/FN Technical Stds		07-1 DSIR Update		07-2 DSIR Update		08-1 DSIR Update																						
Contract Guide Book Documentation Update				08 Design Guidance				09 Design Guidance				10 Design Guidance				11 Design Guidance				12 Design Guidance				13 Design Guidance(DG)				14 DG
Contracting Symposium																												
Report to Congress Documentation Update																												
Consolidated Business Strategy Documentation Update																												
OA Enterprise Asset Repository				08 Repository Updates				09 Repository Updates				10 Repository Updates				11 Repository Updates				12 Repository Updates				13 Repository Updates (RU)				14 RU
Test & Evaluation Milestones																												
OA/FN Risk Reduction Experiment Assess and Test OA Components Implementation				07-1 Exp												10-1 Exp				11-1 Exp				12-1 Exp				13-1 E
Production Milestones																												
Deliveries																												

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

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603382N/ADVANCED COMBAT SYSTEMS TECHNOLOGY**			PROJECT NUMBER AND NAME **0324/ADV COMBAT SYSTEM TECHNOLOGY**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Contracting Symposium	2Q	2Q	2Q	2Q	2Q	2Q	2Q
Report to Congress Documentation Update	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Consolidated Business Strategy Update	4Q	4Q	4Q	4Q	4Q	4Q	4Q
Naval OA/Fn Technical Stds Profiles	2,4Q	2Q					
Contract Guide Book Documentation Update	4Q	4Q	4Q	4Q	4Q	4Q	4Q
OA Enterprise Asset Repository Updates	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
OA/Fn Risk Reduction Experiments	4Q			4Q	4Q	4Q	4Q

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603382N/ADVANCED COMBAT SYSTEMS TECHNOLOGY**	PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
9999N Open Arch/Maint Free Operating Period (OA/MFOP)	1.263	2.385	0.000
RDT&E Articles Quantity	0	0	0

Open Architecture/Maintenance Free Operating Period (MFOP) -This funding supports the pilot program for AN/BSY-10, co-sponsored with ASN (RD&A), it incorporates software tools and hardware redundancy into Commercial Off-The-Shelf (COTS) based open architected systems such that the system self-checking and self-healing capabilities virtually eliminate at-sea open cabinet maintenance. This funding extends the application of OA/MFOP to investigate the adoption of MFOP tools in other Navy National Security Systems as an OA reusable component.

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION							DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**			R-1 ITEM NOMENCLATURE **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEASUR**				
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	113.207	89.175	119.164	135.420	129.029	146.149	176.411
0260 / Remote Minehunting Systems	5.492	0.000	0.000	25.612	25.908	33.531	34.124
1233 / Surface MCM Mid-life Upgrade	18.853	27.702	25.251	15.754	14.050	20.604	25.664
2094 / Unmanned Underwater Vehicle	24.583	12.743	30.090	41.328	40.160	53.375	77.375
2131 / Assault Breaching System	34.880	34.443	44.011	30.128	29.197	18.678	13.888
3123 / SMCM UUV	10.502	7.579	12.653	22.598	19.714	14.888	20.301
4025 / Expendable Mine Neutralization System	12.873	6.708	7.159	0.000	0.000	5.073	5.059
9179C / Surface Navy integrated undersea tactical technology	2.527	0.000	0.000	0.000	0.000	0.000	0.000
9967N / AN/SQQ-32 Mine Hunting Sonar Upgrade	3.497	0.000	0.000	0.000	0.000	0.000	0.000

A. MISSION DESCRIPTION:

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 communication 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, classify, and neutralize moored, bottom, and close-tethered mines for use in Mine Countermeasure (MCM) MCM-1 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; and (4) Unmanned Undersea Vehicle (UUV) systems for clandestine mine reconnaissance.

Congressional plus-up for the Surface Navy Integrated Undersea Tactical Technology (SNIUTT) was used to develop an AN/SQQ-32, AN/AQS-14, AN/AQS-24 and AN/AQS-20A sensor training module for a LAN-based Surface Network Embedded Analysis and Tactical Trainer (SNEATT).

Congressional plus-up for the ANSQQ-32 Mine Hunting Sonar development for high frequency wide band.

(U) B. JUSTIFICATION FOR BUDGET ACTIVITY:

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

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	R-1 ITEM NOMENCLATURE **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEASUR**	

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
Previous President's Budget	116.124	91.122	103.798
Current President's Budget	113.207	89.175	119.164
Total Adjustments	-2.917	-1.947	15.366
Summary of Adjustments:			
Congressional Undistributed Reductions	0.000	-0.586	0
Economic Assumptions	0	0	-0.093
Program Adjustment	0.000	-1.361	15.459
SBIR Adjustments	-2.917	0.000	0.000
Subtotal	-2.917	-1.947	15.366

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEAS**				PROJECT NUMBER AND NAME **0260/REMOTE MINEHUNTING SYSTEMS**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	5.492	0.000	0.000	25.612	25.908	33.531	34.124
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The AN/WLD-1(V)(1), Remote Minehunting System (RMS), consists of a diesel powered semi-submersible Remote Multi-Mission Vehicle (RMMV) that tows a Variable Depth Sensor (VDS, AN/AQS-20A). It also includes shipboard equipment consisting of a command control combat system, launch and recovery system, radio antennas and support equipment. RMS will operate from the DDG-51 Class Flight IIA ships (DDG-91-96) and Littoral Combat Ships (LCS). The system determines the presence or absence of mines to an acceptable level of confidence to enable ships to operate in or avoid specific areas. Future funding will be used to begin development of emerging technologies for incorporation into the AN/WLD-1(V)(1) Remote Minehunting System and Littoral Combat Ship (LCS) Reconfigurable Mission Capabilities (Multi-Mission - MM).

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTER**	PROJECT NUMBER AND NAME **0260/REMOTE MINEHUNTING SYSTEMS**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	4.992	0.000	0.000
RDT&E Articles Quantity	0	0	0

T&E:

FY 07: Conducted TECHEVAL. LRIP #1 decertified from test on DDG-96 in Jun 07.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.500	0.000	0.000
RDT&E Articles Quantity	0	0	0

Management:

FY 07: Updated documentation in support of Full Rate Production Decision. Travel.

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
2622 / OPN (LV064)	0.000	10.500	2.749	4.806	4.512	9.775	10.811		
1600 /OPN (LCS MM)	78.741	0.000	131.241	234.673	242.184	252.298	227.441		

D. ACQUISITION STRATEGY:

The RMS(V)3 focused on a prototype development, and was competitively awarded to Lockheed Martin in August 1996. The RMS(V)4, officially designated the AN/WLD-1(V)(1), was awarded as a sole source contract to Lockheed Martin in 2002. MS C on 1 July 2005 authorized procurement of three (3) LRIPs in FY05. Conducted Operational Assessment in August 2006 to support FY06 (2nd) LRIP Decision. ASN(RDA) approved FY06 (2nd) LRIP up to 4 units. This decision was documented in Acquisition Decision Memorandum (ADM) dated 21 Sep 2006. Funding in FY 08 to procure one LRIP unit in support of LCS Program. OPEVAL rescheduled in 4th Qtr FY08 followed by FRPD in 2nd Qtr FY 09.

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEAS**				PROJECT NUMBER AND NAME **1233/Surface MCM Mid-life Upgrade**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	18.853	27.702	25.251	15.754	14.050	20.604	25.664
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(1) AN/SQQ-32(V)4 High-Frequency, Wide Band (HFWB) is a technology upgrade to the SQQ-32 Towed Body which will incorporate HFWB technology into the detection sonar to address performance deficiencies against new mine threats in the littorals. This upgrade will be installed on MCM-1 Class ships with the SQQ-32(V)3 and will develop new transducer modules, fiber optic cable and modify topside processing and display software. 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) meet FORCEnet implementation standards; develop and maintain Mine Warfare (MIW) C4I Surveillance and Reconnaissance (C4ISR) architecture; identify and validate C4ISR shortfalls. 4) Develop and implement Mine Countermeasures Commander's Estimate of the Situation (MCM CES)*. 5) Battle Space Profiler (BSP) is used to optimize sonar setup (towed body depth and depression/elevation (D/E) angles), support mission planning based on predicted sonar performance, and adapt mission planning to changes in the environment and threats. Improvement to the BSP system will allow the BSP to become an in-situation real-time environmental data collection system and will allow sharing pertinent data such as MEDAL contact and environmental databases, as well as all Navigation information. 6) Unmanned Surface Sweep System (US3) is a magnetic/acoustic sweep system developed to sweep acoustic/magnetic influence mines from an unmanned surface platform deployed from the Littoral Combat Ship (LCS).

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTER**	PROJECT NUMBER AND NAME **1233/Surface MCM Mid-life Upgrade**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.321	0.000	0.000
RDT&E Articles Quantity	0	0	0

PRODUCT DEVELOPMENT:

BSP: Developed NAVO and NRL products into an integrated Battle Space Profiler (BSP) System.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.050	0.000	0.000
RDT&E Articles Quantity	0	0	0

SUPPORT:

BSP: Developed logistics products, including sparing, training materials, and interactive technical manual.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.106	0.000	0.000
RDT&E Articles Quantity	0	0	0

MANAGEMENT:

BSP: Provided program management support and travel for BSP program.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	1.056	0.000	0.000
RDT&E Articles Quantity	0	0	0

C4I/PRODUCT DEVELOPMENT:

Continued MIW information system engineering effort. This effort to include the ongoing development of the MIW Command, Control, Communication, Computers and Intelligence, (C4I) Surveillance, Reconnaissance (C4ISR) Architecture, which documents the Information Exchange Requirements of the MIW community and serves as Architecture for all MIW Programs of Record as required by DODI 5000.2. Rev 2 Architecture will support FORCEnet objectives to define MIW C4I capability in 2015.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.223	0.000	0.000
RDT&E Articles Quantity	0	0	0

C4I/MANAGEMENT:

C4I: Provided program management support and travel for MIW C4I program.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTER**	PROJECT NUMBER AND NAME **1233/Surface MCM Mid-life Upgrade**

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.262	0.364	0.093
RDT&E Articles Quantity	0	0	0

MCM CES/PRODUCT DEVELOPMENT:

FY 07: Completed development of Build 0, testing for Build 0.

FY 08: Begin Build 1 development, develop Build 1 modules, develop Engineering Development Model (EDM). Development of MEDAL EA and MCM CES Build 1 modules, integration of modules.

FY 09: Conduct testing of Build 1 with MEDAL EA.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.559	0.600	0.060
RDT&E Articles Quantity	0	0	0

MCM CES/SUPPORT:

Oversee technical integration of developed algorithms and models that have demonstrated their effectiveness in reducing the complexity of the MCM planning problem into a manageable set of options depending on the operational objective. Support effort to include communication with activities such as ONR and NSWC-PC to coordinate the incorporation of validated algorithms and models into MEDAL with the CES framework in order to effectively simplify the MCM planning problem for CSG and ESG staffs and therefore provide the speed, agility, adaptability, and flexibility required for modern MCM operations.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.100	0.000	0.100
RDT&E Articles Quantity	0	0	0

MCM CES/TEST AND EVALUATION:

FY 07: Performed Test and evaluation of MCM CES tool. Completed testing of Build 0 EDM.

FY 09: Complete testing of Build 1 with MEDAL EA.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.080	0.080	0.020
RDT&E Articles Quantity	0	0	0

MCM CES/MANAGEMENT:

FY 07: Program management included overall technical guidance and leadership for the program. Other ongoing PM support includes oversight of financial and logistics efforts and adequate coordination with MEDAL. Other PM tasking to include briefings, demonstrations, and project planning as required.

FY 08: Program management shall include overall technical guidance and leadership for the program. Other ongoing PM support includes oversight of financial and logistics efforts and adequate coordination with MEDAL. Other PM tasking to include briefings, demonstrations, and project planning as required.

FY 09: Other PM tasking to include briefings, demonstrations, and project planning as required.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTER**	PROJECT NUMBER AND NAME **1233/Surface MCM Mid-life Upgrade**

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	5.387	6.201	1.771
RDT&E Articles Quantity	0	0	0

HFWB/PRODUCT DEVELOPMENT:

FY 07: Completed soundhead and transducer design; complete interface electronics design; telemetry processor hardware for towed body and shipboard cabling hardware; complete shipboard processor design; complete fiber optic telemetry interface design.

FY 08: Fiber optic tow cable for EDM; consoles hardware; shipboard equipment system integration and fiber optic and slip ring integration. Continue design and fabrication efforts; begin laboratory integration, testing and in-water component tests.

FY 09: Towed body; common navigation console and auxiliary equipment integration.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	2.400	4.198	0.500
RDT&E Articles Quantity	0	0	0

HFWB/SUPPORT:

FY 07: Developed beamforming and display software; modify existing software and integration of new software; Integrated Logistics Support (ILS): develop Initial Capabilities Documents (ICDs), installation packages, technical manual and training updates.

FY 08: Complete software requirements and configuration; software integration testings and ILS documentation.

FY 09: Complete documentation development and ILS documents.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.350	1.040	2.416
RDT&E Articles Quantity	0	0	0

HFWB/TEST AND EVALUATION:

FY 07: Completed in lab system integration and testing.

FY 08: Cabling testing; system integration lab test; tow cable and slip ring shock test and in water testing.

FY 09: Complete in water testing; at sea testing; operation assessment and Environmental Qualification testing (EQT).

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.505	0.701	0.260
RDT&E Articles Quantity	0	0	0

HFWB/MANAGEMENT:

FY 07- FY 09: Provide program management support and travel for AN/SQQ-32 High Frequency Wideband (HFWB) Upgrade program.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	4.251	5.886	5.317
RDT&E Articles Quantity	0	0	0

MEDAL/PRODUCT DEVELOPMENT:

FY 07: Completed development and test of Build 11.

FY 08: Initiate development of Enterprise Architecture (EA) v.1.

FY 09: Complete IOC Build. Continue development and test of EA v.1. Initiate development of EA v.2.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTER**	PROJECT NUMBER AND NAME **1233/Surface MCM Mid-life Upgrade**

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.402	0.402	0.402
RDT&E Articles Quantity	0	0	0

MEDAL/SUPPORT:

Oversee technical integration of developed algorithms and models that have demonstrated their effectiveness with respect to their objectives. Support effort to include communication with activities such as applied labs, government activities, and designated contractors. Assist in providing the speed, agility, adaptability, and flexibility required for modern MCM operations.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.500	0.250	0.750
RDT&E Articles Quantity	0	0	0

MEDAL/TEST AND EVALUATION:

Perform testing of all builds and baselines of MEDAL and MEDAL integration, test of Build 11, Test of MEDAL EA v1.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.570	0.570	0.570
RDT&E Articles Quantity	0	0	0

MEDAL/MANAGEMENT:

Provide program management support and travel for MEDAL program. Program management shall include overall technical guidance and leadership for the program. Oversight of financial and logistics efforts and coordination with Navy and other DoD organizations and contractors as required to ensure successful execution of the program. As part of the systems engineering element of PM, communicate and coordinate with MIW C4ISR, ICWS, Organic MCM, Mainstreaming MIW, Expeditionary Warfare C4ISR, tactics development, long term planning, Naval Special Clearance Team (NSCT)-1, Assault Breaching Systems of Systems (ABSoS), LCS, and other programs as they relate to MEDAL and MIW Mission Planning, Evaluation, and C4ISR. Other PM tasking to include briefings, demonstrations, and project planning as required.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.092	3.498	2.184
RDT&E Articles Quantity	0	0	0

US3/PRODUCT DEVELOPMENT:

FY 07: Office of Naval Research delivered prototype under terms of Technology Transition Agreement (TTA); initiation of Analysis of Alternatives (AoA).

FY 08: Delivery of AoA; Initiation of capability production document; system development and demonstration effort.

FY 09: Product improvement efforts. Hardware and Software Development for the Unmanned Surface Sweep System (US3).

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTER**	PROJECT NUMBER AND NAME **1233/Surface MCM Mid-life Upgrade**

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.890	2.047	5.667
RDT&E Articles Quantity	0	0	0

US3/SUPPORT:

FY 07: Engineering support for prototype system and accomplishments of key performance parameters.

FY 08: Engineering and ILS support for required documentation to accomplish Milestone C.

FY 09: Completion of Milestone C documentation; engineering support for test events. Support for programmatic and logistical documentation.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.168	0.895	3.898
RDT&E Articles Quantity	0	0	0

US3/TEST AND EVALUATION:

FY 07: Risk Reduction Testing.

FY 08:CT and DT planning.

FY 09: Conduct DT testing in 3rd Qtr and OT testing in 4th Qtr.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.581	0.970	1.243
RDT&E Articles Quantity	0	0	0

US3/MANAGEMENT:

FY 07: Program initiation; ACAT III designation.

FY 08: Program support and management necessary to monitor contractor progress; review system capabilities; monitor cost and schedule; monitor contractor deliverables.

FY 09: Complete Milestone C in 4th Qtr.

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
2622/OPN (LV075/LV078/LV080/LV830/LV900)	23.357	12.070	13.719	42.966	40.754	36.021	8.902		

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTER**	PROJECT NUMBER AND NAME **1233/Surface MCM Mid-life Upgrade**

D. ACQUISITION STRATEGY:

HFWB - Naval Surface Warfare Center, Panama City (NSWC, PC) will team with a ARL UT to design and develop the HFWB upgrade to the AN/SQQ-32.
BSP - The system is being developed by NAVO, NRL and NSWC, PC. The improvements being incorporated into the BSP system are modifications to existing products
Mine Warfare and Environmental Decision Aids Library (MEDAL) - requirements for MEDAL Builds are generated through a formal requirements process. Requirements conferences gather a list of candidate functions based on a logical sequence to fully implement the overall software architecture. The fleet is presented with a recommended list of candidate capabilities based on this program plan, doctrine, fleet comments, and technology. These capability items are then prioritized by the fleet representatives (coordinated by Commander Mine Warfare Command). The fleet inputs are then consolidated by COMINEWARCOM into an overall list which is then presented to Navy leadership for pricing and final selection. The selection is based on price, risk, available funding, and possibly by other program factors (e.g., ensure that MEDAL supports other program delivery schedules). Selection balances immediate needs, long term objectives, technical maturity and other programmatic factors. A verification and validation process is applied to any algorithms, tactics, or models to be incorporated in the software. MEDAL development to include integration of data fusion techniques and incorporation of Data Access Layer (DAL) architecture to meet FORCEnet requirements. Acquisition strategy for Mine Countermeasures Commander's Estimate of the situation (MCM CES) is to deliver the software module within MEDAL builds by implementing the CES framework into the MEDAL software.
US3- The Unmanned Surface Sweep (US3) system effort will be transferred from ONR to PMS495 in FY07. PMS495 will award an SD&D contract to continue development of the system. It will be capable of sweeping mines in the littoral waters. The SD&D phase will include a milestone C LRIP decision in FY09 and then LRIP and a full rate production decision in FY10.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEASU**					PROJECT NUMBER AND NAME **1233/Surface MCM Mid-life Upgrade**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
BSP: Develop Bottom Sediment Classifier	WX	NRL	0.258	0.000		0.000		0.000		0.000	0.258	0.000
Develop Current Profiler	WX	NAVO	0.000	0.000		0.000		0.000		0.000	0.000	0.000
Develop Hydro-Optics Package	WX	NAVO	0.000	0.000		0.000		0.000		0.000	0.000	0.000
Systems Engineering and Integration	WX	NSWC PC	0.100	0.206	NOV-06	0.000		0.000		0.000	0.306	0.000
System Development	WX	NSWC PC	0.258	0.115	NOV-06	0.000		0.000		0.000	0.373	0.000
Subtotal Product Development			**0.616**	**0.321**		**0.000**		**0.000**		**0.000**	**0.937**	**0.000**
Remarks:												
Develop Logistics Products	WX	NSWC PC	0.110	0.050	NOV-06	0.000		0.000		0.000	0.160	0.000
Subtotal Support Costs			**0.110**	**0.050**		**0.000**		**0.000**		**0.000**	**0.160**	**0.000**
Remarks:												
Program Management Support	CPFF	CACI	0.050	0.030		0.000		0.000		0.000	0.080	0.000
Government Engineering Support	WX	NSWC PC	0.080	0.010		0.000		0.000		0.000	0.090	0.000
Travel	PD	NAVSEA	0.190	0.066		0.000		0.000		0.000	0.256	0.000
Subtotal Management Services			**0.320**	**0.106**		**0.000**		**0.000**		**0.000**	**0.426**	**0.000**
Remarks:												
Systems Engineering	WX	NSWC PC	1.859	1.056	NOV-06	0.000		0.000		0.000	2.915	0.000
Subtotal C4I Production Development			**1.859**	**1.056**		**0.000**		**0.000**		**0.000**	**2.915**	**0.000**
Remarks:												
Software Development	CPFF	SAIC	0.350	0.000		0.000		0.000		0.000	0.350	0.000
Subtotal C4I Support			**0.350**	**0.000**		**0.000**		**0.000**		**0.000**	**0.350**	**0.000**
Remarks:												
Program Management Support	CPFF	CACI	0.218	0.045	NOV-06	0.000		0.000		0.000	0.263	0.000
Travel	PD	NAVSEA	0.074	0.010	NOV-06	0.000		0.000		0.000	0.084	0.000
Government Engineering Support	WX	NSWC PC	0.103	0.168	NOV-06	0.000		0.000		0.000	0.271	0.000

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEASU**					PROJECT NUMBER AND NAME **1233/Surface MCM Mid-life Upgrade**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Program Management Support	Var	Various	0.157	0.000		0.000		0.000		0.000	0.157	0.000
SBIR Assessment			0.019	0.000		0.000		0.000		0.000	0.019	0.000
Subtotal C4I Management			**0.571**	**0.223**		**0.000**		**0.000**		**0.000**	**0.794**	**0.000**
Remarks:												
Systems Engineering	WX	NSWC PC	0.814	0.262	NOV-06	0.364	NOV-07	0.093	NOV-08	0.000	1.533	0.000
Subtotal MCM CES Product Development			**0.814**	**0.262**		**0.364**		**0.093**		**0.000**	**1.533**	**0.000**
Remarks:												
Software Development	CPFF	SAIC	0.110	0.559	NOV-06	0.600	NOV-07	0.060	NOV-08	0.000	1.329	0.000
Subtotal MCM CES Support			**0.110**	**0.559**		**0.600**		**0.060**		**0.000**	**1.329**	**0.000**
Remarks:												
Test and Evaluation	Var	Various	0.000	0.100	MAY-07	0.000		0.100	NOV-08	0.000	0.200	0.000
Subtotal MCM CES Test and Evaluation			**0.000**	**0.100**		**0.000**		**0.100**		**0.000**	**0.200**	**0.000**
Remarks:												
Program Management Support	CPFF	CACI	0.045	0.050	NOV-06	0.050	NOV-07	0.020	NOV-08	0.000	0.165	0.000
Government Engineering Support	WX	NSWC PC	0.005	0.005	NOV-06	0.005	NOV-07	0.000		0.000	0.015	0.000
Travel	PD	NSWC PC	0.044	0.025	NOV-06	0.025	NOV-07	0.000		0.000	0.094	0.000
Subtotal MCM CES Management			**0.094**	**0.080**		**0.080**		**0.020**		**0.000**	**0.274**	**0.000**
Remarks:												
Primary Hardware Development	WX	NSWC PC	4.060	4.343	NOV-06	5.951	NOV-07	1.771	NOV-08	0.000	16.125	0.000
Primary Hardware Development	WX	ARL-UT	0.000	0.000		0.000		0.000		0.000	0.000	0.000
Tow Cable Development	WX	NSWC PC	0.800	0.599	NOV-06	0.000		0.000		0.000	1.399	0.000
Ship Integration	WX	NSWC PC	0.602	0.445	NOV-06	0.250	NOV-07	0.000		0.000	1.297	0.000
Subtotal HFWB Product Development			**5.462**	**5.387**		**6.201**		**1.771**		**0.000**	**18.821**	**0.000**
Remarks:												

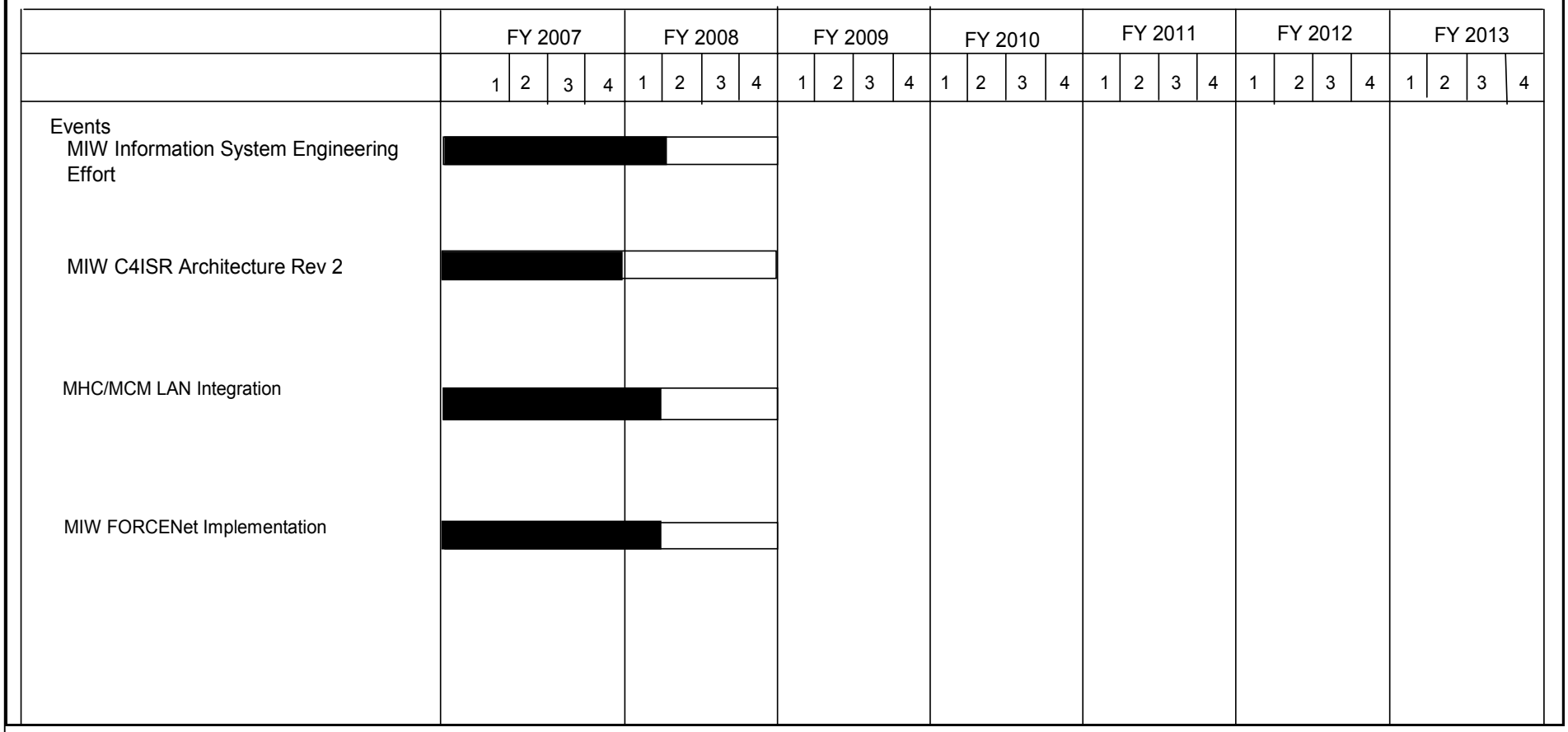
CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEASU**					PROJECT NUMBER AND NAME **1233/Surface MCM Mid-life Upgrade**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
HFWB Software Development	WX	NSWC PC	1.317	1.400	NOV-06	3.198	NOV-07	0.250	NOV-08	0.000	6.165	0.000
HFWB Integrated Logistics Support	WX	NSWC PC	0.350	1.000	NOV-06	1.000	NOV-07	0.250	NOV-08	0.000	2.600	0.000
Subtotal HFWB Support			**1.667**	**2.400**		**4.198**		**0.500**		**0.000**	**8.765**	**0.000**
Remarks:												
Developmental Test and Evaluation	WX	NSWC PC	0.175	0.350	NOV-06	1.040	NOV-07	2.416	NOV-08	0.000	3.981	0.000
Subtotal HFWB Test and Evaluation			**0.175**	**0.350**		**1.040**		**2.416**		**0.000**	**3.981**	**0.000**
Remarks:												
Program Management Support	Var	Various	0.268	0.290	NOV-06	0.386	JAN-08	0.150	JAN-09	0.000	1.094	0.000
Government Engineering Support	WX	NSWC PC	0.150	0.200	NOV-06	0.300	NOV-07	0.100	NOV-08	0.000	0.750	0.000
Travel	PD	NAVSEA	0.000	0.015	NOV-06	0.015	NOV-07	0.010	NOV-08	0.000	0.040	0.000
Subtotal HFWB Management			**0.418**	**0.505**		**0.701**		**0.260**		**0.000**	**1.884**	**0.000**
Remarks:												
Software Development	CPFF	SAIC	6.716	4.251	NOV-06	5.886	NOV-07	5.317	NOV-08	0.000	22.170	0.000
Subtotal MEDAL Product Development			**6.716**	**4.251**		**5.886**		**5.317**		**0.000**	**22.170**	**0.000**
Remarks:												
Software Engineering	WX	SPAWAR	0.000	0.182	NOV-06	0.182	NOV-07	0.182	NOV-08	0.000	0.546	0.000
Software Engineering	WX	NSWC PC	0.000	0.220	NOV-06	0.220	NOV-07	0.220	NOV-08	0.000	0.660	0.000
Subtotal MEDAL Support			**0.000**	**0.402**		**0.402**		**0.402**		**0.000**	**1.206**	**0.000**
Remarks:												
Test and Evaluation	Var	Various	0.000	0.500	NOV-06	0.250	NOV-07	0.750	NOV-08	0.000	1.500	0.000
Subtotal MEDAL Test and Evaluation			**0.000**	**0.500**		**0.250**		**0.750**		**0.000**	**1.500**	**0.000**
Remarks:												

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEASU**					PROJECT NUMBER AND NAME **1233/Surface MCM Mid-life Upgrade**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Program Management Support	CPFF	CACI	0.440	0.245	NOV-06	0.245	NOV-07	0.245	NOV-08	0.000	1.175	0.000
Government Engineering Support	WX	NSWC PC	0.296	0.300	NOV-06	0.300	NOV-07	0.300	NOV-08	0.000	1.196	0.000
Travel	PD	NAVSEA	0.139	0.025	NOV-06	0.025	NOV-07	0.025	NOV-08	0.000	0.214	0.000
SBIR Assessment			0.054	0.000		0.000		0.000		0.000	0.054	0.000
Program Management Support	Var	Various	0.350	0.000		0.000		0.000		0.000	0.350	0.000
Subtotal MEDAL Management			**1.279**	**0.570**		**0.570**		**0.570**		**0.000**	**2.989**	**0.000**
Remarks:												
Product Development	TBD	EDO	0.000	0.000		3.472	NOV-07	2.000	NOV-08	0.000	5.472	0.000
Product Development	WX	NSWC PC	0.000	0.092	APR-07	0.026	NOV-07	0.184	NOV-08	0.000	0.302	0.000
Subtotal US3 Product Development			**0.000**	**0.092**		**3.498**		**2.184**		**0.000**	**5.774**	**0.000**
Remarks:												
Engineering	TBD	EDO	0.000	0.000		0.257	NOV-07	1.477	NOV-08	0.000	1.734	0.000
Integrated Logistics	TBD	EDO	0.000	0.000		0.355	NOV-07	0.979	NOV-08	0.000	1.334	0.000
Engineering	WX	NSWC PC	0.000	0.609	NOV-06	1.300	NOV-07	2.071	NOV-08	0.000	3.980	0.000
Integrated Logistics	WX	NSWC PC	0.000	0.281	NOV-06	0.135	NOV-07	1.140	NOV-08		1.556	0.000
Subtotal US3 Support			**0.000**	**0.890**		**2.047**		**5.667**		**0.000**	**8.604**	**0.000**
Remarks:												
Test and Evaluation	TBD	EDO	0.000	0.000		0.627	NOV-07	1.559	NOV-08	0.000	2.186	0.000
Test and Evaluation	WX	NSWC PC	0.000	0.168	NOV-06	0.268	NOV-07	2.339	NOV-08		2.775	0.000
Subtotal US3 Test and Evaluation			**0.000**	**0.168**		**0.895**		**3.898**		**0.000**	**4.961**	**0.000**
Remarks:												
Contractor Management	TBD	EDO	0.000	0.000		0.323	NOV-07	0.466	NOV-08	0.000	0.789	0.000
Government Management Support	Var	Various	0.000	0.556	NOV-06	0.622	NOV-07	0.752	NOV-08	0.000	1.930	0.000
Travel	PD	NAVSEA	0.000	0.025	NOV-06	0.025	NOV-07	0.025	NOV-08	0.000	0.075	0.000
Subtotal US3 Management			**0.000**	**0.581**		**0.970**		**1.243**		**0.000**	**2.794**	**0.000**

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEASU**					PROJECT NUMBER AND NAME **1233/Surface MCM Mid-life Upgrade**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Remarks:												
Total Cost			**20.561**	**18.853**		**27.702**		**25.251**		**0.000**	**92.367**	**0.000**

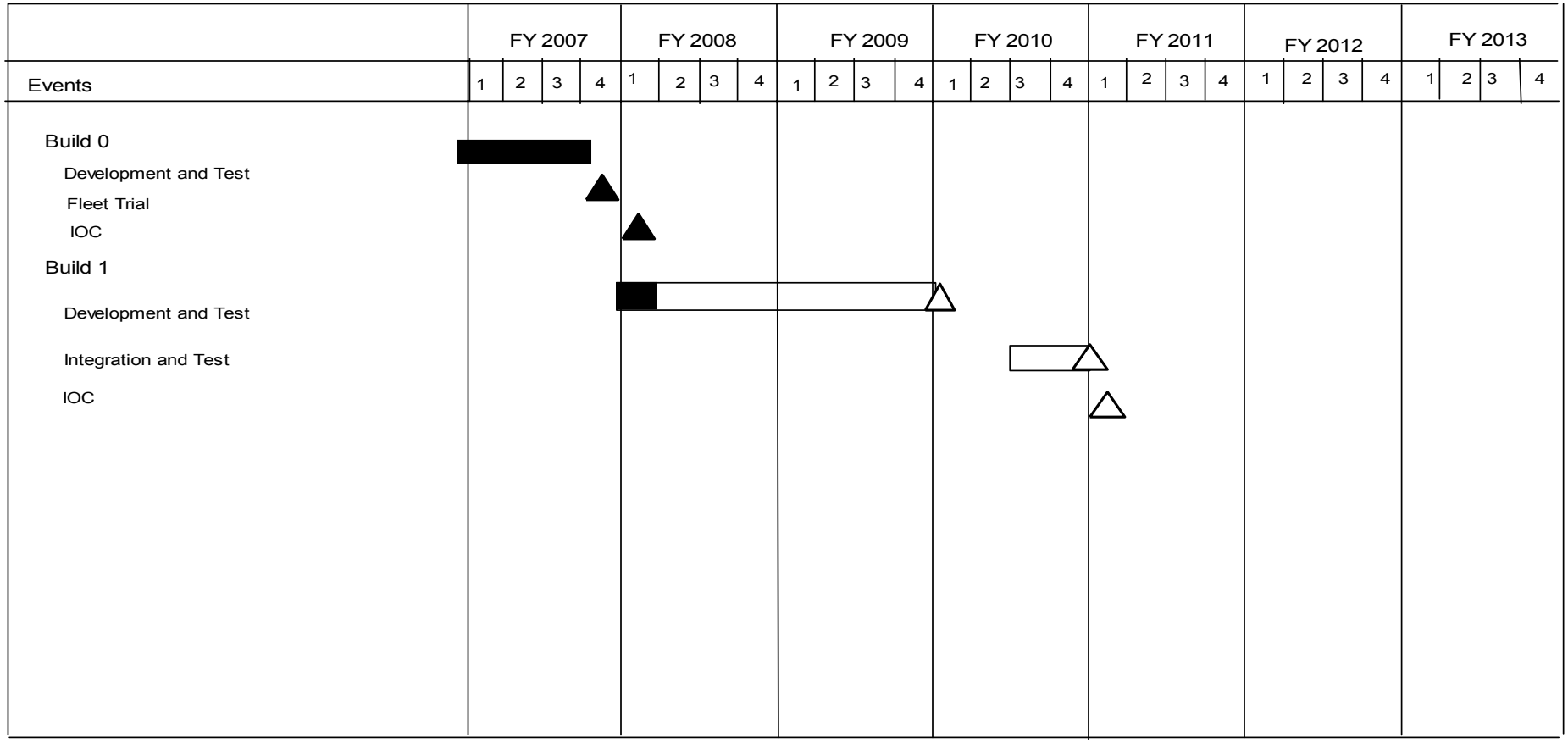
CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEASURI**	PROJECT NUMBER AND NAME **1233a/MIW C4ISR**

MIW C4ISR PROGRAM SCHEDULE



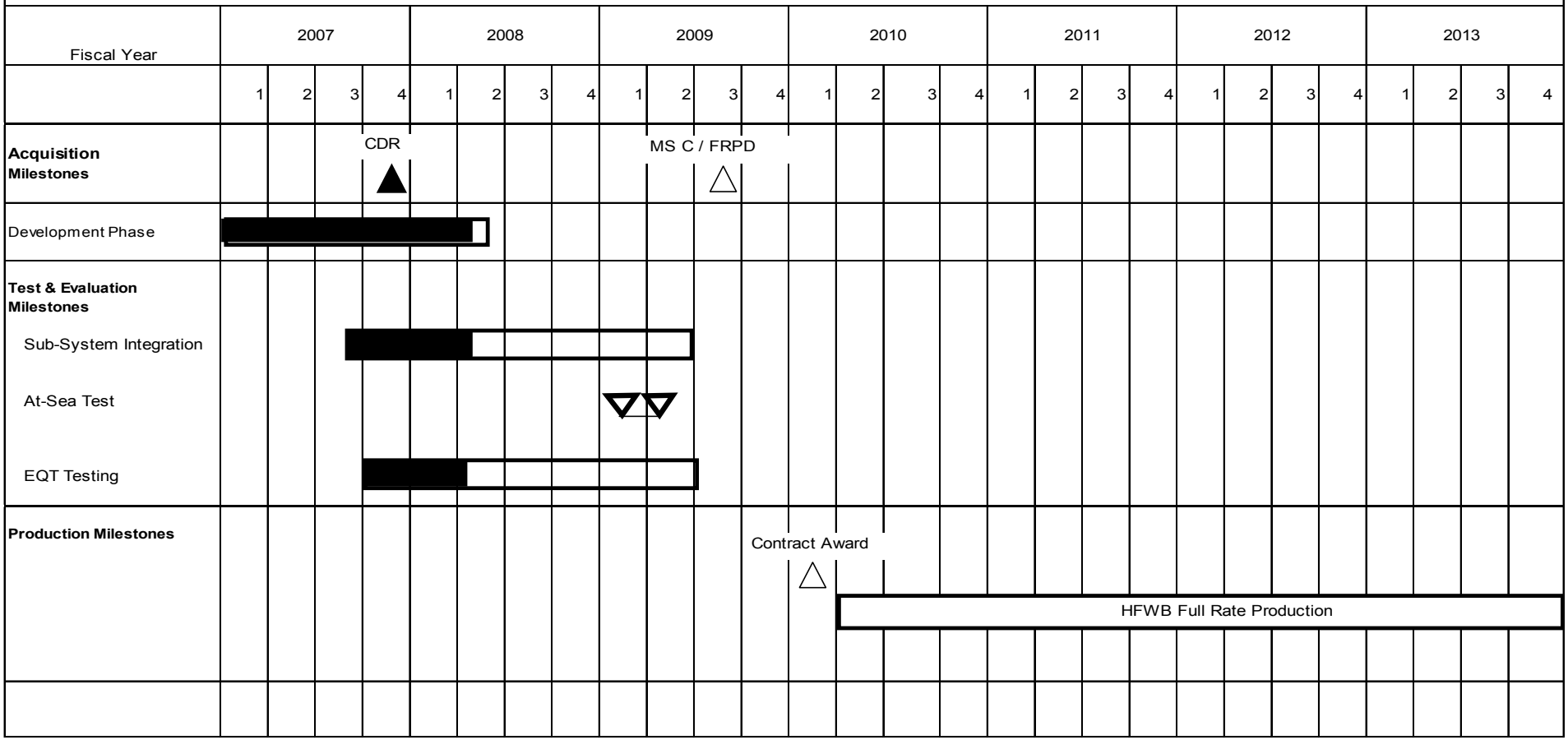
CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEASURE**	PROJECT NUMBER AND NAME **1233b/MCM CES**

MCM CES PROGRAM SCHEDULE



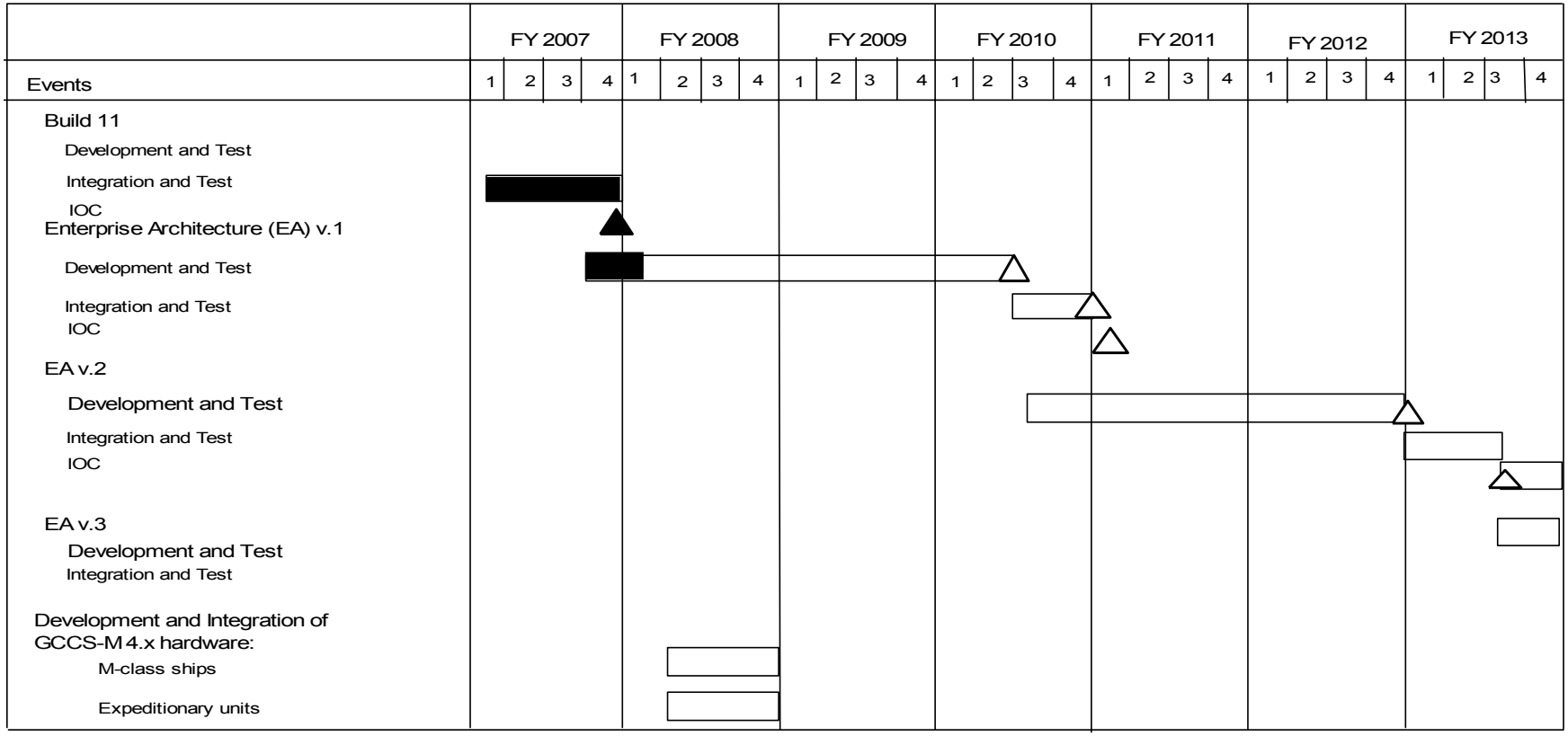
CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEASURE**	PROJECT NUMBER AND NAME **1233c/HFWB Sonar Upgrade**

AN/SQQ-32 HFWB SONAR UPGRADE PROGRAM SCHEDULE



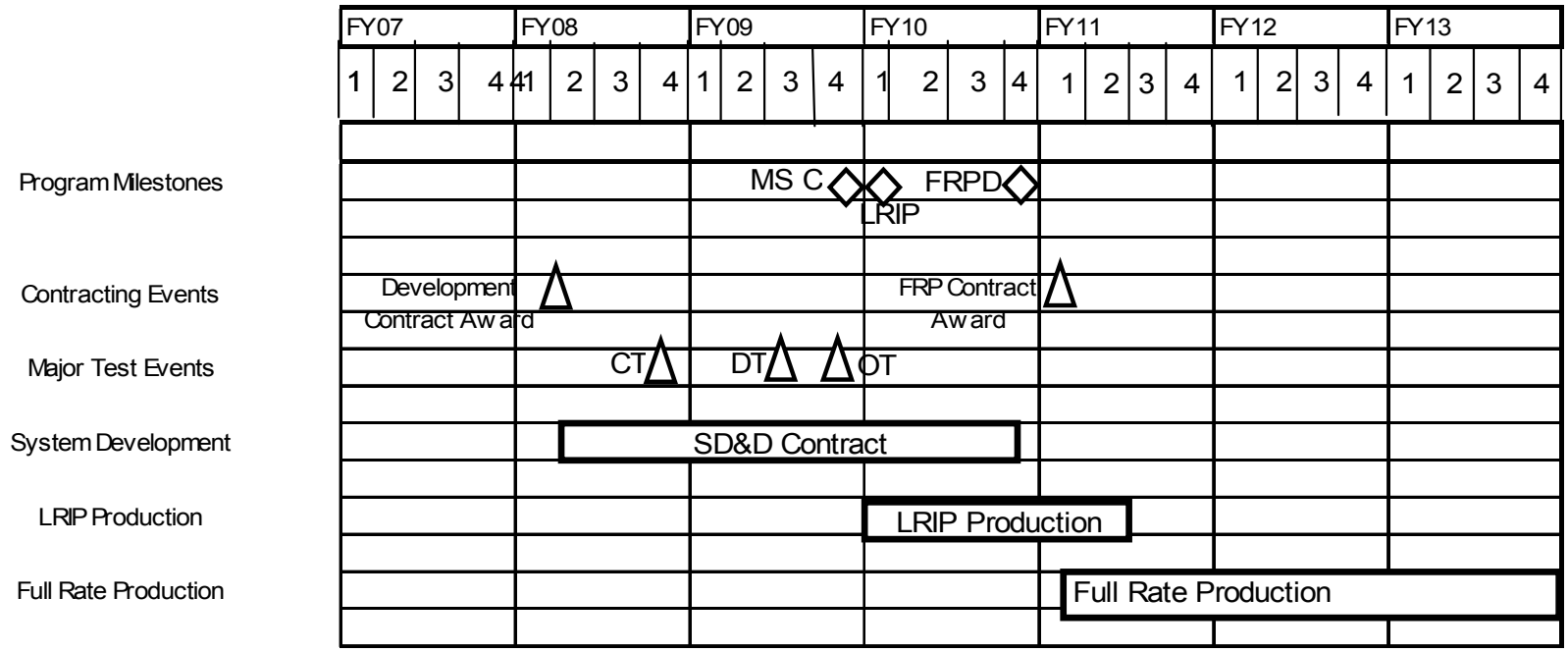
CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEASURE**	PROJECT NUMBER AND NAME **1233d/MEDAL**

MEDAL PROGRAM SCHEDULE



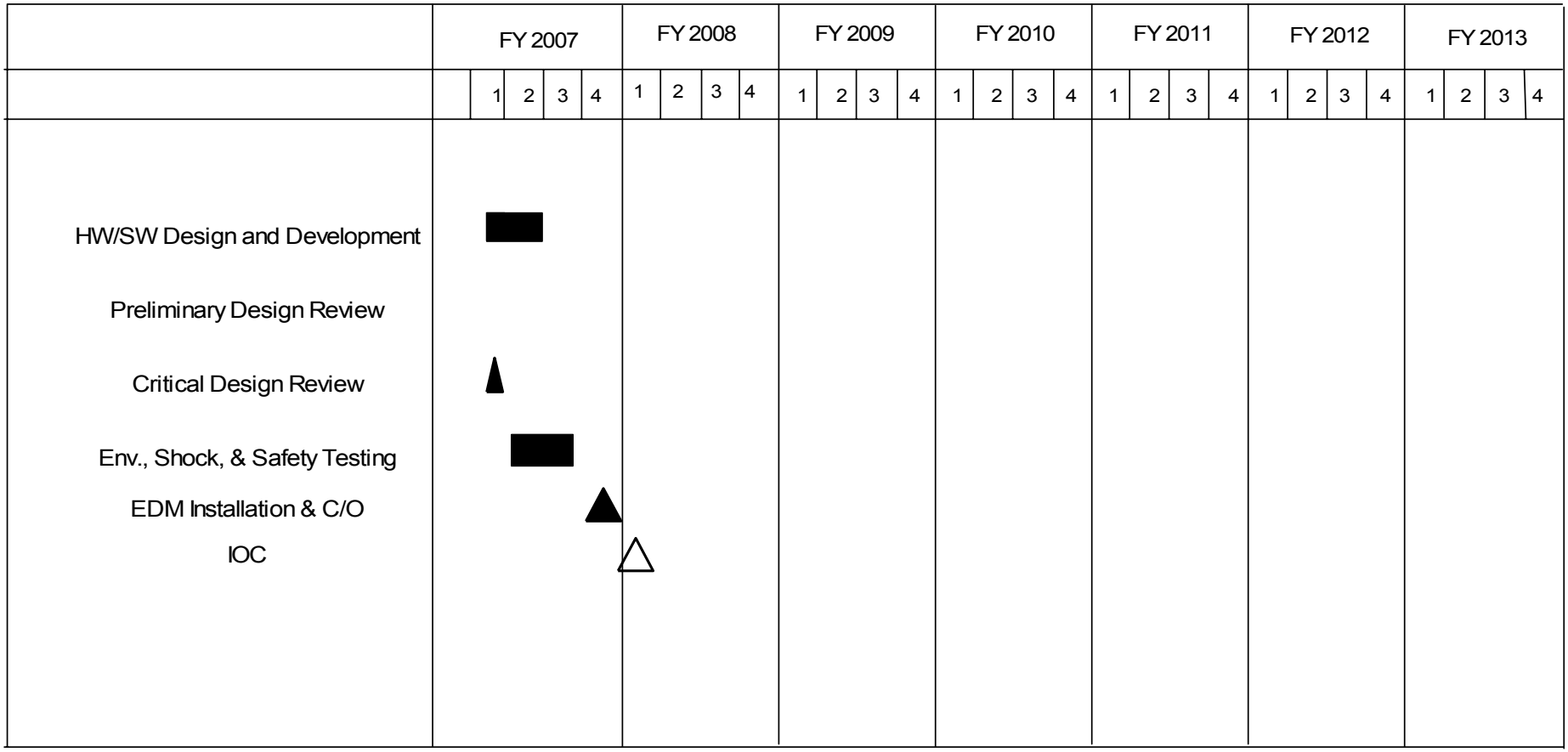
CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEASURE**	PROJECT NUMBER AND NAME **1233e/US3**

US3 PROGRAM SCHEDULE



CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEASURE**	PROJECT NUMBER AND NAME **1233f/BSP**

BSP PROGRAM SCHEDULE



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERME/**			PROJECT NUMBER AND NAME **1233/Surface MCM Mid-life Upgrade**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
BSP: HW/SW Design and Development	1Q-2Q						
BSP: Critical Design and Review	1Q						
BSP: Env., Shock & Safety Testing	2Q-3Q						
BSP: EDM Installation & C/O	4Q						
BSP: IOC		1Q					
C4I: Information System Engineering Effort	1Q-4Q	1Q-4Q					
C4I: C4ISR Architecture Rev 1							
C4I: C4ISR Architecture Rev 2	1Q-4Q	1Q-4Q					
C4I: MCM/MHC LAN Integration	1Q-4Q	1Q-4Q					
C4I: FORCEnet Implementation	1Q-4Q	1Q-4Q					
MCM CES: Build 0 Development and Test	1Q-3Q						
MCM CES: Build 0 Fleet Trial	4Q						
MCM CES: Build 0 IOC		1Q					
MCM CES: Build 1 Development and Test		1Q-4Q	1Q-4Q				
MCM CES: Build 1 Integration and Test				3Q-4Q			
MCM CES: IOC					1Q		
HFWB: Design	1Q-4Q	1Q-2Q					
HFWB: PDR							
HFWB: CDR	4Q						
HFWB: Milestone C/FRPD			3Q				
HFWB: Subsystem Integration	3Q-4Q	1Q-4Q	1Q-2Q				
HFWB: At-SEA Test			1Q-2Q				
HFWB: Contract Award				1Q			
HFWB: Full Rate Production				2Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL (CONTINUATION)						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERME/**			PROJECT NUMBER AND NAME **1233/Surface MCM Mid-life Upgrade**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
MEDAL: Build 11 Development and Test							
MEDAL: Build 11 Integration and Test	1Q-4Q						
MEDAL: Build 11 IOC	4Q						
MEDAL: Enterprise Arch (EA) v.1 Development and Test	4Q	1Q-4Q	1Q-4Q	1Q-2Q			
MEDAL: EA v.1 Integration and Test				3Q-4Q			
MEDAL: EA v.1 IOC					1Q		
MEDAL: EA v.2 Development and Test				3Q-4Q	1Q-4Q	1Q-4Q	
MEDAL: EA v.2 Integration and Test							1Q-2Q
MEDAL: EA v.2 IOC							3Q-4Q
MEDAL: EA v.3 Development and Test							3Q-4Q
MEDAL: Dev. & Integration of GCCS hardware: MCM Class		2Q-4Q					
MEDAL: Dev. & Integration of GCCS hardware: Expeditionary Units		2Q-4Q					
US3: Milestone B							
US3: Milestone C			4Q				
US3: LRIP				1Q			
US3: Full Rate Production Decision				4Q			
US3: Development Contract Award		1Q-2Q					
US3: LRIP Contract Award				1Q			
US3: Full Rate Production Contract Award					1Q		
US3: CT Testing			3Q-4Q				
US3: DT Testing			3Q				
US3: OT Testing			4Q				
EDM Contract		2Q-4Q	1Q-4Q	1Q-3Q			
LRIP Production				1Q-4Q	1Q-2Q		
Full Rate Production					1Q-4Q	1Q-4Q	1Q-4Q

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEAS**				PROJECT NUMBER AND NAME **2094/Unmanned Underwater Vehicle**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	24.583	12.743	30.090	41.328	40.160	53.375	77.375
RDT&E Articles Qty	0	0	0	0	2	0	1

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The November 2004 UUV Master Plan established Intelligence, Surveillance, and Reconnaissance (ISR), and clandestine Mine Countermeasures (MCM) as top priorities. The Mission Reconfigurable Unmanned Undersea Vehicle System (MRUUVS) will provide these capabilities to the warfighter. The MRUUVS Capability Development Document (CDD) for Increment 1 (MCM from 688 Class) was approved by the Joint Requirements Oversight Council (JROC) in June 2007.

Planning has begun for an evolutionary acquisition program to develop a modular, reconfigurable 21" MRUUVS for Phase 1 contract award in FY08. The MRUUVS will leverage technology developed under the AN/BLQ-11 Long-Term Mine Reconnaissance System (LMRS). To further mitigate risk before MS-B, the program will use the existing LMRS System to evolve subsystem capability in a phased approach. An advanced forward looking sonar, the Littoral Precision Underwater Mapping Array (LPUMA) will be used for mine detection, obstacle avoidance, and near-SSN maneuvering to include docking. LPUMA will leverage previous Navy investment in the high frequency sail array installed on attack submarines. The first payload developed by the MRUUVS program will support the MCM mission. Payloads to provide other capabilities will be initiated separately.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTER**	PROJECT NUMBER AND NAME **2094/Unmanned Underwater Vehicle**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	24.583	12.743	30.090
RDT&E Articles Quantity	0	0	0

21" MRUUVS - FY07 - Continued pre milestone B component development, capability demonstration, risk reduction, capability demonstration, and acquisition planning.

FY08 - Completed the LMRS Launch and Recovery risk reduction/capability demonstration. Initiate Phase I development integration of LPUMA onto two existing EDM vehicles and incorporate Recovery Arm changes to meet SUBSAFE requirements. Develop the request for proposal. Source selection is planned for FY08 with a development contract award in the last quarter of FY08. In FY09, continue integration of LPUMA, development of SUBSAFE Recovery Arm, and initiate Phase II RF COMMS development.

C. OTHER PROGRAM FUNDING SUMMARY:

N/A

D. ACQUISITION STRATEGY:

A modular, reconfigurable 21" MRUUVS will be initiated with a Phase I contract planned for FY08. The MRUUVS will consist of a fully integrated vehicle with both forward and side look sonars for Mine Countermeasure, launched from a Los Angeles Class submarine with a recovery system. Navy labs will act as system integrator for Phase II. A contract will be awarded in FY 14 for Phase III, which delivers full CDD performance.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEASU**					PROJECT NUMBER AND NAME **2094/Unmanned Underwater Vehicle**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
LPUMA Hardware Development	CPFF	University of Texas	3.110	2.790	FEB-07	2.010	DEC-07	2.510	DEC-08	CONT	CONT	0.000
ADUUV Hardware Development	CPIF	Lockheed Martin	30.770	0.000		0.000		0.000		0.000	30.770	0.000
MRUUVS Hardware Development	CPAF	Boeing	0.000	0.000		2.935	SEP-08	16.352	DEC-08	CONT	CONT	0.000
MRUUVS Risk Reduction	CPAF	Boeing	4.085	12.089	FEB-07	1.000	MAR-08	0.000		CONT	CONT	0.000
ADUUV Hardware Development	Various	Various	17.922	0.000		0.000		0.000		17.922	35.844	0.000
UUV P3I	Various	Various	37.383	0.000		0.000		0.000		0.000	37.383	0.000
Subtotal Product Development			**93.270**	**14.879**		**5.945**		**18.862**		**CONT**	**CONT**	**0.000**
Remarks:												
Systems Engineering	WX	Various	7.234	1.607	DEC-06	2.010	DEC-07	1.552	DEC-08	0.000	11.639	0.000
Systems Engineering	WX	NUWC Newport	35.389	3.637	DEC-06	2.346	DEC-07	3.651	DEC-08	CONT	CONT	0.000
Systems Engineering	WX	NSWC Carderock	1.616	1.034	JAN-07	0.000		0.600	DEC-08	CONT	CONT	0.000
Systems Engineering	WX	NSWC Panama City	1.252	0.212	DEC-06	0.000		0.400	DEC-08	CONT	CONT	0.000
Systems Engineering	CPFF	JHU/APL	1.979	0.540	DEC-06	0.700	DEC-07	0.800	DEC-08	CONT	CONT	0.000
Subtotal Support Costs			**47.470**	**7.030**		**5.056**		**7.003**		**CONT**	**CONT**	**0.000**
Remarks:												
Operational Test Support	WX	COTF	6.000	0.021	NOV-06	0.000		0.015	DEC-08	0.000	6.046	0.000
Test and Evaluation Support	WX	NUWC Keyport	13.682	0.175	NOV-06	0.000		0.200	DEC-08	CONT	CONT	0.000
Subtotal Test and Evaluation			**19.682**	**0.196**		**0.000**		**0.215**		**CONT**	**CONT**	**0.000**
Remarks:												
Program Management Support	CPFF	Various	54.714	2.340	JAN-07	1.572	NOV-07	3.860	NOV-08	CONT	CONT	0.000
Travel			3.995	0.138	OCT-06	0.170	OCT-07	0.150	OCT-08	CONT	CONT	0.000
Subtotal Management Services			**58.709**	**2.478**		**1.742**		**4.010**		**CONT**	**CONT**	**0.000**
Remarks:												
LMRS	CPAF/IF	Boeing	149.911	0.000		0.000		0.000			149.911	0.000
LMRS	Various	Various	43.622	0.000		0.000		0.000		0.000	43.622	0.000

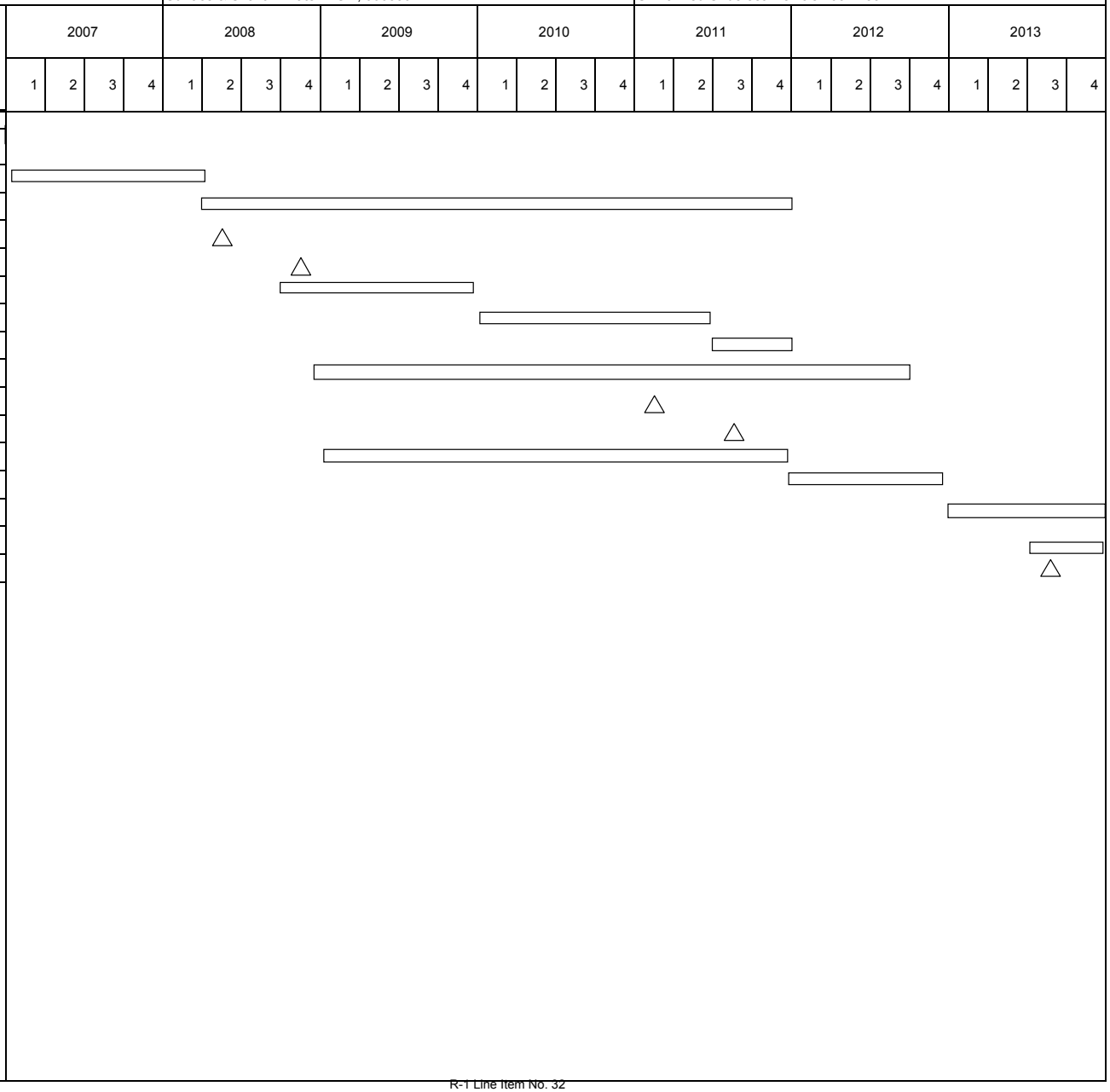
CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS											DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEASU**					PROJECT NUMBER AND NAME **2094/Unmanned Underwater Vehicle**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal LMRS			**193.533**	**0.000**		**0.000**		**0.000**		**0.000**	**193.533**	**0.000**
Remarks:												
Total Cost			**412.664**	**24.583**		**12.743**		**30.090**		**CONT**	**CONT**	**0.000**

CLASSIFICATION: UNCLASSIFIED

EXHIBIT R4, Schedule Profile

DATE: **February 2008**

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /	Surface & Shallow Water MCM, 0603502N	Unmanned Undersea Vehicle 2094/2852



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

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERME/**			PROJECT NUMBER AND NAME **2094/Unmanned Underwater Vehicle**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Risk Reduction/ Acquisition Planning	1Q-4Q	1Q					
Phase I / TACDEVEX Development		2Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q		
RFP		2Q					
Contact Award		4Q					
Design		4Q	1Q-4Q				
Integration				1Q-4Q	1Q-2Q		
Test					3Q-4Q		
Phase II Development			1Q-4Q	1Q-4Q	1Q-4Q	1Q-3Q	
RFP					1Q		
Contract Award					3Q		
Design			1Q-4Q	1Q-4Q	1Q-4Q		
Integration						1Q-4Q	
Test							1Q-4Q
Phase III Development							3Q-4Q
RFP							3Q

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEAS**				PROJECT NUMBER AND NAME **2131/Assault Breaching System**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	34.880	34.443	44.011	30.128	29.197	18.678	13.888
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This program provides for a combination of U.S. Navy projects planned to counter the threat to amphibious landing forces from known and projected foreign land/sea mines, obstacles in the beach zone and surf zone approaches to amphibious assault areas. The Assault Breaching System (ABS) of Systems (Countermine/Counter Obstacle, Intelligence/Surveillance/Reconnaissance/Targeting (ISR/T), Precision Navigation/Virtual Marking/Integration, C4I/Data Fusion) provides a full assault breaching capability which is an essential element to the Ship To Objective Maneuver (STOM) Concept of Operations.

Far term - Counter Mine System (CMS) - will transition from a 6.3 S&T Concept Demonstration effort to a 6.4 development program after a concept decision/AoA in FY06.
ISR/T - Coastal Battlefield Reconnaissance and Analysis (COBRA) is the ISR/T part of the ABS of systems. One system consists of two Airborne Payloads and one Post Mission Analysis Station. Under the umbrella of evolutionary acquisition, three increments of development are planned; Block I introduces a daytime, surface laid minefield and obstacle detection capability for the Beach Zone. Blocks II and III will incorporate technology being developed by 6.3.
S&T. Block II adds a surfzone and night (darkness) detection capability. Block III adds a buried mine detection capability and on-board Near-Real-Time processing of Multi Spectral Imagery data.
COBRA will be a modular payload architecture of and integrated with the MQ-8B Fire Scout Vertical Takeoff and Landing Unmanned Aerial Vehicle (VTUAV) and will serve as the "detect" mission module of the Littoral Combat Ship (LCS) Mine Warfare mission package.

Precision Navigation/Virtual Marking- The navigation effort involves requirements development and program planning to choose the navigational upgrades for the Landing Craft, Air Cushion (LCAC) and Landing Craft, Utility (LCU), and Amphibious Assault Vehicle (AAV) to enable the craft to safely navigate the neutralized assault lanes. A system of virtual or physical lane marking is to be developed to guide the assault craft through the neutralized assault lanes. OPN will fund the CRAFTALTS to upgrade the navigation systems.
LCU Navigation Upgrade: Modernized the navigation system to enable safe transit through the breached lane.
LCAC Autopilot Upgrade: An integrated improvement to the LCAC (Service Life Extension Program (SLEP) navigation system for craft control that allows precise navigation and hovering within the breached lane. These software upgrades and backfits will occur during scheduled LCAC SLEPs.
AAV Navigation Upgrade : Modernized the navigation system to enable precise transit through the breached lane.

Command, Control, Computers, Communications and Intelligence (C4I) - System will tie all of the above systems together under an integrated ABS architecture and also tie in with the integrated Mine Warfare architecture.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTER**	PROJECT NUMBER AND NAME **2131/Assault Breaching System**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	29.550	29.196	37.235
RDT&E Articles Quantity	0	0	0

Product Development:

FY 07: Refined Block I technology, transition ONR developed technology into Blocks II and III, and enable the capability to detect surface laid mines in the surf zone (day and night), detect buried mines, and near-real-time onboard processing. Precision Navigation/Virtual Marking- Develop precise navigational upgrades for the Landing Craft, Air Cushion (LCAC) and Landing Craft, Utility (LCU), and Amphibious Amphibious Assault Vehicle (AAV) to enable the craft to safely navigate the neutralized assault lanes. Mine Threat Acquisition for R&D Development and Testing.

FY 08: Countermine System Contract Awards; Conduct Contract Kick-off Meetings, System Readiness Reviews, and approve Preliminary Designs for CMS; and Procure long-lead time material for AAV Upgrades.

FY 09: Exercising contract options for CMS and awarding COBRA Block II contract; and conducting system technical reviews on COBRA Block II and CMS.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.527	0.583	0.999
RDT&E Articles Quantity	0	0	0

Support:

FY 07: Completed ABS Scalability study.

FY 08: Precision Navigation/Virtual Marking - COTS technical analysis, product integration, market surveys, technical support in installation instructions.

FY 09: ISR/T - Technical analysis, modeling and simulation.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.170	0.165	0.206
RDT&E Articles Quantity	0	0	0

Test and Evaluation:

FY 07: Completed Commander Operational Test & Evaluation Forces Test Support, Arena testing.

FY 08: CMS dart testing. Precision Navigation/Virtual Marking - Vehicle/crew compatibility testing, Intelligence/Surveillance/Reconnaissance/Targeting (ISR/T) - COBRA Block I Operational Assessment, Block II and III OPEVAL.

FY 09: Complete Breaching System Effectiveness Simulation and ABS Effectiveness Tool.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTER**	PROJECT NUMBER AND NAME **2131/Assault Breaching System**

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	4.633	4.499	5.571
RDT&E Articles Quantity	0	0	0

Management:

FY 07: Technical Direction Agent/Design Agent (TDA/DA) Engineering Support of Milestone preparation, contract and acquisition documentation, Requirements Generation - Initial Capabilities Document (ICD), Capability Development Documents (CDD), Capability Production Documents (CPD).

FY 08: Analysis of Material approvals and Functional needs analysis/functional solutions analysis.

FY 09: Mine magazine inventory management and shipping, contract management and tests/studies, C4I/Data fusion.

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
2624/OPN	8.236	1.437	7.355	19.637	18.489	23.180	25.917		
1600/OPN	78.741	0.000	131.241	234.673	242.184	252.298	227.441		
4225/WPN						46.118	50.774		
4221/WPN			2.786	24.522	47.353	45.261	10.701		

D. ACQUISITION STRATEGY:

Countermine/Counter Obstacle (CM/CO) is a two phased approach, near term and far term solutions. The near term approach for CMCO is JDAM Assault Breaching System (JABS) and this effort has been completed. The far term solution is CMS, which transitioned from ONR in 2nd QTR 07 followed by MS B decision in 3rd QTR 07 and SD&D contract in 3rd Qtr 08.

Intelligence/Surveillance/Reconnaissance/Targeting (ISR/T) - COBRA Block I will achieve MS C in 3rd QTR FY08, COBRA Block II technology will transfer from ONR and achieve MS B between 2nd/3rd Qtr FY09. COBRA Block III technology will transition in FY12 with a MS B decision scheduled for 2nd QTR FY12.

Precision Navigation/Virtual Marking- The navigation upgrades for the Landing Craft, Air Cushion (LCAC) and Landing Craft, Utility (LCU) are in progress. AAV enhancements will be achieved through an ECP (PMA AAV (Marine Corps)) in 2 Qtr 08.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEASU**					PROJECT NUMBER AND NAME **2131/Assault Breaching System**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Dev, COBRA	WX	Northup Grumman	82.528	6.492	NOV-06	6.391	NOV-07	7.959	FEB-09	0.000	103.370	0.000
Primary Hardware Dev, CMS	WX	Unknown	0.000	13.150	JUL-07	12.195	DEC-07	16.105	FEB-09	0.000	41.450	0.000
Ancillary Hardware Dev, JABS	WX	Unknown	8.100	1.122	NOV-06	0.000		0.000		0.000	9.222	0.000
Systems Engineering, COBRA	WX	NSWC PC	0.000	3.291	NOV-06	4.087	NOV-07	5.082	NOV-08	0.000	12.460	0.000
Software Dev, COBRA	WX	NAVAIR	0.423	2.875	NOV-06	2.830	NOV-07	3.518	NOV-08	0.000	9.646	0.000
Systems Engineering, CMS	WX	NSWC IH	17.033	1.570	NOV-06	1.545	NOV-07	1.921	NOV-08	0.000	22.069	0.000
Training Dev, COBRA	WX	NSWC IH	2.000	0.740	NOV-06	0.735	NOV-07	0.893	NOV-08	0.000	4.368	0.000
Tooling	WX	NSWC IH	0.860	0.000		0.000		0.000		0.000	0.860	0.000
ABS IPT/Test Assets/Proj Eng	WX	NSWC IH	5.122	0.310	NOV-06	0.305	NOV-07	0.380	NOV-08	0.000	6.117	0.000
Precision Navigation & Marking	WX	NSWC IH	0.000	0.000		1.108	NOV-07	1.377	NOV-08	0.000	2.485	0.000
Subtotal Product Development			**116.066**	**29.550**		**29.196**		**37.235**		**0.000**	**212.047**	**0.000**

Remarks:

Note 1:Hardware contracts (COBRA, CMS, and JABS) will be processed through NSWC Panama City.

Note 2: Prior Year Cost include both US Marine Corp and US Navy funds.

Note 3: FY 08 RDT&E Costs are associated with completing COBRA Block I system testing and initiating COBRA Block II contract efforts.

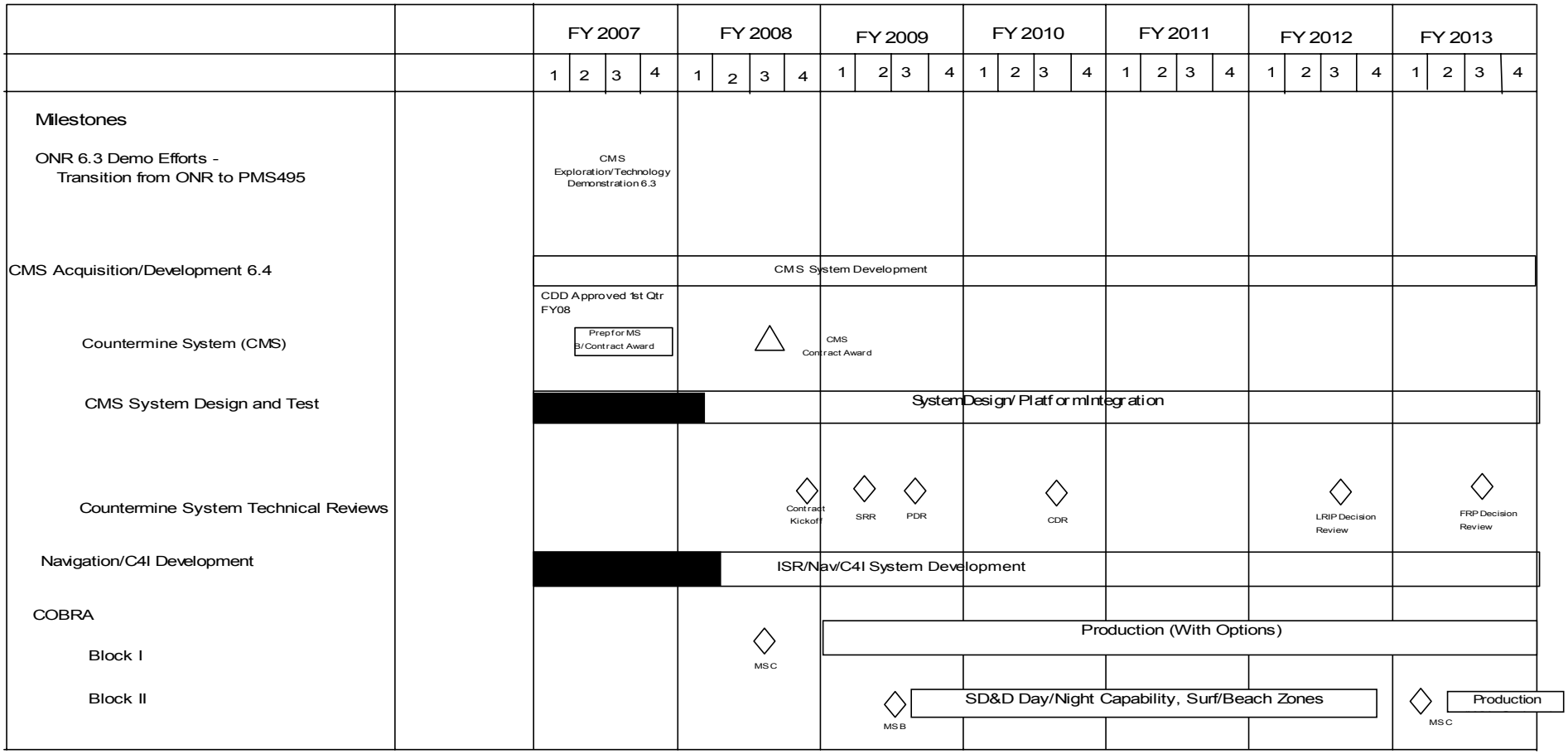
Note 4: FY 09 RDT&E cost estimates are related to exercising COBRA Block II and CMS contract options.

Development Support Equipment	WX	NSWC PC	12.631	0.357	NOV-06	0.418	NOV-07	0.793	NOV-08	0.000	14.199	0.000
Software Development	WX	NSWC PC	8.037	0.000		0.000		0.000		0.000	8.037	0.000
Integrated Logistics Support	WX	NSWC IH	2.712	0.000		0.000		0.000		0.000	2.712	0.000
Configuration Management	WX	NSWC PC	3.744	0.000		0.000		0.000		0.000	3.744	0.000
Technical Data	WX	NSWC PC	2.588	0.000		0.000		0.000		0.000	2.588	0.000
Studies & Analysis	WX	NSWC PC	4.039	0.170	NOV-06	0.165	NOV-07	0.206	NOV-08	0.000	4.580	0.000
GFE	WX	NSWC PC	0.400	0.000		0.000		0.000		0.000	0.400	0.000
Subtotal Support Costs			**34.151**	**0.527**		**0.583**		**0.999**		**0.000**	**36.260**	**0.000**

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEASU**					PROJECT NUMBER AND NAME **2131/Assault Breaching System**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Remarks:												
Development Test & Evaluation	WX	NSWC IH	29.618	0.170	NOV-06	0.165	NOV-07	0.206	NOV-08	0.000	30.159	0.000
Operational Test & Evaluation	WX	NSWC IH, PC	8.655	0.000		0.000		0.000		0.000	8.655	0.000
Tooling	WX	NSWC IH, PC	0.700	0.000		0.000		0.000		0.000	0.700	0.000
GFE	WX	NSWC IH, PC	0.400	0.000		0.000		0.000		0.000	0.400	0.000
			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Subtotal Test and Evaluation			**39.373**	**0.170**		**0.165**		**0.206**		**0.000**	**39.914**	**0.000**
Remarks:												
Contractor Engineering Support	CPFF	CACI, Norhtrup Grumman	4.667	0.710	NOV-06	0.869	NOV-07	1.075	NOV-08	0.000	7.321	0.000
Government Engineering Support	WX	NSWC IH	22.685	1.600	NOV-06	1.710	NOV-07	2.206	NOV-08	0.000	28.201	0.000
Program Management Support	WX	NSWC IH, PC	13.607	2.248	NOV-06	1.848	NOV-07	2.201	NOV-08	0.000	19.904	0.000
Travel	PD	NAVSEA	0.977	0.075	NOV-06	0.072	NOV-07	0.089	NOV-08	0.000	1.213	0.000
Assessment/BTR	Various	Various	1.434	0.000		0.000		0.000		0.000	1.434	0.000
Subtotal Management Services			**43.370**	**4.633**		**4.499**		**5.571**		**0.000**	**58.073**	**0.000**
Remarks:												
Total Cost			**232.960**	**34.880**		**34.443**		**44.011**		**0.000**	**346.294**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEASURE**	PROJECT NUMBER AND NAME **2131/Assault Breaching System**

ABS PROGRAM SCHEDULE



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERME/**			PROJECT NUMBER AND NAME **2131/Assault Breaching System**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
COBRA Block II Milestone B			2Q-3Q				
COBRA Block I Procurement			1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
COBRA Block II SD&D			3Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	
COBRA Block I Milestone MS C		3Q					
CMS System Development	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
CMS Contract Award		3Q					
SRR - System Requirements Review			2Q				
PDR - Preliminary Design Review			3Q				
CDR - Critical Design Review				3Q-4Q			
LRIP Decision Review						3Q	
FRP Decision Review							3Q
ISR/NAV/C4I Development	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEAS**				PROJECT NUMBER AND NAME **3123/SMCM UUV**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	10.502	7.579	12.653	22.598	19.714	14.888	20.301
RDT&E Articles Qty	1	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Surface Mine Countermeasure Unmanned Undersea Vehicle (SMCM UUV) provides for development of Unmanned Underwater Vehicles to support dedicated mine countermeasure operations, including buried mine detection. The UUV systems must have a small deployment footprint for rapid employment aboard various SMCM platforms. Equipment includes vehicles and associated systems support equipment. Potential P3I candidates include communications upgrades, on-board sonar processing and target recognition, command and control improvements, and other smaller tasks.

In FY07, funding from PE 0603502N project 3102 was transferred to this project to fund an integrated UUV system vice a standalone sensor project.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTER**	PROJECT NUMBER AND NAME **3123/SMCM UUV**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	10.502	7.579	12.653
RDT&E Articles Quantity	1	0	0

SMCM UUV - Demonstrate operation of a UUV-based capability package for standoff, multiple MCM operations, including buried mine detection, from surface MCM platforms (e.g., LCS, MCM, etc.). Continue program management, contract management, logistic support, systems engineering, T&E planning and oversight, ship integration, information assurance, safety, software, and sonar consultation and operations support. Low Frequency Broadband (LFBB) design and prototyping of critical technology components for demonstration and evaluation. Milestone B and development contract award in FY08. LFBB development continues in FY09.

C. OTHER PROGRAM FUNDING SUMMARY:

N/A

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
2622 / OPN / 72LV / LV079	0.000	0.000	0.000	0.000	36.007	15.572	13.775	Cont.	Cont.

D. ACQUISITION STRATEGY:

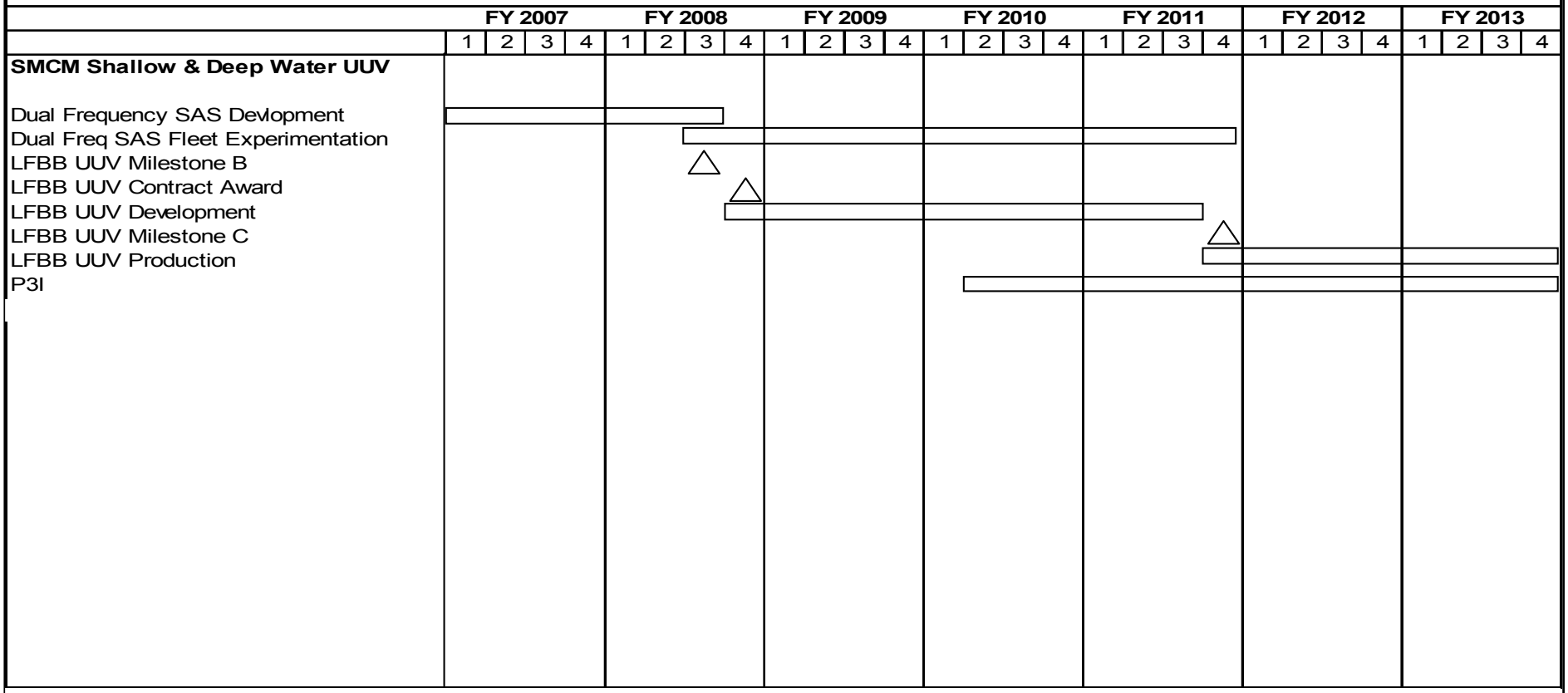
In FY06, the SMCM UUV program procured 2 dual frequency Synthetic Aperture Sonar User Operation Evaluation Systems (UOES) and in FY07 procured 1 dual frequency UOES with delivery in early FY08 for continued Fleet experimentation. Each system is comprised of 2 vehicles and support equipment.

An acquisition program will be initiated in FY08 to procure Unmanned Undersea Vehicles equipped with Low Frequency Broadband sonar that provides buried mine detection capability. The program culminates with Milestone C in FY11.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEASU**					PROJECT NUMBER AND NAME **3123/SMCM UUV**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
SMCM Incr. 2 Dev.	CPAF	Bluefin, Cambridge, MA	0.000	6.406	NOV-06	0.594	JAN-08	0.607	DEC-08	CONT	CONT	0.000
SMCM Incr. 3 Dev.	TBD	TBD	0.000	0.000		2.470	SEP-08	6.557	DEC-08	CONT	CONT	0.000
Software Development	WX	NSWC, Panama City, FL	0.435	0.370	NOV-06	0.000	JAN-08	0.470	DEC-08	CONT	CONT	0.000
Subtotal Product Development			**0.435**	**6.776**		**3.064**		**7.634**		**CONT**	**CONT**	**0.000**
Remarks:												
Engineering Support	WX	NSWC, Panama City, FL	0.042	2.844	NOV-06	2.839	DEC-07	2.108	DEC-08	CONT	CONT	0.000
Engineering Support	WX	NUWC, Newport, RI	0.100	0.394	NOV-06	0.993	JAN-08	1.043	DEC-08	CONT	CONT	0.000
Engineering Support	WX	NUWC, Keyport	0.000	0.000		0.000		0.000			0.000	0.000
Ship Integration		TBD	0.000	0.000		0.145	JAN-08	1.322	DEC-08	CONT	CONT	0.000
Subtotal Support Costs			**0.142**	**3.238**		**3.977**		**4.473**		**CONT**	**CONT**	**0.000**
Remarks:												
Developmental Test & Evaluation	WX	CMWC, Corpus Christi, TX	0.107	0.075	NOV-06	0.064	NOV-07	0.065	DEC-08	CONT	CONT	0.000
Government T&E Support		Various	0.189	0.205	NOV-06	0.166	JAN-08	0.195	DEC-08	CONT	CONT	0.000
Test and Evaluation	WX	COMOPTEVFOR	0.000	0.085		0.000		0.000		0.000	0.085	0.000
Subtotal Test and Evaluation			**0.296**	**0.365**		**0.230**		**0.260**		**CONT**	**CONT**	**0.000**
Remarks:												
Program Management Support	CPFF	Various, Wash., DC	0.154	0.123	NOV-06	0.308	JAN-08	0.286	DEC-08	CONT	CONT	0.000
Subtotal Management Services			**0.154**	**0.123**		**0.308**		**0.286**		**CONT**	**CONT**	**0.000**
Remarks:												
Total Cost			**1.027**	**10.502**		**7.579**		**12.653**		**CONT**	**CONT**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEASURE**	PROJECT NUMBER AND NAME **3123/SMCM UUV**

SMCM UUV Program Schedule



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERME**			PROJECT NUMBER AND NAME **3123/SMCM UUV**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Dual Frequency SAS Development	1Q-4Q	1Q-3Q					
Dual Frequency SAS Fleet Experimentation		3Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q		
LFBB UUV Milestone B		3Q					
LFBB UUV Contract Award		4Q					
LFBB Development		4Q	1Q-4Q	1Q-4Q	1Q-3Q		
LFBB Milestone C					4Q		
LFBB Production					4Q	1Q-4Q	1Q-4Q
P3I				2Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEAS**				PROJECT NUMBER AND NAME **4025/Expendable Mine Neutralization System**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	12.873	6.708	7.159	0.000	0.000	5.073	5.059
RDT&E Articles Qty	0	0	0	0	0	0	0

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 Airborne Mine Countermeasures Program to develop an Airborne Mine Neutralization System (AMNS). Development of a deep water Neutralization vehicle for EMNS will occur in FY12 - FY13.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTER**	PROJECT NUMBER AND NAME **4025/Expendable Mine Neutralization System**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	8.077	0.000	0.000
RDT&E Articles Quantity	0	0	0

Award Development Contract for Expendable Mine Neutralization System (EMNS) integrator. Initiate hardware design and development to include launcher, control console, and MCM-1 Class ship integration. Modify software for use on an MCM-1 class ship. Integrate EMNS Engineering Development Model (EDM) aboard MCM-1 Class Ship. Award contract for Common Neutralizer support. Provide test articles and technical support throughout EMNS development.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	3.490	2.538	2.081
RDT&E Articles Quantity	0	0	0

Develop logistics products, including training materials and interactive technical manual. Provide Engineering support, including review for product development and ship integration.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.948	3.968	4.942
RDT&E Articles Quantity	0	0	0

EMNS developmental testing including environmental and shock testing, safety testing, and contractor testing. Develop Test and Evaluation Master Plan (TEMP) and test reports. Conduct DT/OT.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.358	0.202	0.136
RDT&E Articles Quantity	0	0	0

Provide program management support and travel for EMNS.

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
EMNS	0.000	0.000	7.518	15.076	11.540	8.137	0.000		
262200 OPN									
EMNS	0.000	0.000	3.030	6.581	9.021	9.391	9.579		
422500 WPN									

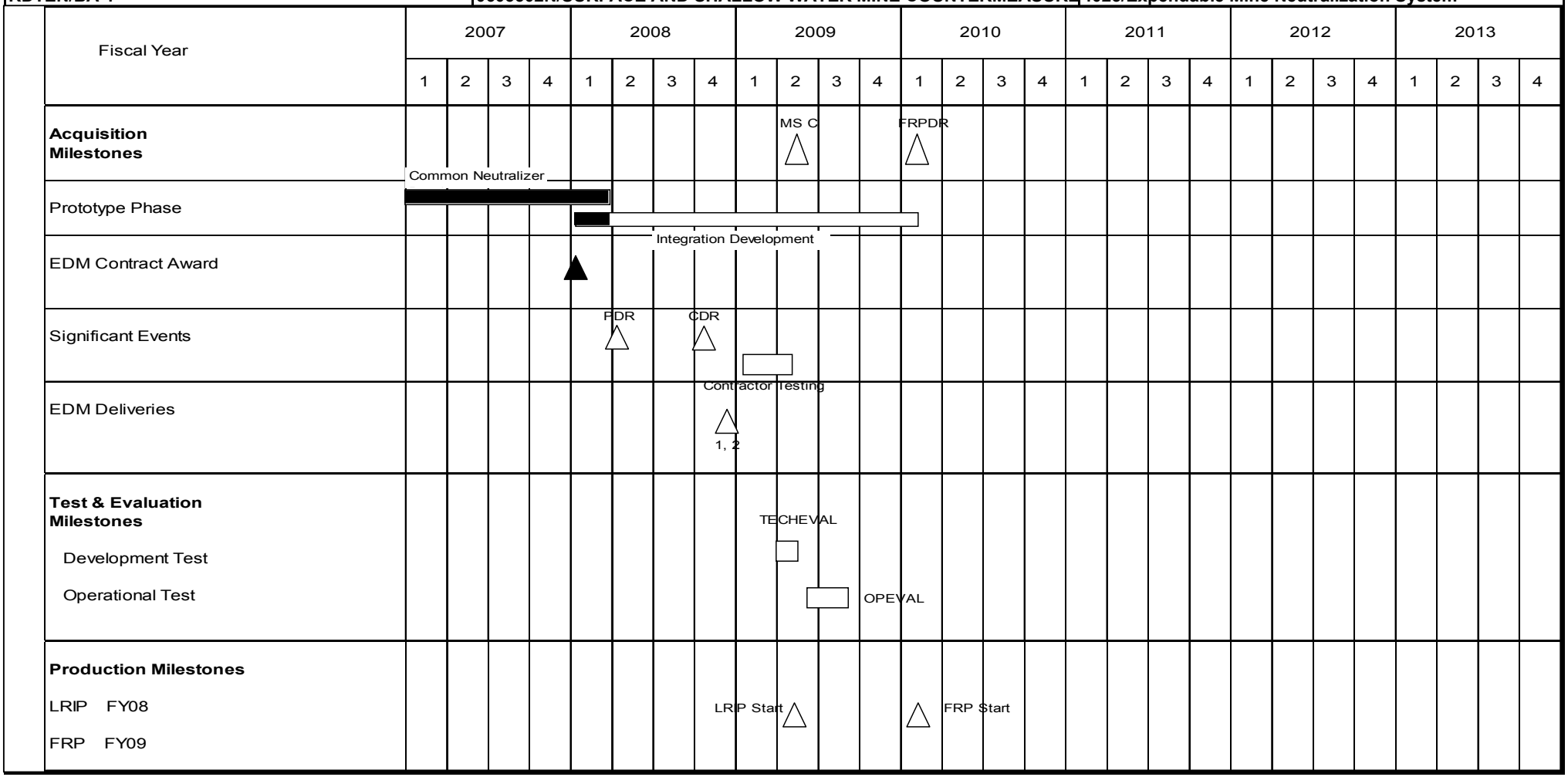
D. ACQUISITION STRATEGY:

Based on the approved Common Neutralizer Strategy, the Archerfish neutralizer will be integrated on the MCM-1 Avenger Class Ships. EMNS will be executed as an ECP to AMNS. The acquisition strategy will be full and open competition for non-neutralizer hardware development and system integration with a directed contractual relationship with VCT (flight control software). The Navy will award a sole source contract to BAE Systems for Common Neutralizer support, integration, and hardware manufacturing/delivery. All EMNS neutralizer equipment and support will be provided by BAE Systems to the Navy. The Navy will provide these assets as GFE to the integration contractor.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEASU**					PROJECT NUMBER AND NAME **4025/Expendable Mine Neutralization System**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Develop Technical and Acquisition Documentation	WX	NSWC PC	1.203	0.000		0.000		0.000		0.000	1.203	0.000
Hardware/Software Delevopment	CPIF	Lockheed Martin, Syr NY	0.000	8.077	JAN-07	0.000		0.000		0.000	8.077	0.000
Common Neutralizer Development	C/CPIF	Raytheon, Portsmouth RI	2.431	0.000		0.000		0.000		0.000	2.431	0.000
Deep Water Neutralizer Development	WX	NSWC PC	0.000	0.000		0.000		0.000		0.300	0.300	0.000
Deep Water Neutralizer Development	CPIF	BAE Systems	0.000	0.000		0.000		0.000		3.000	3.000	0.000
Subtotal Product Development			**3.634**	**8.077**		**0.000**		**0.000**		**3.300**	**15.011**	**0.000**
Remarks:												
Develop Logistics Products	CPIF	Lockheed Martin, Syr NY	0.000	0.808	JAN-07	1.183	OCT-07	0.594	OCT-08	0.000	2.585	0.000
Develop Logistics Products	WX	NSWC	0.270	0.225	OCT-06	0.091	OCT-07	0.100	OCT-08	0.000	0.686	0.000
Engineering Support	CPIF	Lockheed Martin, Syr NY	0.000	0.772	JAN-07	0.327	OCT-07	0.651	OCT-08	0.000	1.750	0.000
Engineering Support	WX	NSWC	2.577	1.685	OCT-06	0.937	OCT-07	0.736	OCT-08	0.000	6.284	0.000
Deep Water Neutralizer ILS	CPIF	BAE Systemsd	0.000	0.000		0.000		0.000		0.277	0.277	0.000
Deep Water Neutralizer ILS	WX	NSWC PC	0.000	0.000		0.000		0.000		0.205	0.205	0.000
Deep Water Neutralizer Engineering	CPIF	BAE Systems	0.000	0.000		0.000		0.000		2.200	2.200	0.000
Deep Water Neutralizer Engineering	WX	NSWC PC	0.000	0.000		0.000		0.000		0.860	0.860	0.000
Subtotal Support Costs			**2.847**	**3.490**		**2.538**		**2.081**		**3.542**	**14.847**	**0.000**
Remarks:												
Develop TEMP	WX	NSWC PC	0.100	0.000		0.000		0.000		0.000	0.100	0.000
CT/DT	CPIF	Lockheed Martin, Syr NY	0.000	0.058	JAN-07	0.969	OCT-07	2.029	OCT-08	0.000	3.056	0.000
CT/DT	WX	NSWC PC	0.000	0.890	OCT-06	2.124	OCT-07	2.029	OCT-08	0.000	5.043	0.000
Operational Test & Evaluation	WX	COTF Norfolk, VA	0.000	0.000		0.875		0.884	OCT-08	0.000	1.759	0.000
Common Neutralizer Testing	CPIF	Raytheon, Portsmouth RI	0.874	0.000		0.000		0.000		0.000	0.874	0.000
Common Neutralizer Test Sets	CPIF	Raytheon, Portsmouth RI	2.103	0.000		0.000		0.000		0.995	3.098	0.000
Deep Water Neutralizer T&E	CPIF	BAE Systems	0.000	0.000		0.000		0.000		0.995	0.995	0.000
Deep Water Neutralizer T&E	WX	NSWC PC	0.000	0.000		0.000		0.000		2.295	2.295	0.000
			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Subtotal Test and Evaluation			**3.077**	**0.948**		**3.968**		**4.942**		**4.285**	**17.220**	**0.000**

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEASU**					PROJECT NUMBER AND NAME **4025/Expendable Mine Neutralization System**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Remarks:												
Program Management Support	CPFF	CACI	0.391	0.318	OCT-06	0.162	OCT-07	0.096	OCT-08	0.000	0.967	0.000
Travel	PD	NAVSEA	0.090	0.040	OCT-06	0.040	OCT-07	0.040	OCT-08	0.000	0.210	0.000
Subtotal Management Services			**0.481**	**0.358**		**0.202**		**0.136**		**0.000**	**1.177**	**0.000**
Remarks:												
Total Cost			**10.039**	**12.873**		**6.708**		**7.159**		**11.127**	**48.255**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEASURE**	PROJECT NUMBER AND NAME **4025/Expendable Mine Neutralization System**



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERME**			PROJECT NUMBER AND NAME **4025/Expendable Mine Neutralization System**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Contract Award		1Q					
Common Neutralizer Development	1Q-4Q	1Q					
Integration Development		1Q-4Q	1Q-4Q	1Q			
Preliminary Design Review		2Q					
Critical Design Review CDR		4Q					
Contractor / Development Testing			1Q-2Q				
EDM Installation and Checkout		4Q					
TECHEVAL / OPEVAL			2Q-3Q				
Milestone C			2Q				
FRPDR				1Q			

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEAS**				PROJECT NUMBER AND NAME **179C/Surface Navy integrated undersea tactical te**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	2.527	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Congressional plus-up. - Surface Navy Integrated Undersea Tactical Technology (SNIUTT) Investigate development of an AN/SQQ-32, AN/AQS-14, AN/AQS-20A sensor training module for a LAN-based Surface Network Embedded Analysis and Tactical Trainer (SNEATT).

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTER**	PROJECT NUMBER AND NAME **9179C/Surface Navy integrated undersea tactical technolo**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	2.527	0.000	0.000
RDT&E Articles Quantity	0	0	0

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTERMEAS**				PROJECT NUMBER AND NAME **967N/AN/SQQ-32 Mine Hunting Sonar Upgrade**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	3.497	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Congressional plus-up. - AN/SQQ-32(V)3 is an aging sonar system (>15 yr.) requiring technological upgrades, eliminating parts obsolescence issues and equipment refreshment or refurbishment. Currently, Naval Sea Warfare Center Panama City is funded to upgrade only the detection capability of AN/SQQ-32(V)3. This add would be used in conjunction with the current effort to further research the upgrade to the detection sonar transducer and investigate and research the upgrade to the classification sonar aspect of the system. Additionally, funding would address modernizing and upgrading the sonar equipment console capability, design, and qualifying system equipment and equipments consoles to augment this upgrade. Funding research study to upgrade AN/SQQ-32(V)3 Classification Sonar, and to provide consultation regarding detection transducer development, and design and quality sonar operator equipment consoles applicable to High Frequency Wide Band (HFWB) program.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603502N/SURFACE AND SHALLOW WATER MINE COUNTER**	PROJECT NUMBER AND NAME **9967N/AN/SQQ-32 Mine Hunting Sonar Upgrade**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	3.497	0.000	0.000
RDT&E Articles Quantity	0	0	0

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	R-1 ITEM NOMENCLATURE **0603506N/SURFACE SHIP TORPEDO DEFENSE**						
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	49.063	27.451	49.171	24.739	23.915	30.545	29.159
0225 / Surface Ship Torpedo Defense (SSTD)	32.385	15.627	49.171	24.739	23.915	30.545	29.159
9999 / CONGRESSIONAL ADDS	16.678	11.824	0.000	0.000	0.000	0.000	0.000

A. MISSION DESCRIPTION:

Project 0225 utilizes previous development of components of the AN/WSQ-11 Torpedo Defense System and applies them to a Cruiser and Destroyer (CRUDES) based Anti-Torpedo Torpedo Defense System (ATTDS). This development approach espouses an Evolutionary Acquisition strategy of providing incremental surface ship torpedo defense capability to the fleet by implementing first on ships already equipped with sonar systems, fire control systems and launchers. Subsequent increments will install this capability on large deck ships such as Amphibs and Carriers. Results of FY06 and FY07 at-sea demonstrations of Torpedo Detection Classification & Localization (TDCL) systems as well as additional testing events planned for FY08 funded through FY07 and FY08 Congressional adds will lead to a CRUDES TDCL system specification development in FY09. At sea testing of the EDM-1 design of the Anti-Torpedo Torpedo (ATT) variant of the Common Very Lightweight Torpedo (CVLWT) in FY07 will be continued in FY08 and will facilitate design of the EDM-2 ATT which will be completed in FY10. In FY10, an EDM of the ship system for CRUDES application will be developed. This EDM will include the TDCL system, a command and control system with user interface, a modified Surface Vessel Torpedo Tube launcher, and a canistered Anti-Torpedo Torpedo. The TDCL system will utilize a sensor set added to the AN/SLQ-25A (NIXIE) System. The development of the ATT is the first derivative of the CVLWT as a funded acquisition program with planned IOC FY17. A common warhead design is being investigated that will allow for development of the CVLWT to accommodate multi-mission (offensive & defensive) applications. The planned CVLWT acquisition strategy will also accommodate subsequent development of the Compact Rapid Attack Weapon (CRAW) to be launched from the VTUAV airframe associated with the Littoral Combat Ship or other unmanned vehicles for ASW missions. The ATT and CRAW variants of the CVLWT as well as the TDCL development are closely linked with the ONR FNC programs (Sea Shield FNC's) which provide advance technology inserts at key transition points in support of the planned ATT, CRAW and TDCL schedules.

(U) Project 9514C - FY07 Congressional Add: Continues upgrades to the AN/SLQ-25A torpedo countermeasure system as funded by congressional adds. Finalizes in FY07 the resolution of dual tow and mutual interference issues associated with the recent AN/SLQ-25A EEC 16 performance upgrade.
(U) Project 9799C - FY07 Congressional Add: Evaluate feasibility of employing wireless technology to coordinate exchange of torpedo defense acoustic detection and tracking information.
(U) Project 9968N - FY07 Congressional Add: Develop a sensor for evaluation as to suitability for surface ship torpedo defense.
(U) Project 9969N - FY07 Congressional Add: Improve TDCL capability to provide a more robust TDCL system.
(U) Project 9970N - FY07 Congressional Add: Continue development of TDCL technology and allow for the integration of the latest improvements into a DDG 51 ship SQQ-89 ASW combat system.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	R-1 ITEM NOMENCLATURE **0603506N/SURFACE SHIP TORPEDO DEFENSE**	

(U) Project 9999 - FY08 Congressional Add: Accelerates development of the Anti-Torpedo Torpedo EDM-2 design effort and conducts additional in-water test events on ATT EDM-1 units.

(U) Project 9999 - FY08 Congressional Add: Apply industry cost affordability manufacturability practices (DFA/DFM) to the ATT system design similar to previous successful efforts to reduce ATT subsystem component manufacturing costs.

(U) Project 9999 - FY08 Congressional Add: Continue development of TDCL technology and integrate on a DDG 51 ship to conduct an at sea evaluation. Facilitates deployment of the ATT from a DDG 51 ship.

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
FY 2008 President's Budget:	57.509	15.967	31.722
FY 2009 President's Budget:	49.063	27.451	49.171
Total Adjustments	(8.446)	11.484	17.449
Summary of Adjustments:			
Undistributed General Reductions/ Increases	(1.446)	(0.340)	(0.045)
Execution Realignments	(7.000)	0.000	17.494
Congressional Add	0.000	11.824	0.000
Subtotal	(8.446)	11.484	17.449

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
OPN BLI: 221300									
Surface Ship Torpedo Defense - SSTD	11.629	7.269	10.058					CONT.	CONT.
WPN BLI: 311300									
Surface Ship Torpedo Defense - SSTD	5.832	0.013	0.000					CONT.	CONT.

D. ACQUISITION STRATEGY:

The project develops Surface Ship Torpedo Defense (SSTD) capabilities using an evolutionary acquisition incremental development approach. OPN: In the FY07 - FY09 time frame, the OPN funding upgrades the existing AN/SLQ-25A NIXIE through ECP's performed by the Original Equipment Manufacture (OEM) and includes procurement and installation. The FY08 MS B approves the previous ATTDS 6 3/4 EDM-1 design as a Common Very Lightweight Torpedo (CVLWT) EDM-2 design to continue development as an Anti-Torpedo Torpedo which subsequently can also accommodate multi-missions. ATT development continues post MS C under ARL PSU as design agent with a competitive award to a single prime contractor to manufacture the ARL PSU design into CVLWT LRIP builds for ATT operational testing.

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603506N/SURFACE SHIP TORPEDO DEFENSE**				PROJECT NUMBER AND NAME **0225/Surface Ship Torpedo Defense (SSTD)**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	32.385	15.627	49.171	24.739	23.915	30.545	29.159
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Project 0225 utilizes previous development of components of the AN/WSQ-11 Torpedo Defense System and applies them to a Cruiser and Destroyer (CRUDES) based Torpedo Defense System. This development approach espouses an Evolutionary Acquisition strategy of providing incremental surface ship torpedo defense capability to the fleet by implementing first on ships already equipped with sonar systems, fire control systems and launchers. Subsequent increments will install this capability on large deck ships such as Amphibs and Carriers.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603506N/SURFACE SHIP TORPEDO DEFENSE**	PROJECT NUMBER AND NAME **0225/Surface Ship Torpedo Defense (SSTD)**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	32.285	15.627	40.171
RDT&E Articles Quantity	4	0	0

COMMON VERY LIGHTWEIGHT TORPEDO (CVLWT)/ANTI-TORPEDO TORPEDO (ATT)

FY07 - Continued CVLWT warhead development. Built EDM-1 units (4). Conduct CT1-3 in-water trials. Initiated ATT Launcher development and conducted SVTT ATT launch demonstration.

FY08- Initiate CVLWT ATT EDM-2 design. Conduct warhead testing CT1-4 in-water trials. Continue ATT Launcher development. Conduct MS B.

FY09- Continue CVLWT ATT EDM-2 Design. Initiate warhead qualification. Complete ATT Launcher development.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.100	0.000	9.000
RDT&E Articles Quantity	0	0	0

SHIP SYSTEMS

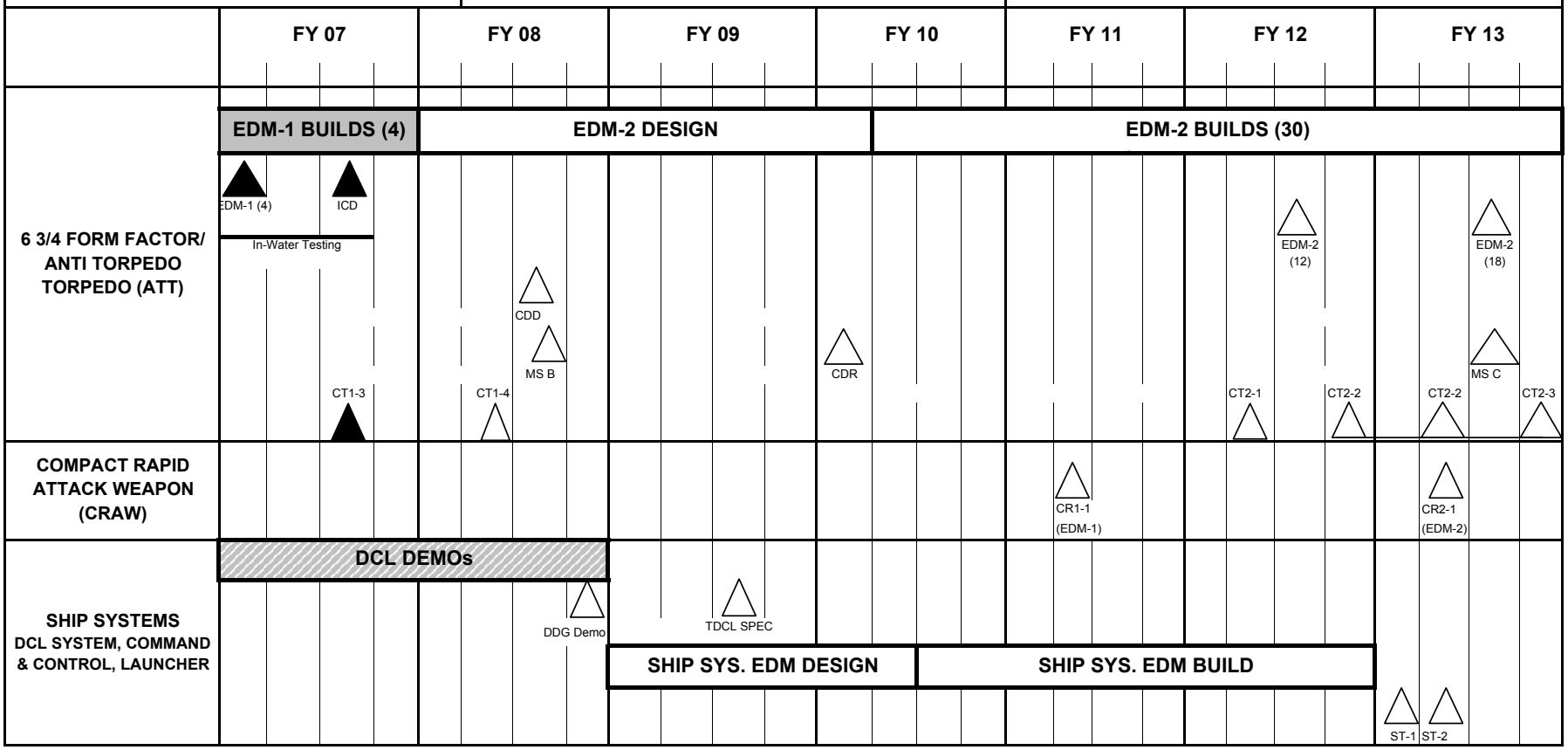
FY07 -Completed ICD requirements.

FY07 - Continue CDD requirements.

FY09 - Initiate Ship Systems EDM Design. Generate TDCL Spec.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS												DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603506N/SURFACE SHIP TORPEDO DEFENSE**					PROJECT NUMBER AND NAME **0225/Surface Ship Torpedo Defense (SSTD)**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Systems Engineering	WR	NUWC, Newport, RI	2.568	2.372	DEC-06	1.687	JAN-08	5.600	DEC-08	CONT	CONT	0.000
Systems Engineering ATT Dev.	CPFF	PSU/ARL, State College, PA	22.965	18.503	JAN-07	10.790	JAN-08	25.726	FEB-09	CONT	CONT	0.000
Systems Engineering	CPFF	JHU/APL, Baltimore , MD	0.420	0.350	DEC-06	0.250	JAN-08	0.300	FEB-09	CONT	CONT	0.000
Systems Engineering Warhead Dev.	WR	NSWC, Indian Head, MD	6.300	4.200	DEC-06	1.300	JAN-08	8.800	DEC-08	CONT	CONT	0.000
Systems Engineering	WR	NUWC, Keyport,WA	2.680	1.500	DEC-06	1.000	JAN-08	2.495	DEC-08	CONT	CONT	0.000
Systems Engineering TDCL	CPFF	Ultra, Braintree, MA	7.300	3.500	MAR-07	0.000		2.000	FEB-09	0.000	12.800	0.000
Systems Engineering ATT	WR	ONR	0.200	0.585	JUN-07	0.050	JAN-08	0.100	JAN-09	CONT	CONT	0.000
Systems Engineering	WR	NSWC, Dahlgren, MD	0.000	0.500	MAR-07	0.000		1.400	DEC-08	0.000	1.900	0.000
Systems Engineering TDCL	CPFF	AAC, Hauppage, NY	0.000	0.000		0.000		2.000	FEB-09	0.000	2.000	0.000
Subtotal Product Development			**42.433**	**31.510**		**15.077**		**48.421**		**0.000**	**CONT**	**0.000**
Remarks:												
Program Management Support	CPFF	EG&G Gaithersburg, Md	1.246	0.800	NOV-06	0.500	JAN-08	0.700	JAN-09	0.000	3.246	0.000
Travel		PMS 415	0.070	0.075	OCT-06	0.050	NOV-07	0.050	NOV-08	0.000	0.245	0.000
Subtotal Management Services			**1.316**	**0.875**		**0.550**		**0.750**		**0.000**	**3.491**	**0.000**
Remarks:												
Total Cost			**43.749**	**32.385**		**15.627**		**49.171**		**0.000**	**CONT**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE (page 1)		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDTEN/ BA 4	PROGRAM ELEMENT NUMBER AND NAME 0603506N/ SURFACE SHIP TORPEDO DEFENSE	PROJECT NUMBER AND NAME 0225/Surface Ship Torpedo Defense (SSTD)



CLASSIFICATION:	UNCLASSIFIED					
EXHIBIT R-4a, SCHEDULE DETAIL					DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603506N/SURFACE SHIP TORPEDO DEFENSE**			PROJECT NUMBER AND NAME **0225/Surface Ship Torpedo Defense (SSTD)**		
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
CVLWT/ ANTI-TORPEDO TORPEDO (ATT)							
INITIAL CAPABILITIES DOCUMENT (ICD)	Q3						
CAPABILITIES DEVELOPMENT DOCUMENT (CDD)		Q3					
BUILD EDM-1 UNITS	Q1-Q4						
MILESTONE B		Q3					
EDM-2 DESIGN		Q1-Q4	Q1-Q4	Q1			
CDR				Q1			
BUILD EDM-2 UNITS						Q3	Q3
MILESTONE C							Q3
IN-WATER TRIALS (CT)	Q1-Q3	Q2				Q2,Q4	Q2,Q4
COMPACT RAPID ATTACK WEAPON (CRAW)							
SUB SYSTEM TESTING					Q2		Q2
SHIP SYSTEMS							
DCL DEMOS	Q1-Q4	Q1-Q4					
TDCL SPEC			Q3				
DDG DEMO		Q4					
EDM DESIGN			Q1-Q4	Q1-Q2			
EDM BUILD				Q3-Q4	Q1-Q4	Q1-Q4	
SYSTEM LEVEL TESTS							Q1,Q2

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603506N/SURFACE SHIP TORPEDO DEFENSE**	PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
9514C/SLQ-25A Torpedo Countermeasure Improvement Program	2.820	0.000	0.000
RDT&E Articles Quantity	0	0	0

FY07 - Congressional Plus-Up completes the SLQ-25A roadmap project to integrate the AN/SLQ-25A system under the Open Architect concept within Surface Ship Torpedo Defense Detection Classification Localization subsystem.

	FY 2007	FY 2008	FY 2009
9799N/9799C Integrated Multi-Platform Sonar System	4.430	0.000	0.000
RDT&E Articles Quantity	0	0	0

FY07 - Congressional Plus-Up to conduct feasibility demonstration to employ wireless technology to coordinate exchange of torpedo defense acoustic detection and tracking information.

	FY 2007	FY 2008	FY 2009
9969N/ Torpedo Detection Classification Localization Demo	0.971	0.000	0.000
RDT&E Articles Quantity	0	0	0

FY07 - Congressional Plus-Up Add to conduct an at-sea demonstration to refine the Torpedo Detection Classification Localization capability to improve ship maneuvers and false alarm reduction.

	FY 2007	FY 2008	FY 2009
9968N/ Affordable ASW Response Weapon	1.414	0.000	0.000
RDT&E Articles Quantity	0	0	0

FY07 - Congressional Plus-Up Add to continue development of a towed sensor for evaluation as to suitability for Surface Ship Torpedo Defense.

	FY 2007	FY 2008	FY 2009
9970N/ TDCL Commonality-Shipboard DCL Tech Demo	7.043	0.000	0.000
RDT&E Articles Quantity	0	0	0

FY07 - Congressional Plus-Up Add to continue development of Torpedo Detection Classification Localization technology and allow for the integration of the latest improvement into a DDG 51 class ship to enhance deployment of the CVLWT (ATT).

	FY 2007	FY 2008	FY 2009
9999/Anti-Torpedo Torpedo (ATT)	0.000	2.385	0.000
RDT&E Articles Quantity	0	0	0

Accelerates development of the Anti-Torpedo Torpedo EDM-2 design effort and conducts additional in-water test events on ATT EDM-1 units.

CLASSIFICATION:	UNCLASSIFIED		
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)			DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603506N/SURFACE SHIP TORPEDO DEFENSE**	PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**	

	FY 2007	FY 2008	FY 2009
9999/Anti-Submarine Warfare (ASW) Enhancements	0.000	7.949	0.000
RDT&E Articles Quantity	0	0	0

Apply industry cost affordability manufacturability practices (DFA/DFM) to the ATT system design similar to previous successful efforts to reduce ATT subsystem component manufacturing costs.

	FY 2007	FY 2008	FY 2009
9999/ Sensor Arrays for Multiple Applications	0.000	1.490	0.000
RDT&E Articles Quantity	0	0	0

Continue development of TDCL technology and integrate on a DDG 51 ship to conduct an at sea evaluation. Facilitates deployment of the ATT from a DDG 51 ship.

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**			R-1 ITEM NOMENCLATURE **0603512N/CARRIER SYSTEMS DEVELOPMENT**				
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	149.866	86.544	120.511	72.135	44.260	44.097	46.185
2208 / CVN 21	56.991	45.168	56.922	58.555	42.534	42.218	44.271
4004 / EMALS	71.265	36.055	61.997	11.761	0.000	0.000	0.000
4005 / SMART CARRIER	1.719	1.744	1.592	1.819	1.726	1.879	1.914
4006 / CVN 79	16.990	0.000	0.000	0.000	0.000	0.000	0.000
9999 / CONGRESSIONAL ADDS	2.901	3.577	0.000	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)(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.

- (U) (4004) - Development of an advanced technology aircraft launch system in support of the CVN 78 Class design and construction schedule. The Electro Magnetic Aircraft Launch System (EMALS) will replace the current steam catapult on CVN 78 Class ships and could 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 79. Funding realigned to PE 0604567N project 3179 starting in FY2008.

- (U) (9515C) - Sentinel Net provides a low-risk sensor processing method that builds on the Carrier Tactical Support Center's (CV-TSC) Command and Control (C2) suite to

yield a harbor defense or force protection C2 capability on board Carriers. Funding provided for the development, implementation and integration of decision support and fused battle space awareness technologies for the Sea Combat Module (SCM). Benefits to the Navy include: implementing enabling technologies for fusing the tactical surface, air, and undersea warfare combat system data feeds used by the SCM; implementing state-of-the art, Fleet-championed detection, classification, and integrated display/visualization technologies; evaluating new and advanced concepts and technologies for SCM warfare integration for maturing; and transitioning promising fused battle space view and decision support technologies from the Office of Naval Research (ONR), Defense Advanced Research Planning Agency (DARPA), universities, and industry to SCM.

- (U) (9801N) - QuIPS provides an automated data fusion system to detect, track, classify, and neutralize threats in the near shore environment. QuIPS is state-of-the-art in algorithm development in non plane wave acoustic beamforming to detect and track surface ship and submerged contacts in very shallow water using matched phase matched field processing, as well as normal plane wave beamformers. Funding provided for the integration of QuIPS with CV-TSC version 6.0 software architecture and development of a portable (2-man lift) hardware system to host the integrated software.

- (U) (9801C) - Funding provided to continue the integration of QuIPS with CV-TSC version 6.0 software architecture and develop a portable (2-man lift) hardware system to host the integrated software. Develop and integrate data fusion algorithms and software to fuse short range, relatively accurate, time dense tactical sensor ship track data with global, relatively inaccurate, time sparse national sensor ship track data. Develop and integrate data fusion algorithms and software to fuse non acoustic Latitude/Longitude vs. time tracks with acoustic sonar true bearing vs. time tracks output by most Navy sonar. There is a requirement for a portable tactical situational awareness system that can take inputs from multiple sensor types; fuse sensor detection reports, contact reports and tracks into composite tracks; display both independent contacts and composite tracks on a GIS display; and allow operator drill-down capability to underlying metadata. This portable system would support a number of mission scenarios including Anti-Terrorism, Force Protection and Expeditionary Naval Coastal Warfare.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	R-1 ITEM NOMENCLATURE **0603512N/CARRIER SYSTEMS DEVELOPMENT**	

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
Previous President's Budget: (FY 08 Pres Controls)	156.248	84.806	72.683
President's Budget (FY 09 Pres Controls)	149.866	86.544	120.511
Total Adjustments	-6.382	1.738	47.828
Summary of Adjustments			
Congressional Increases	0.000	3.600	
Misc. Changes	-0.193		-0.542
Congressional Rescissions	0.000	-0.565	
Programmatic Changes	-2.223	-1.272	48.580
SBIR	-3.966	0.000	0.000
Information Assurance	0.000	-0.025	0.000
NWCF	0.000	0.000	-0.210
Subtotal	-6.382	1.738	47.828

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603512N/CARRIER SYSTEMS DEVELOPMENT**				PROJECT NUMBER AND NAME **2208/CVN 21**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	56.991	45.168	56.922	58.555	42.534	42.218	44.271
RDT&E Articles Qty	0	0	0	0	0	0	0

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, warfare systems, 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. This project also encompasses those tasks required to develop the contract data package necessary to support CVN 78 procurement, including, but not limited to engineering support, programmatic and program support, logistics support, modeling and simulation, manpower and program related studies, and design support systems, such as the Integrated Digital Environment (IDE).

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603512N/CARRIER SYSTEMS DEVELOPMENT**	PROJECT NUMBER AND NAME **2208/CVN 21**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	4.617	0.805	0.010
RDT&E Articles Quantity	0	0	0

- (U) Non-Nuclear Propulsion Plant Development -

(FY07) Continue MTG shock qualification effort; continue technical manual development; and complete voltage regulator and electronic governor system schematics.

(FY08) Complete MTG shock qualification; transport/disposition MTG generator to designated storage; and transport/disposition MTG turbine.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	48.555	39.183	46.137
RDT&E Articles Quantity	0	0	0

- (U) CVN 21 Advanced Technology Design & Development Continue development and transition of technologies to support CVN 21 Key Performance Parameters (KPPs): maintain sortie generation rate, 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, and to improve overall performance. Technologies and design efforts include, but not limited to:

(FY-07) - Finalize integration for technologies developed and prototyped in previous years to support inclusion into the CVN 78 design. Continue to identify new technologies for later incorporation in the CVN 78 design. Continue system engineering process and high level integration of the mission systems.

(FY- 08) - Continue transition planning and execution, including finishing development work, certification/qualification testing, in-service testing, integrated logistics support and design integration tasks for all projects in the Critical and Non-Critical Technology portfolios. Continue identification of technology opportunities for incorporation into the CVN78.

(FY-09) - Continue transition planning and execution, including finishing development work, certification/qualification testing, in-service testing, integrated logistics

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603512N/CARRIER SYSTEMS DEVELOPMENT**	PROJECT NUMBER AND NAME **2208/CVN 21**

support and design integration tasks for all projects in the Critical and Non-Critical Technology portfolios. Continue identification of technology opportunities for incorporation into the CVN78.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	3.819	5.180	10.775
RDT&E Articles Quantity	0	0	0

- (U) CVN 21 - Test & Evaluation -

(FY-07) - The T&E IPT will finalize planning and execution of DT-A2 events and will begin to identify and plan to execute DT-B events to demonstrate that CVN 78 meets required capabilities. Assess CVN 21 Program T&E risks by reviewing various PARM test plans and reports, identify any gaps or differences in PARM testing and determine if PARMs are meeting CVN 21 Program ORD requirements.

(FY-08) -Commence DT-B1 test events to include an assessment of DT-A2 data results, begin demonstrating the CVN 78 design will meet requirements, continue PARM interfacing, model and simulation testing, and manage T&E risks. DT-B1 concludes in late FY09 with an test report and Operational Assessment.

(FY-09) -Continue DT-B1 and commence DT-B2 T&E planning effort. Plan/Execute Developmental Test B1g (LTA II); a full scale weapons effect test to further gain insight into ship responses to combat threats. Continue PARM interfacing, model and simulation testing, and manage T&E risks. DT-B1 concludes in late FY09 with an test report and Operational Assessment.

C. OTHER PROGRAM FUNDING SUMMARY:

* Note: Only a portion of the funding in PE 0603570N is included in the CVN78 Class Program.

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
BLI 200100 Carrier Replacement Program	1,106.950	3,145.026	3,926.439	1,494.646	1,144.373	2,513.230	3,171.707	Cont.	Cont.
PE 0604567N Ship Contract Design, Live Fire T&E	50.947	62.068	72.932	63.830	89.862	77.365	80.838	Cont.	Cont.
PE 0603570N Adv. Nuclear Power Systems	173.988	165.140	158.270	137.843	123.475	123.265	121.179	Cont.	Cont.

D. ACQUISITION STRATEGY:

The CVN 78 will be the first ship of the CVN 78 Class of aircraft carriers designed to replace USS Enterprise and the ships of the Nimitz Class. The CVN 78 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.

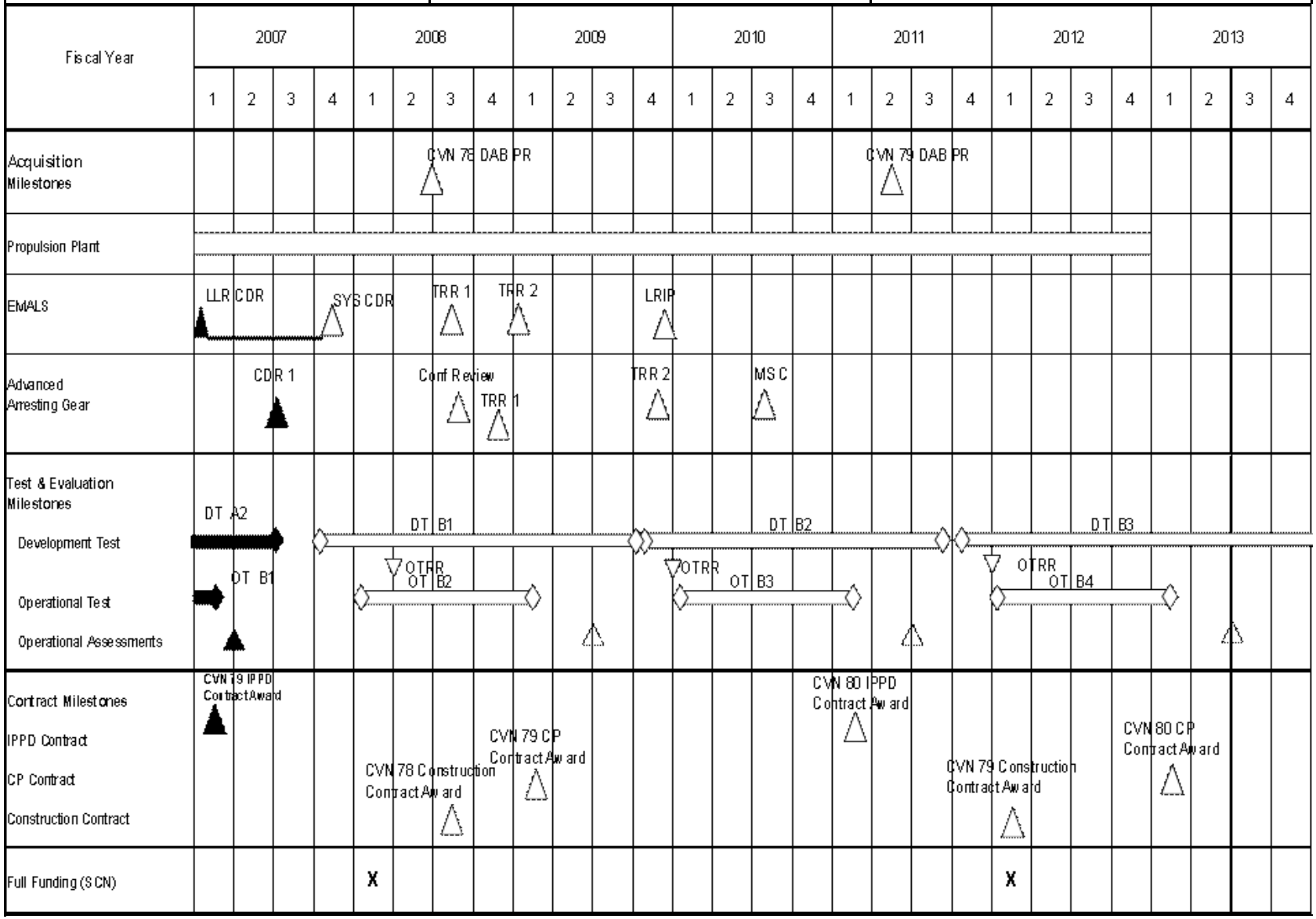
E. MAJOR PERFORMERS:

Northrop Grumman Newport News, Newport News, VA, Design/Component Development/Construction
Naval Surface Warfare Center, Carderock, MD, Technology Design & Development
Naval Surface Warfare Center, Dahlgren, VA, Technology Design & Development

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603512N/CARRIER SYSTEMS DEVELOPMENT**					PROJECT NUMBER AND NAME **2208/CVN 21**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Propulsion Plant Development	SS,CPFF	BETTIS, PA	71.627	0.000		0.000		0.000		CONT	CONT	0.000
	CPFF	NGNN, VA	160.050	4.359	JAN-07	0.800	APR-08	0.000		CONT	CONT	0.000
	Various	Miscellaneous	9.713	0.208	DEC-06	0.005	OCT-07	0.010	OCT-08	CONT	CONT	0.000
	WR	NSWC Carderock	0.000	0.050	APR-07	0.000		0.000		CONT	CONT	0.000
Advanced Design & Development	CPAF	NGNN	106.783	4.956	NOV-06	9.958	JAN-08	10.872	DEC-08	CONT	CONT	0.000
	WR	NSWC Carderock	59.956	6.686	OCT-06	3.193	DEC-07	1.582	OCT-08	CONT	CONT	0.000
	CPFF	SAIC	41.270	5.500	OCT-06	2.500	DEC-07	2.100	DEC-08	CONT	CONT	0.000
	WR	NAWCAD Pax River	13.851	9.658	OCT-06	6.662	JAN-08	11.535	OCT-08	CONT	CONT	0.000
	WR	NAWC Lakehurst	6.656	0.031	MAY-07	0.797	JAN-08	0.000		CONT	CONT	0.000
	WR	NSWC Dahlgren	7.637	3.710	OCT-06	2.972	JAN-08	1.821	OCT-08	CONT	CONT	0.000
	CPAF	Raytheon	4.364	4.828	NOV-06	5.635	JAN-08	11.553	DEC-08	CONT	CONT	0.000
	WR	NSWC P.H.	5.210	0.150	OCT-06	0.178	JAN-08	0.063	OCT-08	CONT	CONT	0.000
	WR	SPAWAR	5.016	2.199	OCT-06	0.643	JAN-08	0.609	OCT-08	CONT	CONT	0.000
	CPFF	NAVSEA Seaport	10.141	8.361	JAN-07	1.250	JAN-08	1.701	DEC-08	CONT	CONT	0.000
	Various	Miscellaneous	27.214	2.476	NOV-06	5.395	JAN-08	4.301	OCT-08	CONT	CONT	0.000
Subtotal Product Development			**529.488**	**53.172**		**39.988**		**46.147**		**CONT**	**CONT**	**0.000**
Remarks:												
Developmental Test & Evaluation	CPAF	NGNN	2.726	0.775	NOV-06	1.000	JAN-08	2.138	DEC-08	CONT	CONT	0.000
	WR	NAWCAD Pax River	8.648	0.019	NOV-06	0.709	DEC-07	1.242	OCT-08	CONT	CONT	0.000
	WR	NSWC Dahlgren	1.746	0.335	OCT-06	0.553	DEC-07	0.924	OCT-08	CONT	CONT	0.000
	WR	NSWC Carderock	2.971	0.058	JUL-07	0.573		0.000		CONT	CONT	0.000
	WR	SPAWAR	0.680	0.690	OCT-06	0.761	JAN-08	1.904	OCT-08	CONT	CONT	0.000
	CPFF	NAVSEA Seaport	0.075	0.000		0.000		0.000		CONT	CONT	0.000
	CPAF	Raytheon	0.214	0.471	NOV-06	0.050	JAN-08	1.438	DEC-08	CONT	CONT	0.000
	Various	Miscellaneous	3.044	0.924	NOV-06	0.840	DEC-07	2.529	OCT-08	CONT	CONT	0.000
Operational Test & Evaluation	WR	COMOPTEVFOR	1.555	0.547	NOV-06	0.694	JAN-08	0.600	OCT-08	CONT	CONT	0.000
Subtotal Test and Evaluation			**21.659**	**3.819**		**5.180**		**10.775**		**CONT**	**CONT**	**0.000**
Remarks:												

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603512N/CARRIER SYSTEMS DEVELOPMENT**					PROJECT NUMBER AND NAME **2208/CVN 21**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Total Cost			**551.147**	**56.991**		**45.168**		**56.922**		**CONT**	**CONT**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603512N/CARRIER SYSTEMS DEVELOPMENT**	PROJECT NUMBER AND NAME **2208/CVN 21**



CLASSIFICATION:	UNCLASSIFIED					
EXHIBIT R-4a, SCHEDULE DETAIL					DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603512N/CARRIER SYSTEMS DEVELOPMENT**			PROJECT NUMBER AND NAME **2208/CVN 21**		
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Operational Tests OT-B1	1Q						
EMALS PDR							
Advanced Arresting Gear CDR 1	3Q						
Developmental Tests DT A-2	1-2Q						
AAG Configuration Review		3Q					
EMALS LLR CDR	1Q						
EMALS SYSTEM CDR	4Q						
Developmental Tests DT-B1	4Q	1-4Q	1-4Q				
Operational Tests OT-B2		1-4Q	1Q				
EMALS TRR 1(HALT/HCT)		3Q					
CVN 21 DAB PR		2-3Q			2Q		
AAG TRR 1 (IT)		4Q					
CVN 78 Construction Contract Award		3Q					
CVN 78 SCN Full Funding		1Q					
Developmental Tests DT-B2			4Q	1-4Q	1-3Q		
Operational Tests OT-B3				1-4Q	1Q		
EMALS TRR 2 (DT/OA)			1Q				
EMALS LRIP			4Q				
AAG TRR 2 (IT)			4Q				
Developmental Tests DT-B3					4Q	1-4Q	1-4Q
Operational Tests OT-B4						1-4Q	1Q
Operational Test Readiness Reviews		2Q		1Q		1Q	
Operational Assessments	1-2Q		2-3Q		2-3Q		
CVN 79 IPPD Contract Award	1Q						
CVN 79 CP Contract Award			1Q				
AAG MS C / LRIP				3Q			
CVN 80 IPPD Contract Award					1Q		
CVN 79 Construction Contract Award						1Q	
CVN 79 SCN Full Funding						1Q	
CVN 80 CP Contract Award							1Q

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603512N/CARRIER SYSTEMS DEVELOPMENT**				PROJECT NUMBER AND NAME **4004/EMALS**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	71.265	36.055	61.997	11.761	0.000	0.000	0.000
RDT&E Articles Qty	0	0	0	0	0	0	0

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 78 design and construction schedule. The Electro Magnetic Aircraft Launch System (EMALS) will replace the current steam catapult on CVN 78 and follow ships of the CVN 78 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:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603512N/CARRIER SYSTEMS DEVELOPMENT**	PROJECT NUMBER AND NAME **4004/EMALS**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	71.265	36.055	61.997
RDT&E Articles Quantity	0	0	0

-(U) EMALS -

FY-07: Continue System Development and Demonstration phase. Continue shipboard representative system development effort. Complete Critical Design Review for the remainder of the system. Continue manufacture of shipboard representative system and dead load test articles. Continue CVN 78 integration development. Provide management, systems engineering, test, and ship integration support.

FY-08: Continue System Development and Demonstration phase. Continue shipboard representative system development effort. Complete manufacture and installation of a shipboard representative system into the land based test facility. Conduct environmental, high cycle and highly accelerated life testing. Initiate system integration testing. Continue CVN 78 integration development. Provide management, systems engineering, test, and ship integration support.

FY-09: Continue System Development and Demonstration phase. Continue shipboard representative system development effort. Complete contractor led system integration testing. Continue CVN 78 integration development. Provide management, systems engineering, test, and ship integration support. Prepare and release the Low Rate Initial Production (LRIP) Request for Proposal (RFP) for four (4) EMALS launchers for CVN-78. Award the LRIP contract.

C. OTHER PROGRAM FUNDING SUMMARY:

*Note: Only a portion of the funding in PE 0603570N is included in the CVN 78 Class Program.

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
BLI 200100 Carrier Replacement Program	1,106.950	3,145.026	3,926.439	1,494.646	1,144.373	2,513.230	3,171.707	Cont.	Cont.
PE 0604567N Ship Contract Design/Live Fire T&E	50.539	62.068	72.932	63.830	89.862	77.365	80.838	Cont.	Cont.
PE 0603570N Adv. Nuclear Power Systems	173.988	165.140	158.270	137.843	123.475	123.265	121.179	Cont.	Cont.

D. ACQUISITION STRATEGY:

The CVN 78 will be the first ship of the CVN 78 Class of aircraft carriers designed to replace USS Enterprise and the ships of the Nimitz Class. The CVN 78 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.

E. MAJOR PERFORMERS:

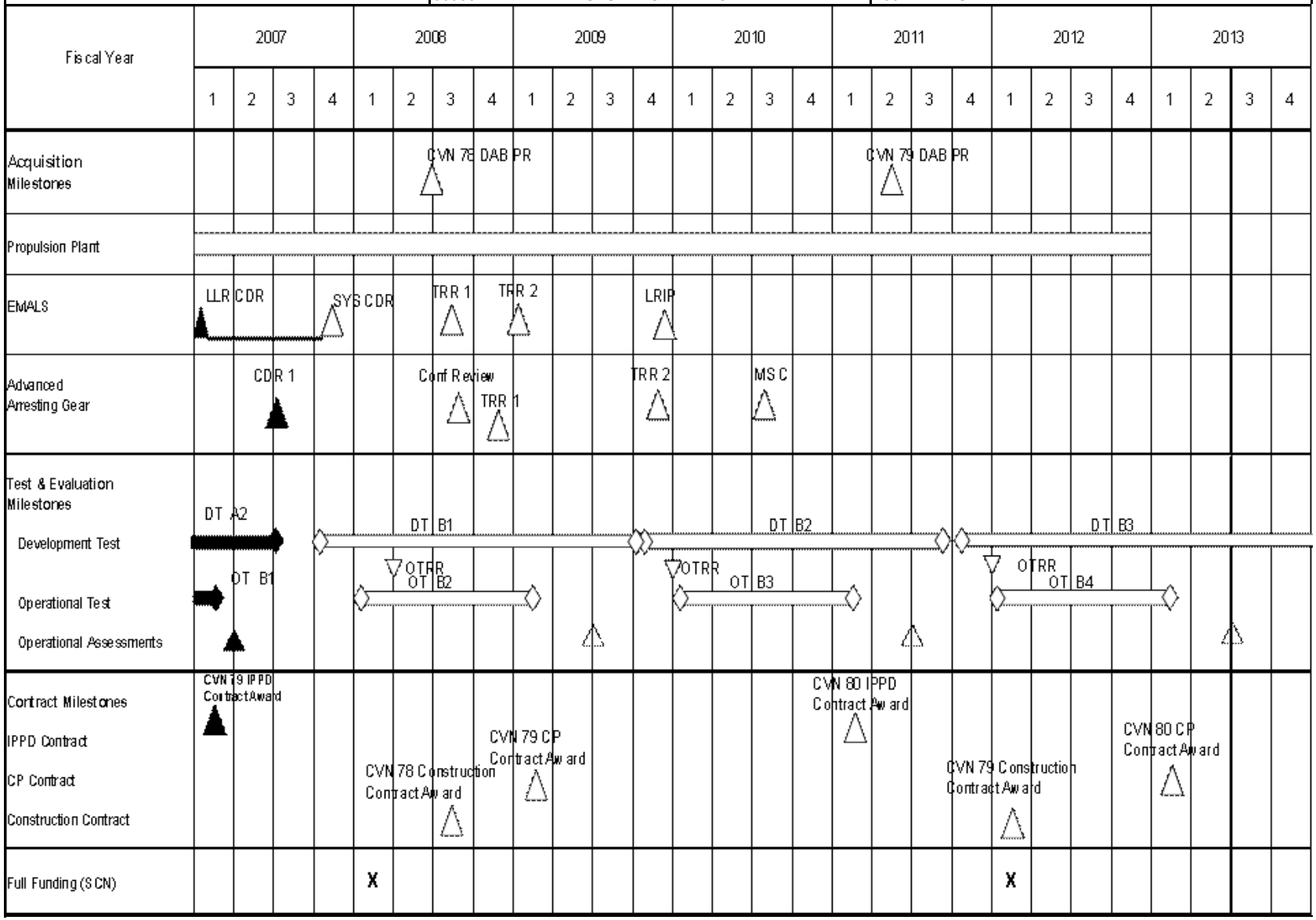
General Atomics, San Diego, CA, EMALS Design and Development

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603512N/CARRIER SYSTEMS DEVELOPMENT**	PROJECT NUMBER AND NAME **4004/EMALS**

Naval Air Warfare Center, Aircraft Division, Lakehurst, NJ: EMALS Development and Test.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS												DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603512N/CARRIER SYSTEMS DEVELOPMENT**					PROJECT NUMBER AND NAME **4004/EMALS**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Aircraft Launch, Recovery & Support	CPAF	Northrop Grumman	83.352	0.000		0.000		0.000		0.000	83.352	0.000
	CPAF	General Atomics (PDRR)	82.719	0.000		0.000		0.000		0.000	82.719	0.000
	CPAF	General Atomics (SDD)	104.663	56.688	DEC-06	23.936	DEC-07	37.701	DEC-08	11.547	234.535	236.758
	WR	NAWC Lakehurst, NJ	24.659	4.866	NOV-06	4.932	DEC-07	7.546	DEC-08	0.000	42.003	0.000
	CPAF	NGNN, VA	2.536	0.000		0.000		0.000			2.536	0.000
	Various	Miscellaneous	0.577	0.691	NOV-06	0.478	DEC-07	1.859	DEC-08	0.357	3.962	0.000
Subtotal Product Development			**298.506**	**62.245**		**29.346**		**47.106**		**11.904**	**449.107**	**236.758**
Remarks:												
Aircraft Launch, Recovery & Support	WR	Lakehurst, NJ	12.225	9.020	NOV-06	6.709	DEC-07	14.891	DEC-08	0.000	42.845	0.000
Subtotal Test and Evaluation			**12.225**	**9.020**		**6.709**		**14.891**		**0.000**	**42.845**	**0.000**
Remarks: .												
Total Cost			**310.731**	**71.265**		**36.055**		**61.997**		**11.904**	**491.952**	**236.758**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603512N/CARRIER SYSTEMS DEVELOPMENT**	PROJECT NUMBER AND NAME **4004/EMALS**



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603512N/CARRIER SYSTEMS DEVELOPMENT**			PROJECT NUMBER AND NAME **4004/EMALS**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Operational Tests OT-B1	1Q						
EMALS PDR							
Advanced Arresting Gear CDR 1	3Q						
Developmental Tests DT A-2	1-2Q						
AAG Configuration Review		3Q					
EMALS LLR CDR	1Q						
EMALS SYSTEM CDR	4Q						
Developmental Tests DT-B1	4Q	1-4Q	1-4Q				
Operational Tests OT-B2		1-4Q	1Q				
EMALS TRR 1(HALT/HCT)		3Q					
CVN 21 DAB PR		2-3Q			2Q		
AAG TRR 1 (IT)		4Q					
CVN 78 Construction Contract Award		3Q					
CVN 78 SCN Full Funding		1Q					
Developmental Tests DT-B2			4Q	1-4Q	1-3Q		
Operational Tests OT-B3				1-4Q	1Q		
EMALS TRR 2 (DT/OA)			1Q				
EMALS LRIP			4Q				
AAG TRR 2 (IT)			4Q				
Developmental Tests DT-B3					4Q	1-4Q	1-4Q
Operational Tests OT-B4						1-4Q	1Q
Operational Test Readiness Reviews		2Q		1Q		1Q	
Operational Assessments	1-2Q		2-3Q		2-3Q		2-3
CVN 79 IPPD Contract Award	1Q						
CVN 79 CP Contract Award			1Q				
AAG MS C / LRIP				3Q			
CVN 80 IPPD Contract Award					1Q		
CVN 79 Construction Contract Award						1Q	
CVN 79 SCN Full Funding						1Q	
CVN 80 CP Contract Award							1Q

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603512N/CARRIER SYSTEMS DEVELOPMENT**				PROJECT NUMBER AND NAME **4005/SMART CARRIER**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	1.719	1.744	1.592	1.819	1.726	1.879	1.914
RDT&E Articles Qty	0	0	0	0	0	0	0

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 Advanced Damage Control System (ADCS) software improvements, Electronic Valve Operator automation, Superior Sound Technology, Vibration Monitoring/Rotating Machinery Diagnostic Tools, 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.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603512N/CARRIER SYSTEMS DEVELOPMENT**	PROJECT NUMBER AND NAME **4005/SMART CARRIER**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	1.719	1.744	1.592
RDT&E Articles Quantity	0	0	0

- (U) Smart Carrier - Fiscal Year 2007 efforts continue software development, land-based testing, and shipboard testing of ADCS software improvements for the Advanced Fire and Smoke Sensor System (AFSSS) and the Flooding Casualty Control System (FCCS) in USS GEORGE WASHINGTON (CVN73); and initiate software development for Aviation Fuels System Electric Valve Operator (EVO) automation.

Fiscal Year 2008 efforts will complete ADCS software improvements for installation in USS NIMITZ (CVN68) and continue Aviation Fuels Electric Valve Operator automation, as well as initiate the development and testing of Superior Sound Technologies for shipboard announcing systems.

Fiscal Year 2009 efforts will complete Aviation Fuels Electric Valve Operator automation and the development/testing of Superior Sound Technologies for shipboard announcing systems for implementation in USS RONALD REAGAN (CVN76), and initiate software development of vibration monitoring/rotating machinery diagnostic tools and software development for expanded condition-based maintenance for rotating machinery.

Future efforts include reboiler automation, liquid load management, advanced fire and smoke sensors, and Integrated Condition Assessment System software improvements, all via modifications and improvements to the existing Smart Carrier hardware and software suite.

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
098100 Items Under $5M Smart Carrier (LT 140)	22.221	13.612	16.336	17.501	15.808	0.000	0.000	0.000	85.478

D. 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).

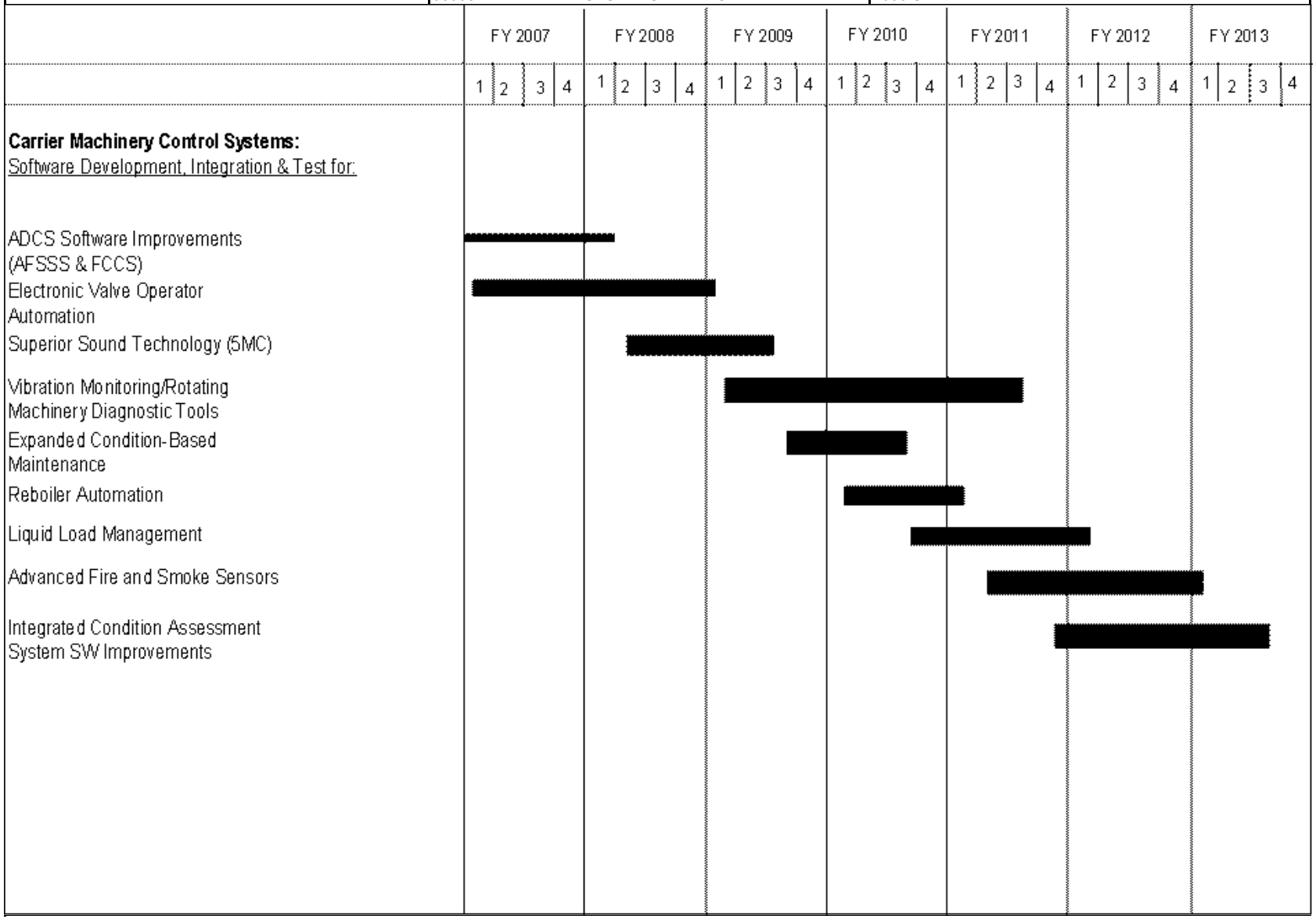
E. MAJOR PERFORMERS:

Naval Sea Systems Command - Philadelphia (formerly Naval Surface Warfare Center, Carderock Division), Philadelphia, PA performs 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.

* Smart Carrier merges with the Aircraft Carrier Machinery Plant Upgrades procurement program beginning in FY12

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603512N/CARRIER SYSTEMS DEVELOPMENT**					PROJECT NUMBER AND NAME **4005/SMART CARRIER**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Ship Integration	WR	NAVSEA, Phil.	0.500	0.100	NOV-06	0.120	JAN-08	0.120	NOV-08	CONT	CONT	0.000
Systems Engineering	CPAF	NGNN, VA	0.205	0.000		0.000		0.000		0.000	0.205	0.000
	Various	Miscellaneous	7.978	0.000		0.000		0.000		0.000	7.978	0.000
Subtotal Product Development			**8.683**	**0.100**		**0.120**		**0.120**		**CONT**	**CONT**	**0.000**
Remarks:												
Software Development	WR	NAVSEA, Phil.	3.587	0.719	NOV-06	0.724	JAN-08	0.572	NOV-08	CONT	CONT	0.000
Training Development	WR	NAVSEA, Phil.	0.230	0.080	NOV-06	0.080	DEC-07	0.080	NOV-08	CONT	CONT	0.000
Integrated Logistics Support	WR	NAVSEA, Phil	0.520	0.120	NOV-06	0.120	JAN-08	0.120	NOV-08	CONT	CONT	0.000
Subtotal Development Support			**4.337**	**0.919**		**0.924**		**0.772**		**CONT**	**CONT**	**0.000**
Remarks:												
Developmental Test & Evaluation	WR	NAVSEA, Phil	1.550	0.450	NOV-06	0.450	JAN-08	0.450	NOV-08	CONT	CONT	0.000
Subtotal Test & Evaluation			**1.550**	**0.450**		**0.450**		**0.450**		**CONT**	**CONT**	**0.000**
Remarks:												
Program Management Support	WR	NAVSEA, Phil.	1.000	0.250	NOV-06	0.250	JAN-08	0.250	NOV-08	CONT	CONT	0.000
Subtotal Support Services			**1.000**	**0.250**		**0.250**		**0.250**		**CONT**	**CONT**	**0.000**
Remarks:												
Total Cost			**15.570**	**1.719**		**1.744**		**1.592**		**CONT**	**CONT**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603512N/CARRIER SYSTEMS DEVELOPMENT**	PROJECT NUMBER AND NAME **4005/SMART CARRIER**



CLASSIFICATION:	UNCLASSIFIED					
EXHIBIT R-4a, SCHEDULE DETAIL					DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603512N/CARRIER SYSTEMS DEVELOPMENT**			PROJECT NUMBER AND NAME **4005/SMART CARRIER**		
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Automated System Logs Software Development Test							
ADCS Software Improvements (AFSSS/FCCS) Software Development	1Q						
ADCS Software Improvements (AFSSS/FCCS) Software Development Test	2-4Q	1Q					
Electronic Valve Operator Automation Software Development	1-4Q	1Q					
Electronic Valve Operator Automation Software Development Test		2-4Q	1Q				
Superior Sound Technology (5MC) Development/Integration		2-4Q	1-3Q				
Vibration Monitoring/Rotating Machinery Diagnostic Tools SW Development			1-4Q	1-2Q			
Vibration Monitoring/Rotating Machinery Diagnostic Tools SW Dev. Test				3-4Q	1-3Q		
Expanded Condition-Based Maintenance - Rotating Machinery			3-4Q	1-3Q			
Reboiler Automation SW/HW Development				1-4Q			
Reboiler Automation SW/HW Development Test					1Q		
Liquid Load Management SW Development/Test				3-4Q	1-4Q	1Q	
Advanced Fire and Smoke Sensor System Development					2-4Q	1Q	
Advanced Fire and Smoke Sensor System Development Testing						2-4Q	1Q
Integrated Condition Assessment System Software Development					4Q	1-3Q	
Integrated Condition Assessment System Software Development Testing						4Q	1-3Q

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603512N/CARRIER SYSTEMS DEVELOPMENT**				PROJECT NUMBER AND NAME **4006/CVN 79**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	16.990	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Development and related testing 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 79. This project transitions the minimum sustaining technologies required to address obsolescence, critical survivability shortfalls as identified in CVN 78 testing, future requirements, and technologies which did not mature in time to support the CVN 78. 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, warfare systems, and combat support systems, sub-systems and components to maintain 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. This project also encompasses those tasks required to develop the contract data package necessary to support CVN 79 procurement, including, but not limited to engineering support, programmatic and program support, logistics support, modeling and simulation, manpower and program related studies, and design support systems, such as the Integrated Digital Environment.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603512N/CARRIER SYSTEMS DEVELOPMENT**	PROJECT NUMBER AND NAME **4006/CVN 79**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	16.990	0.000	0.000
RDT&E Articles Quantity	0	0	0

CVN 79 efforts will continue to reduce the ship acquisition cost through the establishment of the CVN 79 initial cost estimate supported by process initiatives, material selections, and lessons learned from the CVN 78 activities will be studied and analyzed to support the development of the CVN 78 class planning yard and life cycle support plan.

The CVN 79 will incorporate technologies to address obsolescence, technology refresh, critical survival improvements, as well as manpower reduction and weight savings to maintain threshold levels of capability.

An IPPD contract with Northrop Grumman Newport News will incorporate necessary modifications into the CVN 78 class baseline design. Efforts are focused on maintaining the Key Performance Parameters (KPPs) for weight and kg/service life allowance at or above the ORD threshold values. CVN 79 contract planning efforts will provide required program management and logistics support.

C. OTHER PROGRAM FUNDING SUMMARY:

*Note: Only a portion of the funding in PE 0603570N is included in the CVN 78 Class Program.

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
SCN: 200100 Carrier Replacement Program	1,106.950	3,145.026	3,926.439	1,494.646	1,144.373	2,513.230	3,171.707	Cont.	Cont.
PE 0604567N Ship Contract Design/Live Fire T&E	50.539	62.068	72.932	63.830	89.862	77.365	80.838	Cont.	Cont.
PE 0603570N Adv. Nuclear Power Systems	173.988	165.140	158.270	137.843	123.475	123.265	121.179	Cont.	Cont.

D. ACQUISITION STRATEGY:

The CVN 78 will be the first ship of the CVN 78 Class of aircraft carriers designed to replace USS Enterprise and the ships of the Nimitz Class.The CVN 78 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.

E. MAJOR PERFORMERS:

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

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603512N/CARRIER SYSTEMS DEVELOPMENT**	PROJECT NUMBER AND NAME **4006/CVN 79**

Naval Surface Warfare Center, Carderock, MD, Technology Design & Development

Naval Surface Warfare Center, Dahlgren, Virginia, Technology Design & Development

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603512N/CARRIER SYSTEMS DEVELOPMENT**	PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
9515C Sentinel Net for Ship Anti-Terrorism/Force Protection	1.606	0.000	0.000
RDT&E Articles Quantity	0	0	0

Sentinel Net provides a low-risk sensor processing method that builds on the Carrier Tactical Support Center's (CV-TSC) Command and Control (C2) suite to yield a harbor defense or force protection C2 capability on board Carriers. Funding provided for the development, implementation and integration of decision support and fused battle space awareness technologies for the Sea Combat Module (SCM). Benefits to the Navy include: implementing enabling technologies for fusing the tactical surface, air, and undersea warfare combat system data feeds used by the SCM; implementing state-of-the art, Fleet-championed detection, classification, and integrated display/visualization technologies; evaluating new and advanced concepts and technologies for SCM warfare integration for maturing; and transitioning promising fused battle space view and decision support technologies from the Office of Naval Research (ONR), Defense Advanced Research Planning Agency (DARPA), universities, and industry to SCM.

	FY 2007	FY 2008	FY 2009
9801C Quiet Interlude Processing System (QuIPS)	1.295	0.795	0.000
RDT&E Articles Quantity	0	0	0

Funding provided to continue the integration of QuIPS with CV-TSC version 6.0 software architecture and develop a portable (2-man lift) hardware system to host the integrated software. Develop and integrate data fusion algorithms and software to fuse short range, relatively accurate, time dense tactical sensor ship track data with global, relatively inaccurate, time sparse national sensor ship track data. Develop and integrate data fusion algorithms and software to fuse non acoustic Latitude/Longitude vs. time tracks with acoustic sonar true bearing vs. time tracks output by most Navy sonar. There is a requirement for a portable tactical situational awareness system that can take inputs from multiple sensor types; fuse sensor detection reports, contact reports and tracks into composite tracks; display both independent contacts and composite tracks on a GIS display; and allow operator drill-down capability to underlying metadata. This portable system would support a number of mission scenarios including Anti-Terrorism, Force Protection and Expeditionary Naval Coastal Warfare.

	FY 2007	FY 2008	FY 2009
Carrier Plant Automation and Manning Reduction Technology Insertion	0.000	0.795	0.000
RDT&E Articles Quantity	0	0	0

	FY 2007	FY 2008	FY 2009
Improved Corrosion Protection for Electromagnetic Aircraft Launch System	0.000	1.987	0.000
RDT&E Articles Quantity	0	0	0

Funding will be used to continue ongoing corrosion testing at Ocean City Research Testing facility in NJ. Various coupons and coating have been exposed up to 7 months now and will continue to be evaluated up to 3 years of exposure under simulated flight deck trough conditions. The funding will also be used to initiate a phase 2 study into the development of a corrosion inhibitor addition to the armature cooling to extent the armature's life. Phase one identified several candidates which look promising. The remainder of the funds will be utilized to interrogate and document the material properties of the alloys selected for use on EMALS. Fatigue and fracture data will be compiled under the unique conditions of the EMALS trough for in-service support of the EMALS system.

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION							DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**			R-1 ITEM NOMENCLATURE **0603513N/SHIPBOARD SYSTEM COMPONENT DEVELOPMENT**				
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	44.651	43.529	4.003	7.781	6.062	6.956	7.110
0000 / UNDIST	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2465 / DC/SURVIVABILITY	1.842	1.664	0.000	0.000	0.000	0.000	0.000
2468 / Undersea Warfare	1.236	0.000	0.000	0.000	0.000	0.000	0.000
2469 / Open System Architecture (OSA)	1.717	1.591	0.866	1.709	0.000	0.779	0.812
2470 / ITD-Integrated Topside Design	0.462	0.406	0.011	0.396	0.431	0.438	0.446
2471 / Integrated Power Systems (IPS)	6.924	5.587	3.126	5.676	5.631	5.739	5.852
4019 / Radar Upgrades	1.521	0.000	0.000	0.000	0.000	0.000	0.000
9999 / CONGRESSIONAL ADDS	30.949	34.281	0.000	0.000	0.000	0.000	0.000

A. MISSION DESCRIPTION:

This PE funds the development of shipboard system components and technologies for the future surface combatant family of ships and focuses on the following efforts: (1) development of DDG 1000 specific and future surface combatant survivability and damage control/firefighting systems and features that reduce vulnerability against weapons, (2) demonstration and validation of technology through build-test-build process for surface sonar and combat system application, (3) implements modular standard open systems architecture at the total ship/system level and supports reduced manning efforts through automation, (4) develops technologies to achieve a total integrated topside design focused on DDG 1000 and other future surface ships, (5) supports the Integrated Power System effort that provides total ship electric power, including electric propulsion , power conversion and distribution, combat system and mission load interfaces to the electric power system and (6) future upgrades/technology insertion efforts for the Dual Band Radar (DBR) system.

The following Congressional adds are contained in this Program Element:

FY 07 Congressional Adds

Project 9999 - Congressional Adds: $30,949-This project consists of the following FY 07 Congressional adds: MTTC/IPI and National Surface Treatment Center, Carbon foam program, Intelligent Systems Consortium NASEA-Carderock/SHSU, Shipboard wireless maintenance assistant (SWMA), Smart machinery spaces system, Water mist fire protection systems,Advanced fluid controls for shipboard applications, Advanced repair technology for Expeditionary Navy, Advanced steam turbine, Air gun shock testing of naval vessels, Braided ropes for US Navy Ship Salvage, Carrier Strike Group Forward Sensor Network,Fuel contaminate detection system, High efficiency quiet electric drive, Integrated power system converter, Propulsor manufacturing technology development and Smart valve.

FY 08 Congressional Adds

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	R-1 ITEM NOMENCLATURE **0603513N/SHIPBOARD SYSTEM COMPONENT DEVELOPMENT**	

Project 9999 - Congressional Adds: $34,281-This project consists of the following FY 08 Congressional adds: Advanced Navy Boat Lift (13,000-24,000 lbs) Research and Development, Advanced fluid controls for shipboard applications, Advanced repair technology for Expeditionary Navy, Air gun ship shock testing of naval vessels, Circuit breaker for Navy shipboard power distribution, High efficiency quiet electric drive, High temperature superconducting motor for DDG 1000, Integrated power system converter, Internet protocol over power line carrier technology, Naval flywheel energy storage system, Smart valve, Shipboard wireless Maintenance Assistant, Advanced steam turbine, DDG-51 Homopolar hybrid drive, MTTC/IPI and National surface treatment center,Power conversion equipment for high density power, Propulsor Manufacturing technology development, and high temperature superconductor AC synchronous propulsion motor.

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY08 Pres Controls)	49.993	9.450	9.561
Current President's Budget (FY09 Pres Controls)	44.651	43.529	4.003
Total Adjustments	- 5.342	34.079	- 5.558
(U) Summary of Adjustments			
Congressional Program Reductions	- 4.300		
Congressional Rescissions			
Congressional Increases		34.500	
Reprogrammings			
SBIR/STTR Transfer	-1.040		
Undistributed General Reductions	- 0.002	-0.421	
Technical Adjustment			
Program Adjustments			-5.558
Pricing Adjustments			
Subtotal	-5.342	34.079	-5.558

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603513N/SHIPBOARD SYSTEM COMPONENT DEVELOPMENT**				PROJECT NUMBER AND NAME **2465/DC/SURVIVABILITY**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	1.842	1.664	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project funds development of DDG 1000 specific and future surface combatant survivability and damage control (DC)/ firefighting systems and features that reduce vulnerability against weapons (e.g., missiles, mines, torpedoes) and enables 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.

System development areas include: 1) development of electrical fault isolation control methods that enable the rapid detection and isolation of combat-induced faults ensuring an effective DC response after damage, 2) wireless machinery control system technologies that will reduce installation costs through the elimination of wires and significantly increase the survivability of control systems ensuring the availability of mission critical systems following damage, and 3) development of electromagnetic signature reduction technologies that provide for jamming sweep resistant magnetic influence mines using advanced degaussing and impressed cathodic protection systems and a closed-loop deamping system that uses existing cathodic protections systems to reduce the near field electric signatures emanating from a steel hulled surface ship.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603513N/SHIPBOARD SYSTEM COMPONENT DEVELOPMEN**	PROJECT NUMBER AND NAME **2465/DC/SURVIVABILITY**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.300	0.000	0.000
RDT&E Articles Quantity	0	0	0

In FY 07, completed development of fault isolation control system approaches/algorithms for medium voltage electrical systems that enable bus level combat induced faults to be rapidly isolated ensuring power to combat systems and transitioned to the DDG-1000 program

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.778	0.701	0.000
RDT&E Articles Quantity	0	0	0

In FY 07through 08, develop wireless machinery control system approaches and architectures that significantly improve survivability and reduce installation costs through the elimination of cabling.In FY 07, continued development of wireless control options. In FY 08 integrate a commercial wireless fire detection system/sensors with a representative ship level supervisory control system and finalize architecture options.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.764	0.963	0.000
RDT&E Articles Quantity	0	0	0

In FY 07 finalized advanced degaussing system software and transitioned to DDG 1000 and LPD -17 programs.
In FY 07 completed rapid prototype code development that identified safe operating areas as a function of mine threat.
In FY 08 develop advanced electromagnetic (EM) signature reduction technology requirements and architecture options for a closed-loop deamping system that reduces the near field electric signature and a system for jamming magnetically influenced mines.

C. OTHER PROGRAM FUNDING SUMMARY:

D. ACQUISITION STRATEGY:

E. MAJOR PERFORMERS:
Government Field Activities - Naval Surface Warfare Center, Carderock, Md.

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603513N/SHIPBOARD SYSTEM COMPONENT DEVELOPMENT**				PROJECT NUMBER AND NAME **2468/Undersea Warfare**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	1.236	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty	0	0	0	0	0	0	0

A. 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 DDG 1000 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 defence and in-stride mine avoidance. FY 2007 focused on major technological and performance thrusts for DDG 1000 USW, which will define surface combatant USW capability for the Navy in the next century.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603513N/SHIPBOARD SYSTEM COMPONENT DEVELOPMEN**	PROJECT NUMBER AND NAME **2468/Undersea Warfare**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.113	0.000	0.000
RDT&E Articles Quantity	0	0	0

FY07 conductedrisk reduction tasks in support of build-test-build process.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.509	0.000	0.000
RDT&E Articles Quantity	0	0	0

IUSW-21 ADM/EDM Development - Performed Integrated Peer Group (IPG) engineering reviews of IUWS-21 advanced technologies. In FY07, continued development and integration ofIUSW.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.614	0.000	0.000
RDT&E Articles Quantity	0	0	0

In FY07,initiated test preparation for test event.

C. OTHER PROGRAM FUNDING SUMMARY:

D. ACQUISITION STRATEGY:

In Contract Phase IV responsibility for IUSW ADM/EDM development for in-water tests rests with the DDG 1000 Design Agent.

E. MAJOR PERFORMERS:

Government Field Activities - Naval Undersea Warfare Center, Newport, Ri .

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603513N/SHIPBOARD SYSTEM COMPONENT DEVELOPMENT**				PROJECT NUMBER AND NAME **2469/Open System Architecture (OSA)**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	1.717	1.591	0.866	1.709	0.000	0.779	0.812
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Architectures, Interfaces & Modular Systems (AIMS): This funding supports PEO Ships implementation of Modular Standard Open Systems Architecture (MOSA) 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:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603513N/SHIPBOARD SYSTEM COMPONENT DEVELOPMEN**	PROJECT NUMBER AND NAME **2469/Open System Architecture (OSA)**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.320	0.000	0.000
RDT&E Articles Quantity	0	0	0

Implementation: Transition with industry common Architectures, Interfaces, and Modular Systems (AIMS) for shipboard zones.
A. Open Offboard Vehicle Zone, FY07: Interfaced.
B. Open C&C Zone, FY07: Interface Implementation Cross platform development..

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.451	0.300	0.276
RDT&E Articles Quantity	0	0	0

Implementation: Transition with industry common Architectures, Interfaces, and Modular Systems (AIMS) for shipboard zones.
A. Open Sensors Zone: FY07 Concept developed. FY07-09 Architecture Development, FY09 Interface Development.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.000	0.555	0.393
RDT&E Articles Quantity	0	0	0

Implementation: Transition with industry common Architectures, Interfaces, and Modular Systems (AIMS) for shipboard zones.
A. Open Machinery Zone: FY08-09 Architecture Concept.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.946	0.736	0.197
RDT&E Articles Quantity	0	0	0

Implementation: Transition with industry common Architectures, Interfaces, and Modular Systems (AIMS) for shipboard zones.
A. Open Weapons/Power Projection Zone:FY07-08: Interface development, FY09: Interface Implementation

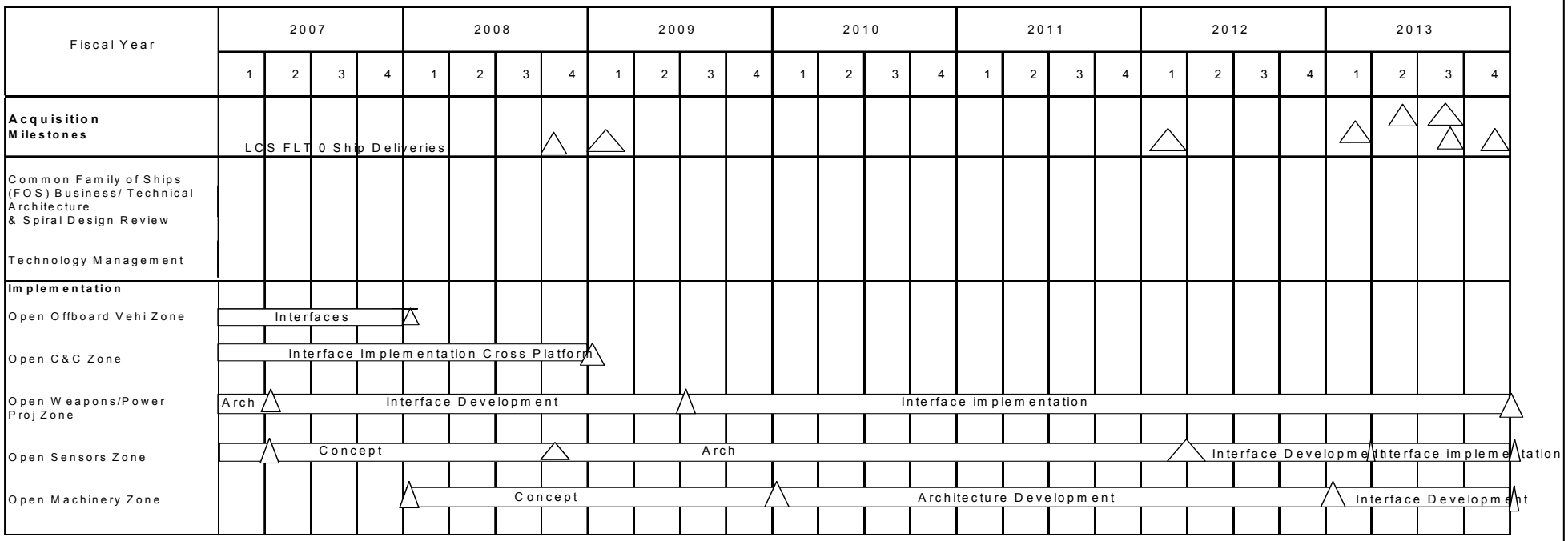
C. OTHER PROGRAM FUNDING SUMMARY:

D. ACQUISITION STRATEGY:

E. MAJOR PERFORMERS:
(U) Government Field Activities- Naval Surface Warfare Center, Carderock, Md. and Naval Surface Warfare Center, Dahlgren, Va.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603513N/SHIPBOARD SYSTEM COMPONENT DEVELOPMENT**					PROJECT NUMBER AND NAME **2469/Open System Architecture (OSA)**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Primary Hardware Development	845/804	DDG 1000 Industry Teams	35.327	0.000		0.000		0.000		0.000	35.327	35.327
Primary Hardware Development	WR	NSWC CD Bethesda, MD	10.023	0.000		0.000		0.000		0.000	10.023	0.000
Primary Hardware Development	Various	Other Gov't Activities	4.987	0.000		0.000		0.000		0.000	4.987	0.000
Primary Hardware Development	Various	Other Contractors	2.735	0.000		0.000		0.000		0.000	2.735	2.735
Subtotal Product Development			**53.072**	**0.000**		**0.000**		**0.000**		**0.000**	**53.072**	**38.062**
Remarks:												
Subtotal Support Costs			**0.000**	**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	**0.000**
Remarks:												
Subtotal Test and Evaluation			**0.000**	**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	**0.000**
Remarks:												
Contractor Engineering Support	Various	Other Contractors	9.267	0.401	APR-07	0.000		0.200	OCT-08	CONT	CONT	0.000
Government Engineering Support	WR	NSWC CD Philadelphia, PA	3.763	0.000		0.000		0.000		0.000	3.763	0.000
Government Engineering Support	WR	NSWC Carderock, Md.	6.062	1.266	OCT-06	1.580	OCT-07	0.000		CONT	CONT	0.000
Government Engineering Support	Various	Other Gov't Activities	32.759	0.050	Various	0.011	Various	0.666	Various	CONT	CONT	0.000
Subtotal Management Services			**51.851**	**1.717**		**1.591**		**0.866**		**CONT**	**CONT**	**0.000**
Remarks:												
Total Cost			**104.923**	**1.717**		**1.591**		**0.866**		**CONT**	**CONT**	**38.062**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603513N/SHIPBOARD SYSTEM COMPONENT DEVELOPM**	PROJECT NUMBER AND NAME **2469/Open System Architecture (OSA)**



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL							DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603513N/SHIPBOARD SYSTEM COMPONENT DEVELOPMENT**			PROJECT NUMBER AND NAME **2469/Open System Architecture (OSA)**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Open Offboard Vehicles Zone Interfaces Defined	1Q-4Q	1Q					
Open C&C Zone Interfaces Implemented Cross-Platform	1Q-4Q	1Q-4Q	1Q				
Open Weapons Zone Arch Complete	1Q-2Q						
Open Weapons Zone Interfaces Defined	2Q-4Q	1Q-4Q	1Q				
Open Weapons Zone Interfaces Implemented			3Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Open Sensors Zone Concept Complete	2Q-4Q	1Q-4Q					
Open Sensors Zone Architecture Complete		4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q	
Open Sensors Zone Interfaces Development						1Q-4Q	1Q
Open Sensors Zone Interface Implementation							1Q-4Q
Open Machinery Zone Concept Complete		1Q-4Q	1Q-4Q	1Q			
Open Machinery Zone Architecture Complete				1Q-4Q	1Q-4Q	1Q-4Q	1Q
Open Machinery Zone Interface Development							1Q-4Q

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603513N/SHIPBOARD SYSTEM COMPONENT DEVELOPMENT**				PROJECT NUMBER AND NAME **2470/ITD-Integrated Topside Design**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	0.462	0.406	0.011	0.396	0.431	0.438	0.446
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project develops the necessary technologies to achieve a total integrated topside design focused on DDG 1000 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 electromatgnetic 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 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:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603513N/SHIPBOARD SYSTEM COMPONENT DEVELOPMEN**	PROJECT NUMBER AND NAME **2470/ITD-Integrated Topside Design**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.462	0.406	0.011
RDT&E Articles Quantity	0	0	0

FY07: Released Ver 4.0 Advanced Antenna Design and Analysis (D&A) M&S Tool

FY08: Start Ver 5.0 Advanced Antenna Design and Analysis (D&A) M&S Tool Development

FY09: Continue development of Ver 5.0 Advanced Antenna Design and Analysis (D&A) M&S Tool

C. OTHER PROGRAM FUNDING SUMMARY:

D. ACQUISITION STRATEGY:

E. MAJOR PERFORMERS:

Government Field Activities-Naval Research Laboratory, Washington DC, and

Space and Naval Warfare Systems Center, San Diego, Ca.

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603513N/SHIPBOARD SYSTEM COMPONENT DEVELOPMENT**				PROJECT NUMBER AND NAME **2471/Integrated Power Systems (IPS)**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	6.924	5.587	3.126	5.676	5.631	5.739	5.852
RDT&E Articles Qty	0	0	0	0	0	0	0

A. 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, combat system and mission load interfaces to the electric power system. IPS supports multiple ship class applications for future surface ships, with DDG 1000, DDG 1000 future flight upgrades, and CG(X) being the primary ship application target. On 6 January 2000, SECNAV announced Navy intent that DDG 1000 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.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603513N/SHIPBOARD SYSTEM COMPONENT DEVELOPMEN**	PROJECT NUMBER AND NAME **2471/Integrated Power Systems (IPS)**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	5.150	2.226	1.689
RDT&E Articles Quantity	0	0	0

System Development: Continue to improve baseline power system performance by performing analysis, modeling and simulation, life cycle cost analysis, producibility studies, module development, ship integration, architecture design, ship electric architectures and high power weapons systems requirements, and related efforts. Evaluate emerging technologies for ship applications to determine future feasibility and development requirements. Emerging technologies include fuel cells, high-energy weapons, high power radars, and advanced power electronics. Performed preliminary design of high-speed generators and initiated detailed design with follow-on prototype fabrication planned.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	1.383	3.061	1.287
RDT&E Articles Quantity	0	0	0

System Test: Conducted Integrated Fight Through Power (IFTP) testing at NSWCCD, Philadelphia PA. Completed integration of IFTP and DDX IPS test sites. Mitigate potential risks associated with a fielded IPS system to reduce ship□s signature, improve survivability and efficiency by fabricating components, inserting into the IPS test site or an appropriate test platform. Conduct demonstrations to maintain and develop the critical engineering capability and capacity to insert future high power weapon systems (radars, lasers and electromagnetic launch weapons) into DDG 1000 and future ship classes including CG(X). Conduct demonstrations to show improved performance and potential to reduce combat system costs.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.391	0.300	0.150
RDT&E Articles Quantity	0	0	0

Platform Specific: Developed IPS configurations in support of all future surface ship programs. Develop/modify IPS ship configuration documentation including concepts of operations, System Level Description/Requirements, and module performance specifications as necessary to support power system requirements for CG(X), TAOE (X) and LHAR (X), MPF future, and COBRA JUDY. Improve 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.

C. OTHER PROGRAM FUNDING SUMMARY:

D. ACQUISITION STRATEGY:

IPS is a candidate system for DDG 1000 and all other future surface ships.

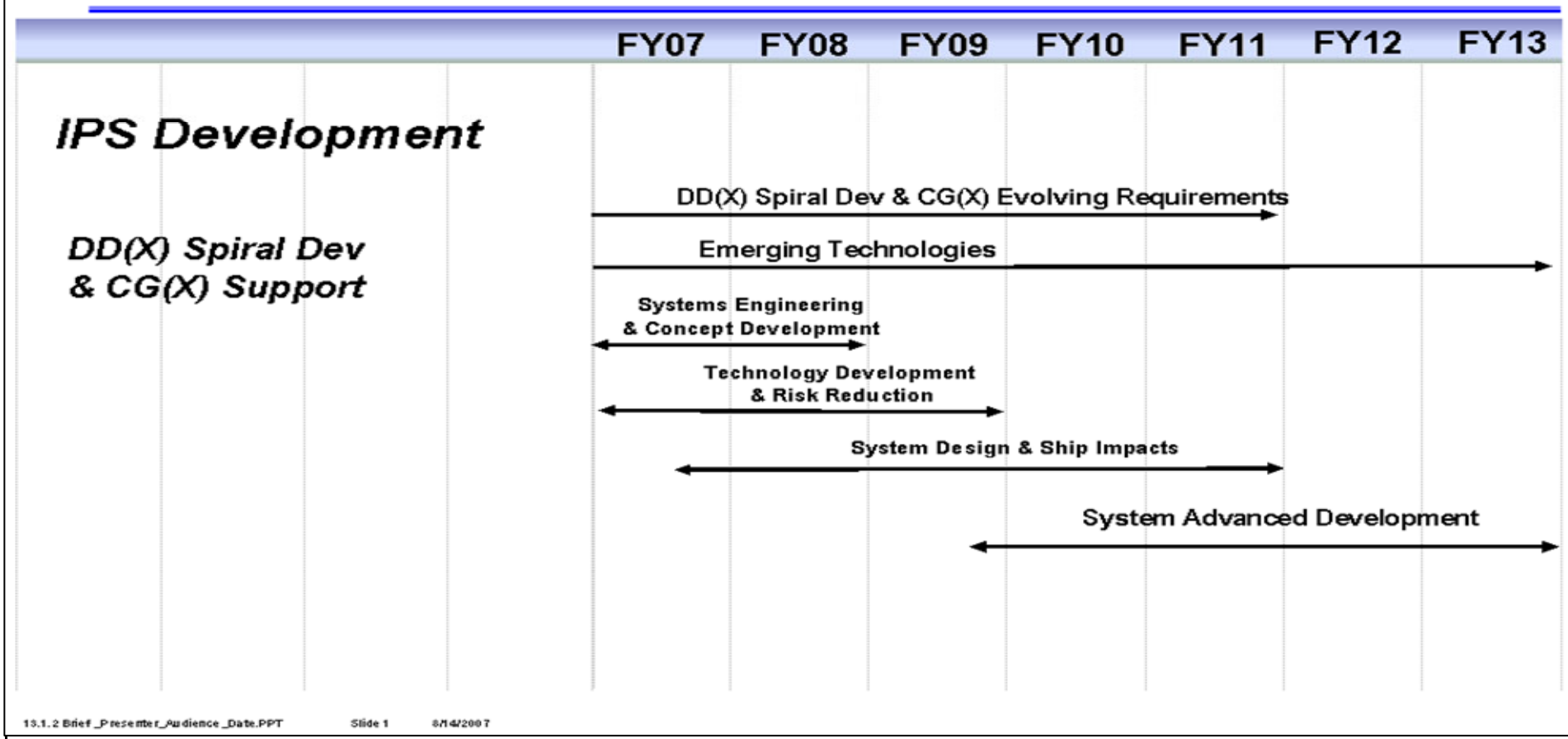
E. MAJOR PERFORMERS:

IPS DDG 1000 Design Agent, Ingalls Shipbuilding Iinc. General Atomics and DRS Power and Controls Technologies Inc., IPS IFTP contractors. Curtiss Wright, High Speed Generator

contractor. Northrop-Grumman Electronic Systems, power electronics contractor.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603513N/SHIPBOARD SYSTEM COMPONENT DEVELOPMENT**					PROJECT NUMBER AND NAME **2471/Integrated Power Systems (IPS)**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Primary Hardware Development	C/CPAF	Lockheed M Syracuse, NY	23.572	0.000		0.000		0.000		0.000	23.572	23.572
Primary Hardware Development	Sec845/804	DDG 1000 Industry Teams	66.661	0.000		0.000		0.000		0.000	66.661	66.661
Primary Hardware Development	CPAF	DDG 1000 Design Agent	154.500	0.000		0.000		0.000		0.000	154.500	154.500
Primary Hardware Development	JS/UK MOU	DERA, UK	1.350	0.000		0.000		0.000		0.000	1.350	1.350
Primary Hardware Development	Sec845/804	IFTP Teams	53.911	0.000		0.000		0.000		0.000	53.911	0.000
Primary Hardware Development	C/CPAF	Anteon, Corp. Fairfax, VA	4.681	0.244	OCT-06	0.431	OCT-07	0.518	OCT-08	CONT	CONT	0.000
Primary Hardware Development	WR	NSWCCD Philadelphia, PA	25.387	1.354	OCT-06	0.402	OCT-07	0.664	OCT-08	CONT	CONT	0.000
Primary Hardware Development	WR	NSWCCD Dahlgren, Va.	2.826	0.000		0.000		0.000		0.000	2.826	0.000
Primary Hardware Development	Various	Other Contractors	10.053	0.000		0.000		0.000		0.000	10.053	0.000
Primary Hardware Development	Various	Other Govt Activities	1.895	0.000		0.000		0.000		0.000	1.895	0.000
Primary Hardware Development	C/CPFF	CW-EMD, Cheswick, PA	4.460	4.918	OCT-06	3.585	OCT-07	0.900	OCT-08	CONT	CONT	0.000
Primary Hardware Development	C/CPFF	NGES, Sunnyvale, CA	2.686	0.000		0.120		0.000		0.000	2.806	0.000
Award Fees	C/CPAF	Anteon, Corp. Fairfax, VA	0.164	0.000		0.047	JUN-08	0.057	JUN-09	CONT	CONT	0.000
Subtotal Product Development			**352.146**	**6.516**		**4.585**		**2.139**		**CONT**	**CONT**	**246.083**
Remarks:												
Subtotal Support Costs			**0.000**	**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	**0.000**
Remarks:												
Developmental Test & Evaluation	WR	NSWC CD Philadelphia, PA	19.597	0.408	OCT-06	1.002	OCT-07	0.987	OCT-08	CONT	CONT	0.000
Subtotal Test and Evaluation			**19.597**	**0.408**		**1.002**		**0.987**		**CONT**	**CONT**	**0.000**
Remarks:												
Travel	Various	Various	0.604	0.000		0.000		0.000		0.000	0.604	0.000
Subtotal Management Services			**0.604**	**0.000**		**0.000**		**0.000**		**0.000**	**0.604**	**0.000**
Remarks:												
Total Cost			**372.347**	**6.924**		**5.587**		**3.126**		**CONT**	**CONT**	**246.083**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603513N/SHIPBOARD SYSTEM COMPONENT DEVELOPM**	PROJECT NUMBER AND NAME **2471/Integrated Power Systems (IPS)**



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603513N/SHIPBOARD SYSTEM COMPONENT DEVELOPMENT**			PROJECT NUMBER AND NAME **2471/Integrated Power Systems (IPS)**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
DD(X) Spiral Dev & CG(X) Evolving Requirements	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q		
Emerging Technologies	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1-Q-4Q
Systems Engineering & Concept Development	1Q-4Q	1Q-4Q					
Technology Development & Risk Reduction	1Q-4Q	1Q-4Q	1Q-4Q				
System Design & Ship Impacts	3Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q		
System Advanced Development			3Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603513N/SHIPBOARD SYSTEM COMPONENT DEVELOPMENT**				PROJECT NUMBER AND NAME **4019/Radar Upgrades**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	1.521	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Radar Upgrades will fund future upgrades/technology insertion efforts for the Multi-Function Radar (MFR)/Volume Search Radar (VSR)/Dual Band Radar (DBR) suite. Upgrades and technology inserts are required to maintain the level of force protection needed for ship defense against all threats envisioned in the littoral environment. The upgrades will include all aspects of the radar system/subsystems, including hardware and software. Specific subsystem areas include the Array, T/R module, Receiver/Exciter, Signal Data Processor and power/cooling systems.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603513N/SHIPBOARD SYSTEM COMPONENT DEVELOPMEN**	PROJECT NUMBER AND NAME **4019/Radar Upgrades**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.679	0.000	0.000
RDT&E Articles Quantity	0	0	0

Provided Radar Upgrades and Technology Insertion for the MFR/VSR/DBR hardware and software. Commenced Radar Upgrades studies and analysis in FY 07.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.742	0.000	0.000
RDT&E Articles Quantity	0	0	0

Government Engineering Services and Program Management support for radar upgrades and technology insertion of the MFR/VSR/DBR radars. Performed oversight and assessment of efforts associated with this phase of the program.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.100	0.000	0.000
RDT&E Articles Quantity	0	0	0

Provided Program Management in support of radar upgrades and technology insertion.

C. OTHER PROGRAM FUNDING SUMMARY:

D. ACQUISITION STRATEGY:

E. MAJOR PERFORMERS:

Northrop Grumman Ship Systems, Raytheon and Lockheed Martin.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603513N/SHIPBOARD SYSTEM COMPONENT DEVELOPMEN**	PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
XXXXN High Temperature Superconductor AC Synchronous Propulsion Motor	0.000	1.987	0.000
RDT&E Articles Quantity	0	0	0

Funding for the High Temperature Superconducting AC Synchronous Motor will be used for the continued testing of the high temperature superconducting motor up to full power.

	FY 2007	FY 2008	FY 2009
XXXXN Naval Flywheel Energy Storage System	0.000	0.596	0.000
RDT&E Articles Quantity	0	0	0

Funds for Naval Flywheel Energy Storage System will be used to develop and test a flywheel energy storage system with greater power density and output that is fully adapted to the shipboard environment.

	FY 2007	FY 2008	FY 2009
XXXN DDG-51 Homopolar Hybrid Drive	0.000	5.465	0.000
RDT&E Articles Quantity	0	0	0

Funds for the DDG 51 Homopolar Hybrid Drive will be used to develop, build, and test proof of concept equipment for a hybrid electric drive system. Development of this technology could significantly reduce fuel consumption and increase DDG 51 Class mission effectiveness through longer time on station.

	FY 2007	FY 2008	FY 2009
XXXXN Power Conversion equipment for High Density Power Generation	0.000	0.795	0.000
RDT&E Articles Quantity	0	0	0

Funds for the Power Conversion Equipment for High Density Power will be used to develop proof of concept power conversion equipment for an advanced high density power generation system.

	FY 2007	FY 2008	FY 2009
XXXXN Circuit Breaker for Navy Shipboard Power Distribution Center	0.000	0.596	0.000
RDT&E Articles Quantity	0	0	0

Funding for Circuit Breakers for Navy Shipboard Power Distribution Center, a Congressional add will be used for the development of a militarized version of a commercial off the shelf direct current (DC) circuit breaker rated at 800 amp/650 VDC in shock isolation mounted electrical assemblies for Naval ship low voltage power system applications.

	FY 2007	FY 2008	FY 2009
XXXXN High Temperature Superconductor (HTS) Navy propulsion Motor/DDG1000	0.000	1.987	0.000
RDT&E Articles Quantity	0	0	0

Funding for the High Temperature Superconductor (HTS) Navy propulsion Motor for DDG-1000, a congressional add, will be used for the continued testing of the high temperature superconducting motor up to full power.

	FY 2007	FY 2008	FY 2009

CLASSIFICATION:	UNCLASSIFIED		
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)			DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603513N/SHIPBOARD SYSTEM COMPONENT DEVELOPMEN**	PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**	

XXXXN Internet Protocol over Power Line Carrier Tech Integration w/ ICAS	0.000	1.590	0.000
RDT&E Articles Quantity	0	0	0
This add will fund an Internet Protocol over Power Line Carrier Technology Integration with control and monitoring systems would be used to develop a high bandwidth PLC (Power Line Communication) FIPS 140-2 certified IP over power line product, which will serve to enable and support further development and enhancement of the current PLC technology for Navy applications.			
	FY 2007	FY 2008	FY 2009
XXXXN Advanced Navy Boat Lift Research and Development	0.000	0.994	0.000
RDT&E Articles Quantity	0	0	0
This Congressional Add funds Advanced Navy Boat Lift Research and Development efforts.			
	FY 2007	FY 2008	FY 2009
2858C MTTC/IPI and National Surface Treatment Center	3.793	3.180	0.000
RDT&E Articles Quantity	0	0	0
This Congressional add funds the continuous operation of the McConnell Technology and Training Center (MTTC/IPI) and the National Surface Treatment Center. This effort funds projects targeted at resolving fleet maintenance problems/issues through the rapid insertion of new technologies.			
	FY 2007	FY 2008	FY 2009
9518C Carbon Foam Program	2.728	0.000	0.000
RDT&E Articles Quantity	0	0	0
This effort for the Carbon Foam program, a Congressional add, focused on the development of uses for lightweight, strong, fire resistant and thermally insulating carbon foam material aboard Navy ships. The application of this material may provide improved characteristics that will enable a requirement objective or threshold to be exceeded improving performance of a ship and ship class.			
	FY 2007	FY 2008	FY 2009
9521C Intelligent Systems Consortium NAVSEA-Carderock	0.978	0.000	0.000
RDT&E Articles Quantity	0	0	0
This Congressional add continued to fund the Intelligent Systems Consortium NAVSEA Carderock with the U.S. offshore energy industrywhich focused on the development of intelligent shipboard electro-mechanical devices in support of the Navy's all-electric ship concept, reduced manning requirements and future seabasing needs.			
	FY 2007	FY 2008	FY 2009
9524C Shipboard Wireless Maintenance Assistant (SWMA)	0.976	1.192	0.000
RDT&E Articles Quantity	0	0	0
Funding for Shipboard Wireless Maintenance Assistant (SWMA), a Congressional add, develops a wireless maintenance collaboration tool for sailor use while maintaining shipboard systems and equipment.			
	FY 2007	FY 2008	FY 2009

9807C Smart Machinery Spaces System	2.680	0.000	0.000
RDT&E Articles Quantity	0	0	0

The Smart Machinery Spaces System, a Congressional add focused on the development of a comprehensive, automated Condition-Based Maintenance (CBM)+ solution that incorporated Configuration Management (CM), CBM, and Automated Logistics functions.

	FY 2007	FY 2008	FY 2009
9808C Water Mist Fire Protection Systems	0.984	0.000	0.000
RDT&E Articles Quantity	0	0	0

The Water mist fire protection systems, a Congressional add,tested Navy standard water mist fire protection system to commercial standards, so that the system can be marketed commercially.

	FY 2007	FY 2008	FY 2009
9972N Advanced Fluid Controls for Shipboard Applications	0.977	2.385	0.000
RDT&E Articles Quantity	0	0	0

The Advanced Fluid Controls for Shipboard Applications, a Congressional add,develops materials, including composites and ceramics, for a variety of fluid control solutions that focuses on providing intelligent control and interface directly with the ship's main computer.

	FY 2007	FY 2008	FY 2009
9973N Advanced Repair Technology for Expeditionary Navy	0.976	0.795	0.000
RDT&E Articles Quantity	0	0	0

The Advanced Repair Technology for Expeditionary Navy, a Congressional add, focuses on providing innovations in repair technology to the Expeditionary Navy aboard ships at sea and at forward repair sites.

	FY 2007	FY 2008	FY 2009
9974N Advanced Steam Turbine	0.974	3.974	0.000
RDT&E Articles Quantity	0	0	0

The Advanced Steam Turbine, a Congressional add,develops advanced technologies resulted in a quieter, smaller turbine generator for the US Navy.

	FY 2007	FY 2008	FY 2009
9975N Air Gun Shock Testing of Naval Vessels	0.976	1.590	0.000
RDT&E Articles Quantity	0	0	0

The Air Gun Shock Testing of Naval Vessels, a Congressional add,develops a low cost, environmentally safe underwater shock testing method employing non-explosive energy sources suitable for shock testing the ship or shock qualifying major shipboard systems.

	FY 2007	FY 2008	FY 2009
9976N Braided Ropes for US Navy Ship Salvage	0.971	0.000	0.000
RDT&E Articles Quantity	0	0	0

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603513N/SHIPBOARD SYSTEM COMPONENT DEVELOPMEN**	PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**

The Braided Ropes for US Navy Ship Salvage, a Congressional add,developed and tested a stronger, more reliable and more efficient means for lifting, mooring and rigging of ships, barges, and aircraft during salvage search, recovery and towing operations.

	FY 2007	FY 2008	FY 2009
9977N Carrier Strike Group Forward Sensor Network	3.801	0.000	0.000
RDT&E Articles Quantity	0	0	0

The Carrier Strike Group Forward Sensor Network, a Congressional add,developed an integrated, limited area communication and force protection capability for ports and strike group ships within near line of sight utilizing a wireless mesh network comprised of ships and buoys with sensor systems.

	FY 2007	FY 2008	FY 2009
9979N Fuel Contaminate Detection System	2.438	0.000	0.000
RDT&E Articles Quantity	0	0	0

The Fuel Contaminate Detection system, a Congressional add,developed sensors and detection system thatidentified combustion air and fuel contaminates that can cause premature gas turbine engine failures.

	FY 2007	FY 2008	FY 2009
9980N High Efficiency Quiet Electric Drive	1.462	1.590	0.000
RDT&E Articles Quantity	0	0	0

High Efficiency Quiet Electric Drive, a Congressional add,develops and demonstrates an advanced propulsion motor drive by utilizing a hybrid power electronics approach.

	FY 2007	FY 2008	FY 2009
9981N Integrated Power System Converter	0.974	0.795	0.000
RDT&E Articles Quantity	0	0	0

Integrated Power System Converter, a Congressional add, develops integrated power system propulsion motor drive power electronics technologies for future surface combatants that allow for rapid response to electrical system load demands.

	FY 2007	FY 2008	FY 2009
9982N Propulsor Manufacturing Technology Development	4.138	2.385	0.000
RDT&E Articles Quantity	0	0	0

Propulsor Manufacturing Technology Development, a Congressional add,develops coatings for propellers to improve erosion resistance, fouling resistance and efficiency characteristics.

	FY 2007	FY 2008	FY 2009
9983N Smart Valve	1.123	2.385	0.000
RDT&E Articles Quantity	0	0	0

Smart Valve, a Congressional add,develops linear electromechanical actuator technology to help eliminate high pressure hydraulic and pneumatic systems in a shipboard environment.

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		R-1 ITEM NOMENCLATURE **0603542N/RADIOLOGICAL CONTROL**					
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	1.845	1.522	1.094	0.891	0.944	0.965	0.987
1830 / RADIAC DEVELOPMENT	1.845	1.522	1.094	0.891	0.944	0.965	0.987

A. MISSION DESCRIPTION:

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 all cases a technology refresh will make both economic sense and provide increased operational capabilities. Naval Nuclear Propulsion Program (NNPP): Instruments are developed to support the safe operation and maintenance of nuclear powered vessels and at nuclear maintenance facilities. Non-NNPP: Instruments are developed to support other than NNPP end users, such as Explosive Ordnance Disposal, Weapons, Medical, Industrial Radiography and Training. Expanded Maritime Intercept Operations (EMIO): The Navy has been tasked to intercept and board vessels at sea to search for nuclear or radiological materials that could be used for terrorist attacks. These instruments would have different characteristics than those used for NNPP and non-NNPP purposes and prototypes must be developed and/or tested and evaluated. The AN/PDR-65 Ship Board Monitoring System is obsolescent and will be replaced. The IM-239/WDQ Air Particle Detector (APD) and the HD-732, HD-1150 and HD-1151 Air Particle Samplers (APS) are obsolescent and will be replaced.

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 08 Pres Bud Controls)	1.894	1.546	1.096
Current Budget (FY 09 Pres Bud Controls)	1.845	1.522	1.094
SBIR	-0.049	0.000	0.000
Contractor Efficiencies		-0.003	
Revised Economic Assumptions		-0.007	
Exec Realign SB Issue		-0.014	
61593 NWCF Rate Adjustment			0.001
71178 NWCF Rate Adjustment			-0.003

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
OPN BLI 292000 RADIAC	12.671	10.121	9.84	9.062	9.269	9.44	9.645	CONT	CONT

D. 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.

E. MAJOR PERFORMERS:

NSWC Carderock. Science & Technology Agent, Technical Direction Agent and Primary Contracting Officer.

Orbis, Inc. In Service Engineering Agent (ISEA) services.

DoE Remote Sensing Laboratory. Development of Next Generation Air Particle Detector.

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603542N/RADIOLOGICAL CONTROL**				PROJECT NUMBER AND NAME **1830/RADIAC DEVELOPMENT**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	1.845	1.522	1.094	0.891	0.944	0.965	0.987
RDT&E Articles Qty	75	51	17	2	2	0	0

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 all cases a technology refresh will make both economic sense and provide increased operational capabilities. Naval Nuclear Propulsion Program (NNPP): Instruments are developed to support the safe operation and maintenance of nuclear powered vessels and at nuclear maintenance facilities. Non-NNPP: Instruments are developed to support other than NNPP end users, such as Explosive Ordnance Disposal, Weapons, Medical, Industrial Radiography and Training. Expanded Maritime Intercept Operations (EMIO): The Navy has been tasked to intercept and board vessels at sea to search for nuclear or radiological materials that could be used for terrorist attacks. These instruments would have different characteristics than those used for NNPP and non-NNPP purposes and prototypes must be developed and/or tested and evaluated. The AN/PDR-65 Ship Board Monitoring System is obsolescent and will be replaced. The IM-239/WDQ Air Particle Detector (APD) and the HD-732, HD-1150 and HD-1151 Air Particle Samplers (APS) are obsolescent and will be replaced.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603542N/RADIOLOGICAL CONTROL**	PROJECT NUMBER AND NAME **1830/RADIAC DEVELOPMENT**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.351	0.216	0.183
RDT&E Articles Quantity	20	10	10

Develop and test calibration software, survey instruments, dosimeters and associated probes for non-NNPP end uses, to include Explosive Ordnance Disposal (EOD) and Radiological and Nuclear Defense (RND). Develop Next Generation Survey Meter. Articles are prototypes for evaluation.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.250	0.206	0.000
RDT&E Articles Quantity	30	30	0

Develop and test instruments for Expanded Maritime Intercept Operations (EMIO). Articles are prototypes for evaluation.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.194	0.200	0.000
RDT&E Articles Quantity	0	5	0

Develop replacement for mast-mounted AN/PDR-65. Articles are prototypes for evaluation.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.500	0.500	0.511
RDT&E Articles Quantity	0	0	1

Air Particle Detector (APD) development. Articles are prototypes for evaluation.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.550	0.400	0.400
RDT&E Articles Quantity	20	6	6

Continue Multi-Function RADIAC (MFR) development and testing of prototype units and probes for Neutron, Radiography, Transuranic X-ray, Underwater, and Training Simulators for the Naval Nuclear Propulsion Program (NNPP). Develop Next Generation Survey Meter. Articles are prototypes for evaluation.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603542N/RADIOLOGICAL CONTROL**					PROJECT NUMBER AND NAME **1830/RADIAC DEVELOPMENT**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Primary Hardware Development	C/FP	Various	10.917	0.301	JUN-07	0.145	FEB-08	0.197	JAN-09	0.000	11.560	0.000
Systems Engineering			1.100	0.000		0.000		0.000		0.000	1.100	0.000
Subtotal Product Development			**12.017**	**0.301**		**0.145**		**0.197**		**0.000**	**12.660**	**0.000**
Remarks:												
Development Support	WX	NSWC Carderock	2.354	0.450	NOV-06	0.450	NOV-07	0.450	NOV-08	0.000	3.704	0.000
Subtotal Support Costs			**2.354**	**0.450**		**0.450**		**0.450**		**0.000**	**3.704**	**0.000**
Remarks:												
Developmental Test & Evaluation	WX	SPAWARSYSCEN Chasn.	4.570	0.000		0.000		0.000		0.000	4.570	0.000
Operational Test & Evaluation	WX	Various	0.347	0.141	DEC-06	0.150	JAN-08	0.150	JAN-09	0.000	0.788	0.000
Subtotal Test and Evaluation			**4.917**	**0.141**		**0.150**		**0.150**		**0.000**	**5.358**	**0.000**
Remarks:												
Contractor Engineering Support	C/FP	Orbis, Inc., Charleston, SC	0.790	0.593	DEC-06	0.461	NOV-07	0.225	NOV-08	0.000	2.069	0.000
Labor (Researach Personnel)	IPR	DoE, RSL, Nellis AFB, NV	0.250	0.350	NOV-06	0.306	NOV-07	0.062	NOV-08	0.000	0.968	0.000
Travel	PD	NAVSEA	0.355	0.010	NOV-06	0.010	NOV-07	0.010	NOV-08	0.000	0.385	0.000
Government Engineering Support	WX	Various	5.045	0.000		0.000		0.000		0.000	5.045	0.000
Program Management Support	C/FP	Eagan, McAllister Assoc.	5.376	0.000		0.000		0.000		0.000	5.376	0.000
Subtotal Management Services			**11.816**	**0.953**		**0.777**		**0.297**		**0.000**	**13.843**	**0.000**
Remarks:												
Total Cost			**31.104**	**1.845**		**1.522**		**1.094**		**0.000**	**35.565**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603542N/RADIOLOGICAL CONTROL**	PROJECT NUMBER AND NAME **1830/RADIAC DEVELOPMENT**

Fiscal Year	FY2007				FY2008				FY2009			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
IM-239/WDQ Replacement									Prototype	Test & Evaluation		
AN/PDR-65 Replacement	System Development											
Vessel Boarding, Search & Seizure	Test & Evaluation					Deliveries						

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4a, SCHEDULE DETAIL		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603542N/RADIOLOGICAL CONTROL**	PROJECT NUMBER AND NAME **1830/RADIAC DEVELOPMENT**

Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Technical Testing							
System Development			2-1Q				

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	R-1 ITEM NOMENCLATURE **0603553N/SURFACE ASW**						
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	33.181	46.475	29.574	36.399	29.774	51.663	51.824
1704 / Undersea Warfare	27.818	25.013	29.574	36.399	29.774	51.663	51.824
9999 / CONGRESSIONAL ADDS	5.363	21.462	0.000	0.000	0.000	0.000	0.000

A. MISSION DESCRIPTION:

The Anti-Submarine Warfare (ASW) Advanced Development project provides advanced development demonstration and validation of technology for potential surface sonar and combat system applications. Program Element (PE) 0603553N has been designated to support emerging multi-static technologies, and the CNO's ASW Initiative. Efforts focus on resolution of technical issues associated with providing capability against the FY07 and beyond threat, with emphasis on shallow water/littoral areas, deep water Undersea Warfare (USW), and 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; transducer technology; and periscope detection techniques. Starting in FY07, the CNO ASW Initiative (formerly known as Task Force ASW) will include the development of new and innovative technologies. Efforts associated with these technologies include design; development; integration; and testing of future undersea superiority systems. These systems include distributed sensor systems; Vertical Line Array; static active buoy field; submarine countermeasures; compact rapid effect weapon; longer range radio system; multi-static sonar; and multi-sensor data fusion, including multi-platform data fusion and net-centric USW concepts.

Project Unit 9999 is comprised of Congressional Adds for Improved Surface Vessel Torpedo Launcher (FY07/08), Automated Readiness Measurement Systems (ARMS)(FY07), Advanced Receive While Transmit Sonar (FY07), All Electric Torpedo Launcher (FY07), and Small Business Technology Insertion (FY08).

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
FY 2008 President's Budget Controls	34.017	25.560	30.541
FY 2009 President's Budget Controls	33.181	46.475	29.574
Total Adjustments	-0.836	20.915	-0.967
Cong Adds/Undistributed Adjustments/Rescissions	-0.036	21.298	0.000
Pricing Adjustments			-0.027
Program Adjustments		-0.383	-0.940
Small Business Innovative Research (SBIR) Tax Assessment	-0.800	0.000	0.000
Subtotal	- 0.836	20.915	-0.967

C. OTHER PROGRAM FUNDING SUMMARY:
Not applicable.

D. ACQUISITION STRATEGY:
Competitively awarded contracts from Broad Agency Announcement (BAA) solicitations.

E. MAJOR PERFORMERS:
- Naval Air Warfare Center Aircraft Division (NAWCAD), Patuxent River, MD. Maintain and install the two air Multi-Static Active ASW Distant Thunder (MAASW/DT) Rapid Deployment Kit (RDK) systems; lab test and processor updates for these systems; maintain NAVAIR authorization to install and fly this Advanced Development Model (ADM) system in P-3C and P-3C ASUW Improvement Program (AIP) TYCOM aircraft.

- Naval Undersea Warfare Center (NUWC), Newport, RI. Provide management support in working with various administrative and operational organizations to develop and implement teams for MAASW/DT development and evaluation. Support laboratory and at-sea testing of DT processor algorithms for ship installations. Perform planning, execution, and analysis of experiments.

- Johns Hopkins University/Applied Physics Laboratory (JHU/APL), Laurel, MD. Participate in technology evaluation, experiment planning, execution, and analysis.

- University of Texas/Applied Research Laboratories (UT/ARL), Austin, TX. Participate in technology evaluation, test planning, and analysis.

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603553N/SURFACE ASW**				PROJECT NUMBER AND NAME **1704/Undersea Warfare**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	27.818	25.013	29.574	36.399	29.774	51.663	51.824
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Multi-Static Active ASW (MAASW) project conducts advanced development and testing of active multistatic acoustic concepts. Development focuses on providing surface ship combat groups with the capability of detection, classification, and localization of quiet threat submarines in difficult acoustic environments associated with littoral waters. This project concentrates on the development of acoustic processing algorithms, alternative cost-effective active sources, and information sharing technologies to develop a coordinated multi-static acoustic picture, employing distributed sensors and active sources.

The CNO ASW initiative is a focused effort to identify the most promising ASW technologies through a process of discovery, assessment, experimentation, and analysis. The CNO ASW initiative will coordinate the development of technologies which move beyond incremental or marginal improvements in ASW effectiveness. The CNO's vision of "fundamentally changing the way ASW is currently conducted to render the enemy submarine irrelevant against U.S. and coalition forces", necessitates a change in the calculus of how the US Navy conducts ASW. Central to CNO ASW initiatives achieving the CNO's vision are several innovative approaches which include using the art-of-the-technologically-possible; minimizing force-on-force; reducing the ASW end-to-end timeline; supporting rapid maneuver; developing off-board and distributed ASW detection systems; and finding innovative weapons solutions. To achieve these key approaches, it is essential to develop new ASW technologies and conduct at-sea experiments to prove/disprove technology concepts and collect corroborating data. The most promising technology concepts from government laboratories, university research centers, and industry are developed to the point where these technologies can be tested in at-sea experiments, with the objective of transitioning those which demonstrate exceptional capability to programs of record.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603553N/SURFACE ASW**	PROJECT NUMBER AND NAME **1704/Undersea Warfare**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Multi-Static Active ASW (MAASW)/ Distant Thunder (DT)	2.610	0.000	0.000
RDT&E Articles Quantity	0	0	0

Conducted Government Acceptance Test (GAT) and integration of the MAASW/DT and AN/SQR-19 Towed Array functional segment to an open systems architecture to support the AN/SQQ-89A(V)15 combat system. For FY07, developed Multi-Function Towed Array (MFTA) software engines with subsequent integration into an open systems architecture. Conducted at-sea testing and analyzed data collected to support processor improvements. Developed and began implementation of a hardware technology refresh strategy. Obtained flight certification for P-3 AIP aircraft. FY07 plans also included completing transition of remaining processor elements to an open systems architecture, completing hardware technology refresh, continuing spiral development of processor algorithms, developing improved shipboard mission planning tools (Tactical Airborne Information Document (TACAID) Play Book), and introducing new aircraft independent source technology.

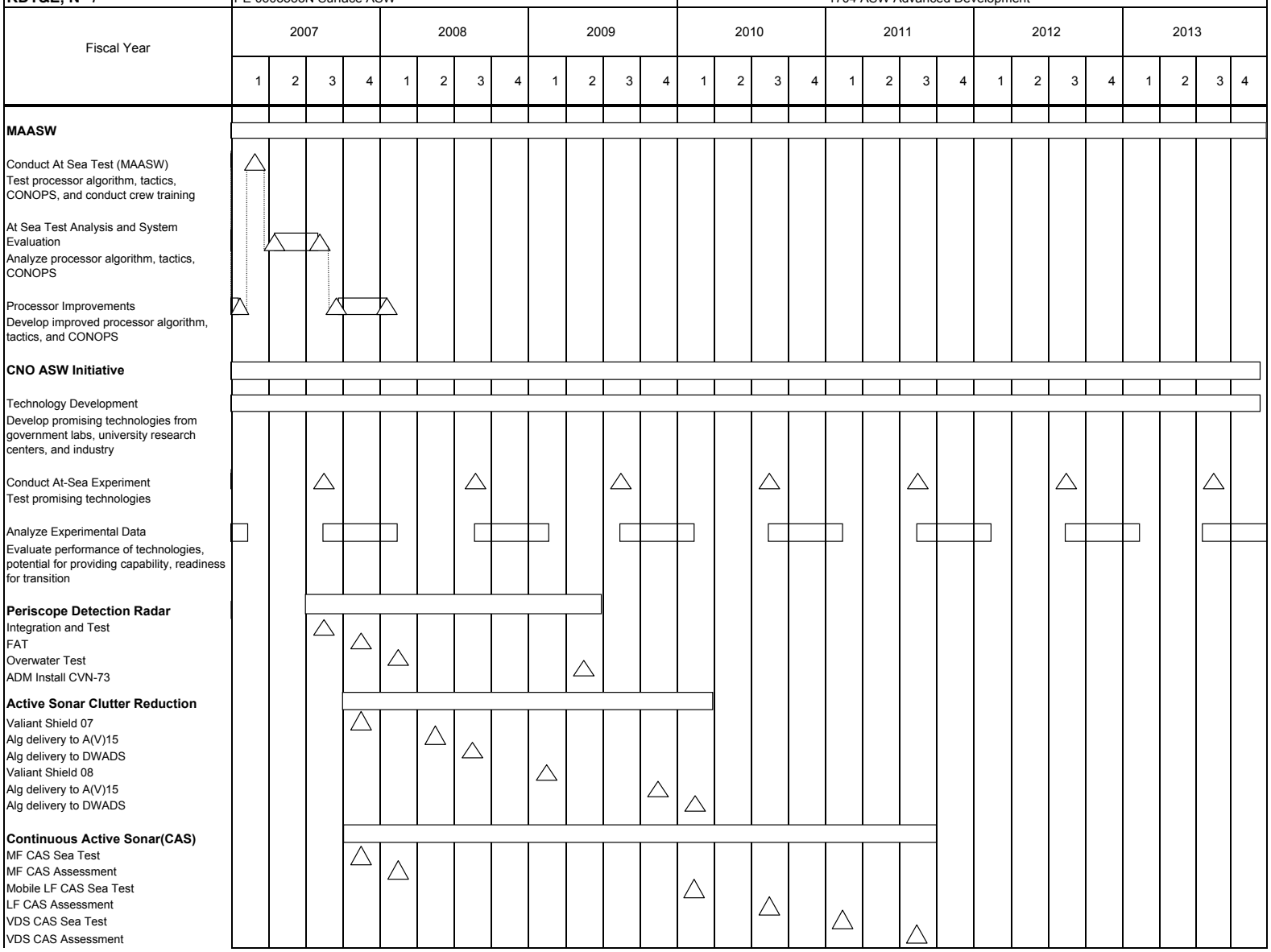
	FY 2007	FY 2008	FY 2009
CNO ASW Initiative	25.208	25.013	29.574
RDT&E Articles Quantity	0	0	0

FY07 - Planned and conducted second CNO ASW initiative experiment and planned third experiment to test promising innovative ASW technologies, including both industry and University Affiliated Research Center (UARC) proposed technologies. Continued strategic investment in the most promising transformational technologies derived from an previous solicitation. FY08-09 plans include continued development and procurement of specific innovative technologies, such as Periscope Detection Radar (PDR), active sonar clutter reduction, continuous active sonar, and development of new acoustic, non-acoustic, and off-board sensors; procurement of reusable test assets for specific technology concepts; continued investment in developing and testing the highest potential technology concepts through the establishment of a spiral development process for surface sonar; and conducting independent critical review and analysis of alternatives of selected and potential CNO ASW initiative technologies .

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603553N/SURFACE ASW**					PROJECT NUMBER AND NAME **1704/Undersea Warfare**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Multi-Static Sonar Development	WR	NUWC/Newport, RI	0.199	1.325	DEC-06	0.000		0.000		0.000	1.524	0.000
Multi-Static Sonar Development	C/CPFF	AAC, NY	0.000	0.067	DEC-06	0.000		0.000		0.000	0.067	0.000
Multi-Static Sonar Development	WR	NAWC/Patuxent River, MD	0.230	0.000	DEC-06	0.000		0.000		0.000	0.230	0.000
Multi-Static Sonar Development	C/CPFF	Adaptive Methods, VA	0.218	0.785	NOV-06	0.000		0.000		0.000	1.003	0.000
Multi-Static Sonar Development	C/CPFF	JHU/APL, MD	0.000	0.017	DEC-06	0.000		0.000		0.000	0.017	0.000
Multi-Static Sonar Development	WR	SPAWAR/San Diego, CA	0.255	0.286	JAN-07	0.000		0.000		0.000	0.541	0.000
Subtotal Product Development			**0.902**	**2.480**		**0.000**		**0.000**		**0.000**	**3.382**	**0.000**
Remarks:												
Subtotal Support Costs			**0.000**	**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	**0.000**
Remarks:												
Developmental Test & Evaluation	WR	NUWC/Newport, RI	0.206	3.266	NOV-06	0.000		0.000		0.000	3.472	0.000
Developmental Test & Evaluation	WR	NAWC/Patuxent River, MD	0.173	0.170	NOV-06	0.000		0.000		0.000	0.343	0.000
Developmental Test & Evaluation	C/CPFF	BBN, VA	0.250	0.000		0.000		0.000		0.000	0.250	0.000
Developmental Test & Evaluation	C/CPFF	AAC, NY	0.000	1.067	DEC-06	0.000		0.000		0.000	1.067	0.000
Developmental Test & Evaluation	WR	NUWC/Keyport, WA	0.000	0.259	OCT-06	0.260	JAN-08	0.260	OCT-08	CONT	CONT	0.000
Developmental Test & Evaluation	WR	NSWC/Dahlgren, VA	0.000	0.265	DEC-06	0.100	JAN-08	0.000		0.000	0.365	0.000
Developmental Test & Evaluation	C/CPFF	UT/ARL, TX	0.000	1.844	NOV-06	2.000	JAN-08	3.847	DEC-08	CONT	CONT	0.000
Developmental Test & Evaluation	C/CPFF	Progeny, Inc., VA	0.000	0.000		0.000		0.000		0.000	0.000	0.000
Developmental Test & Evaluation	MIPR	U.S. ARMY/MITRE, MA	0.000	0.060	DEC-06	0.200	JAN-08	0.200	DEC-08	CONT	CONT	0.000
Developmental Test & Evaluation	WR	NRL, DC	0.000	0.537	DEC-06	0.505	OCT-07	0.000		0.000	1.042	0.000
Developmental Test & Evaluation	WR	NSWC/Carderock, MD	0.000	0.672	DEC-06	0.672	OCT-07	0.680	OCT-08	CONT	CONT	0.000
Developmental Test & Evaluation	WR	NSMA, VA	0.000	0.907	DEC-06	0.000		0.000		0.000	0.907	0.000
Subtotal Test and Evaluation			**0.629**	**9.047**		**3.737**		**4.987**		**CONT**	**CONT**	**0.000**
Remarks:												
Program Management Support	C/CPAF	BAE SYSTEMS, MD	0.000	0.711	DEC-06	0.875	NOV-07	0.880	DEC-08	CONT	CONT	0.000
Program Management Support	C/CPFF	Stanley and Associates, VA	0.350	0.000		0.000		0.000		0.000	0.350	0.000

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603553N/SURFACE ASW**					PROJECT NUMBER AND NAME **1704/Undersea Warfare**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Travel	WR	NAVSEA PEO IWS 5, DC	0.050	0.050	OCT-06	0.050	OCT-07	0.050	OCT-08	CONT	CONT	0.000
Subtotal Management Services			**0.400**	**0.761**		**0.925**		**0.930**		**CONT**	**CONT**	**0.000**
Remarks:												
At-Sea Test/Experiment (CNO ASW Initiative)	C/CPFF	JHU/APL, MD	5.300	3.833	OCT-06	9.000	DEC-07	0.000		CONT	CONT	0.000
At-Sea Test/Experiment	WR	NUWC/Newport, RI	8.600	3.989	OCT-06	7.951	DEC-07	10.983	OCT-08	CONT	CONT	0.000
At-Sea Test/Experiment	WR	ONR/Alion Sciences, VA	0.000	0.000		0.000		0.000		0.000	0.000	0.000
At-Sea Test/Experiment	WR	ONR/3 Phoenix, VA	5.000	0.500	DEC-06	2.700	JAN-08	0.000		0.000	8.200	0.000
Enhanced Data Collection (SSEMP)	C/CPFF	JHU/APL, MD	2.462	2.000	OCT-06	0.000		9.185	DEC-08	CONT	CONT	0.000
Enhanced Data Collection (SSEMP)	C/CPFF	UT/ARL, TX	1.000	1.000	DEC-06	0.000		0.000		CONT	CONT	0.000
Technology Development	C/CPFF	Northrop Grumman Corp., VA	2.528	2.156	DEC-06	0.600	JAN-08	0.000		0.000	5.284	0.000
Technology Development	C/CPFF	Adaptive Methods, VA	0.000	0.985	DEC-07	0.100	JAN-08	0.989	DEC-08	CONT	CONT	0.000
Technology Development	C/CPFF	AAC, NY	0.000	1.067	DEC-07	0.000		0.000		0.000	1.067	0.000
Technology Development	C/CPFF	Alion Sciences, VA	0.000	0.000		0.000		2.500	DEC-08	CONT	CONT	0.000
Subtotal AT-SEA TEST			**24.890**	**15.530**		**20.351**		**23.657**		**CONT**	**CONT**	**0.000**
Remarks:												
Total Cost			**26.821**	**27.818**		**25.013**		**29.574**		**CONT**	**CONT**	**0.000**

EXHIBIT R4, Schedule Profile		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /	PE 0603553N Surface ASW	1704 ASW Advanced Development



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

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603553N/SURFACE ASW**			PROJECT NUMBER AND NAME **1704/Undersea Warfare**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Multi-Static Active ASW (MAASW) Program:							
Conduct At-Sea Test MAASW	1Q						
At-Sea Test Analysis and System Evaluation	2Q-3Q						
Processor Improvements	1Q 3Q-4Q	1Q					
CNO ASW Initiative							
Technology Development	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Conduct At-Sea Experiment (Test promising technologies)	3Q	3Q	3Q	3Q	3Q	3Q	3Q
Analyze Experimental Data	1Q 3Q-4Q	1Q 3Q-4Q	1Q 3Q-4Q	1Q 3Q-4Q	1Q 3Q-4Q	1Q 3Q-4Q	1Q 3Q-4Q
Periscope Detection Radar Program:							
Integration and Test	3Q						
Factory Acceptance Test	4Q						
Over Water Test		1Q					
ADM Install on CVN-73			2Q				
Active Sonar Clutter Reduction Program:							
Valiant Shield 07	4Q						
Algorithm Delivery to AN/SQQ-89A(V)15		2Q					
Algorithm Delivery to DWADS		3Q					
Valiant Shield 08			1Q				
Algorithm Delivery to AN/SQQ-89A(V)15			4Q				
Algorithm Delivery to DWADS				1Q			
Continuous Active Sonar (CAS) Program:							
MF CAS Sea Test	4Q						
MF CAS Assessment		1Q					
Mobile LF CAS Sea Test				1Q			
LF CAS Assessment				3Q			
VDS CAS Sea Test					1Q		
VDS CAS Assessment					3Q		

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603553N/SURFACE ASW**	PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
9185C/Improved Surface Vessel Torpedo Launcher	1.345	1.590	0.000
RDT&E Articles Quantity	0	0	0

Funds will be used to support technology insertion initiatives associated with the Surface Vessel Torpedo Tube (SVTT) MK 32 Program. These efforts will help support the Navy's surface ship platform needs and will focus specifically on the development of Advanced Surface Launcher (ASL) prototypes to production levels and completion of launcher testing. This investment will be used to upgrade the current single-mission launcher to a multi-mission launcher (ASL), resulting in the following: increase in war fighting capability; increase in operational readiness: improved personnel safety; and reduced life cycle costs on both existing and future ships.

	FY 2007	FY 2008	FY 2009
9809C/Automated Readiness Measurement System (ARMS)	1.752	0.000	0.000
RDT&E Articles Quantity	0	0	0

Funds will be used to continue development of an ARMS to include the following: Preliminary and Critical Design Reviews (PDR/CDR) to promulgate the ARMS system design/architecture; development of a Software Requirement Specification (SRS) describing the requirements to be implemented in ARMS software by developing specific requirements for spiral 0; design of ARMS System Architecture as a System Design Document (SDD); establishment of a software development facility consisting of the hardware, software and configuration management tools required to develop the ARMS system; development of ARMS software to execute on designated target hardware as described in the design documentation; laboratory integration and testing of the ARMS system through engineering analysis, and informal and formal test, including the development of test documentation and reports; integrate testing concurrent with USW-DSS testing for each build.

	FY 2007	FY 2008	FY 2009
9984N/Advanced Receive While Transmit Sonar	0.971	0.000	0.000
RDT&E Articles Quantity	0	0	0

The funds would be used to develop low frequency capability of this new technology and conduct at-sea testing. This builds upon the work being done under the FY06 congressional plus-up that developed a mid-frequency capability. This project addresses critical shortfalls in ASW detection range as well as time delays to classify and track threat submarines resulting from the proliferation of quiet, technologically advanced platforms in the hands of nations that might chose to deny us freedom of the seas. It has application to both open ocean and littoral area operations. The added funding will help accelerate concept evaluation and transition possibly via both backfit to existing ASW platforms and forward fit to emergent manned and unmanned ASW assets.

	FY 2007	FY 2008	FY 2009
9985N/All Electric Torpedo Launcher	1.295	0.000	0.000
RDT&E Articles Quantity	0	0	0

Funds will be used to study the feasibility of replacing the Surface Vessel Torpedo Tube (SVTT) with an Advanced Electromagnetic Launcher (AEL), primarily for use on the new DDG-1000 and Littoral Combat Ship (LCS) Anti-Submarine Warfare (ASW) Mission Packages. The AEL is a new design that uses electromagnetic launch technology to achieve silent launch of the torpedo.

CLASSIFICATION:	UNCLASSIFIED		
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)			DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603553N/SURFACE ASW**	PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**	

	FY 2007	FY 2008	FY 2009
9999/Small Business Technology Insertion	0.000	19.872	0.000
RDT&E Articles Quantity	0	0	0

Funds will be used to implement the cost-effective advantages gained through the Acoustic Rapid Commercial Off-The-Shelf Insertion/Advanced Processor Build Program (ARCI/APB) within the submarine community concept in other acquisition programs. Cost effective gains include, modularity, rapid technology insertion, software re-use, improved manufacturing processes, and cost reductions. Navy Open Architecture (OA) doctrine calls for a standard-based, middleware solution to be used for data communication. Funds will be used to encourage the use of virtualization that will allow disparate systems to co-exist on a single computer, thus allowing shipboard computer rooms/processing centers to be smaller in size, consume less power, and provide more processing capability in a more efficient and effective way.

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	R-1 ITEM NOMENCLATURE **0603559N/SSGN CONVERSION**						
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	25.168	0.000	0.000	0.000	0.000	0.000	0.000
2413 / SSGN Design	25.168	0.000	0.000	0.000	0.000	0.000	0.000

A. MISSION DESCRIPTION:
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.

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007
Previous President's Budget (FY 08 Pres Controls)	25.855
Current BES/President's Budget (FY 09 OSD Controls)	25.168
Total Adjustments	(0.687)
Summary of Adjustments	FY 2007
Cancelled Accounts Liability	(0.032)
SBIR	(0.655)
Sub-Total	(0.687)

C. OTHER PROGRAM FUNDING SUMMARY: None

D. 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.

E. 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

CLASSIFICATION:	UNCLASSIFIED		
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION			DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603559N/SSGN CONVERSION**	PROJECT NUMBER AND NAME **2413/SSGN Design**	

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.

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.427	0.000	0.000
RDT&E Articles Quantity	0	0	0

U) FY07 accomplishments and plans consist of conducting component and sub-system research and development activities and a new NAVSEA 00C requirement to accomplish the Oxygen Recompression ShipAlt for the SSGN Class.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	24.741	0.000	0.000
RDT&E Articles Quantity	0	0	0

(U) FY 07 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. Significant events included successfully completing Special Operations Forces (SOF) Techeval on SSGN 726. Successfully completed major portions of SOF Opeval with follow-up test events planned for FY08. Successfully completed Tomahawk Strike Techeval and Opeval on SSGN 728.

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION							DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**			R-1 ITEM NOMENCLATURE **0603561N/ADVANCED SUBMARINE SYSTEM DEVELOPMENT**				
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	140.870	149.576	141.720	152.854	132.910	109.151	114.775
0223 / Sub Combat System Improvement (ADV)	54.689	51.988	47.135	52.649	53.037	52.563	53.618
2033 / Adv Submarine System Development	73.383	79.901	57.652	62.435	57.449	56.588	61.157
3197 / Undersea Superiority	0.000	0.000	36.933	37.770	22.424	0.000	0.000
9999 / Congressional Add	12.798	17.687	0.000	0.000	0.000	0.000	0.000

A. MISSION DESCRIPTION:

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 Science and Technology (S&T), Defense Advanced Research Projects Agency (DARPA), Industry Research and Development, and Small Business Innovative Research (SBIR) projects.

Project Unit 2033:

The Advanced Submarine Research and Development (R&D) Program is a non-acquisition program that develops, matures, and transitions Hull, Mechanical, and Electrical (HM&E) technologies from S&T to operational platforms, develops submarine design and naval architecture products destined for backfit, forward fit, and/or future submarines, and operates unique R&D experimentation, modeling, and simulation facilities to enhance submarine stealth, maneuverability, and affordability. The program is structured to support near term technology insertion to achieve VIRGINIA Class cost reductions and influence future submarine concepts and core technologies. In support of Sea Power 21, Sea Trial experimentation supports the naval enterprises in identifying and prototyping capabilities and technologies that support the warfighter. Focus is on the Undersea Enterprise (USE), the Naval Network/FORCENET (NNFE), Naval Expeditionary Combat Enterprise (NECE), Surface Warfare Enterprise (SWE), and Special Operations Force Enterprise (SOFE). In addition to enterprise support, experimentation will identify technologies that support the Global War on Terror (GWOT). Experimentation and demonstration is conducted in a joint warfighting context with other services, (i.e. the U.S. Marines, U.S. Army, and the U.S. Air Force), to enable early assessment of warfighting capabilities, and to contribute to better technology selection decisions for potential spiral development. This program also supports Information Exchange Programs with the United Kingdom, Canada, Germany and Australia.

Project Unit 0223:

The Advanced Submarine Combat Systems Development non-acquisition (NON-ACAT) program supports Navy Submarine Acoustic Superiority and Technology Insertion Initiatives through the application of advanced development and testing of sonar and tactical control systems improvements. This Project transitions technologies developed by Navy Technology

bases, the private sector, Office of Naval Research (ONR), Future Naval Capabilities, and DARPA. The Project addresses technology challenges to improve tactical control in littoral and open ocean environments for a variety of operational missions including peacetime engagement, surveillance, battle space 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), Advanced Processing Build-Tactical (APB-T), tactical control, and Advanced Sonar Arrays. APBs develop and demonstrate improvements to current and future sonar/combat control systems. The Advanced Sonar Arrays program develops and tests new sensors and demonstrates large array configuration. This Project is funded under demonstration and validation, as it develops and integrates hardware for experimental test related to specific platform applications.

Project Unit 3197:

The Undersea Superiority Project supports offboard Anti-Submarine Warfare (ASW) technologies selected by the Chief of Naval Operations (CNO) ASW Cross Functional Team for technologies that hold the potential for deployment and/or use by submarine platforms.

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
FY08 President's Budget Controls	156.875	134.882	143.050
FY09 President's Budget Controls	140.870	149.576	141.720
Total Adjustments	-16.005	14.694	-1.330
Execution Realignments	-9.343	-1.220	0.000
Cancelled Accounts	-0.176	-0.798	0.000
Section 8104: Revised Economic Assumption	0.000	-0.641	0.000
Section 8106	0.010	0.000	0.000
SBIR	-3.846	0.000	0.000
Section 8025: FFRDC Reduction	0.000	-0.118	0.000
Section 8097: Contractor Efficiencies	0.000	-0.216	0.000
Congressional Adds/Project Unit Moves	-2.650	17.687	0.000
Tactical Contr	0.000	0.000	2.000
Transfer for Geo-Acoustic Sensing to N84 PE 0603207N	0.000	0.000	-4.500
Navy Working Capital Fund	0.000	0.000	-0.130
VRLA Battery Program Re-alignment	0.000	0.000	1.300
Subtotal	-16.005	14.694	-1.330

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603561N/ADVANCED SUBMARINE SYSTEM DEVELOPMENT**				PROJECT NUMBER AND NAME **0223/Sub Combat System Improvement (ADV)**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	54.689	51.988	47.135	52.649	53.037	52.563	53.618
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Project Unit 0223: The Advanced Submarine Combat Systems Development non-acquisition (Non-ACAT) program supports Navy Submarine Acoustic Superiority and Technology Insertion Initiatives by the application of advanced development and testing of sonar and tactical control systems improvements. This Project transitions technologies developed by Navy technology bases, the private sector, Office of Naval Research (ONR), Future Naval Capabilities, and DARPA. The Project addresses technology challenges to improve tactical control in littoral and open ocean environments for a variety of operational missions including peacetime engagement, surveillance, battle space 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), Advanced Processing Build-Tactical (APB-T), tactical control, and Advanced Sonar Arrays. APBs develop and demonstrate improvements to current and future sonar/combat control systems. The Advanced Sonar Arrays program develops and tests new sensors and demonstrates large array configuration. This Project is funded under demonstration and validation, as it develops and integrates hardware for experimental test related to specific platform applications.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603561N/ADVANCED SUBMARINE SYSTEM DEVELOPMENT**	PROJECT NUMBER AND NAME **0223/Sub Combat System Improvement (ADV)**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Advanced Sonar System Processing	32.281	24.624	27.795
RDT&E Articles Quantity	0	0	0

APB(A)-06 transitioned to PMS401 for fleet introduction. FY07 APB(A) continued improvements in sonar detection and classification via improved algorithms and automation for towed and hull mounted passive arrays, and initiated improvements to medium and high frequency active systems. These enhancements will continue to be refined over the near term in concert with a special focus on automated vulnerability detectors, improved tracking and localization and enhanced target acoustic state estimation. Efforts for FY08 and FY09 will focus on automating systems operations, in support of reduced workload and manning, while continuing efforts on improving the acoustic contribution to ASW in the littorals. Primary improvements are planned for the Wide Aperture Array (WAA), Low Cost Conformal Array (LCCA), and 688 Class sphere array signal processing, contact followers, trackers, refined automation, ranging tools, search space reduction tools, environmental prediction, and monitoring and active systems. Signal processing for a new fat-line towed array will be developed. Recently implemented Signal processing for the TB-29 Towed Array will continue to be refined to ensure improved performance in shallow water and through maneuvers.

	FY 2007	FY 2008	FY 2009
Advanced Tactical Control	8.000	13.864	11.000
RDT&E Articles Quantity	0	0	0

APB(T)-06 transitioned to PMS425 for fleet introduction. FY07 APB(T) focused on enhancing functionality through continued improvements in Command Information Management, acoustic and non-acoustic contact association, and the initial steps required to automate combat systems operations, in support of work load and manning reductions. FY08 and FY09 work will continue on improving the tactical commander's ability to manage close in and high density scenarios through advanced target motion analysis, contact management, tactical scene rendering, uncertainty management, and close encounter decision management.

	FY 2007	FY 2008	FY 2009
Advanced Sensors	14.408	13.500	8.340
RDT&E Articles Quantity	0	0	0

The Advanced Sensor Systems program is developing improved, larger aperture sonars and digital acoustic communications systems in order to achieve acoustic superiority. Current projects include: Low Cost Conformal Array (LCCA), a modular High Frequency (HF) contact management sonar that could be mounted on submarine sails;

Large Vertical Array (LVA), a CAVES-based Medium Frequency (MF) ASW sonar that may be either stand alone or combined with two other LVAs to form a Large Wide Aperture Array (LgWAA) for VIRGINIA Class forward-fit; Fiber-Optic CAVES (FOCAVES) sensors and processing; Advanced Towed Array Technology (ATAT - provides Twin Line Towed Array (TLTA) Capability); and ACOMMs, a digital Acoustic Communications system for submarines and surface ships. In FY07, continued development of ATAT; coordinated with PMS401 on the development of the LCCA Engineering Development Model (EDM); began fabrication of the LVA Advanced Development Model (ADM); built and tested a partial LVA mockup; tested a FOCAVES array component; continued development of the Rapid COTS Insertion Next Generation (RCINextGen); and began MF ACOMMS surface ship development. In FY08, continue development of ATAT and initiate TLTL array and handler Component Integration Tests (CITs); install LVA ADM; complete surface ship MF ACOMMS development; continue

coordination with PMS401 developing the LCCA EDM; complete development of RCI NextGen; and build ADM electronics for the LCCA ADM ship. In FY09, test LVA; test RCI NextGen; begin transition of CAVES to PMS450; complete ACOMMS encryption and Information Assurance (IA) development; complete TLTL array CITs and start lake testing of TLTL array prototypes.

C. OTHER PROGRAM FUNDING SUMMARY:

Not applicable.

D. ACQUISITION STRATEGY:

Use competitively awarded contracts from Broad Agency Announcement (BAA) solicitations.

E. MAJOR PERFORMERS:

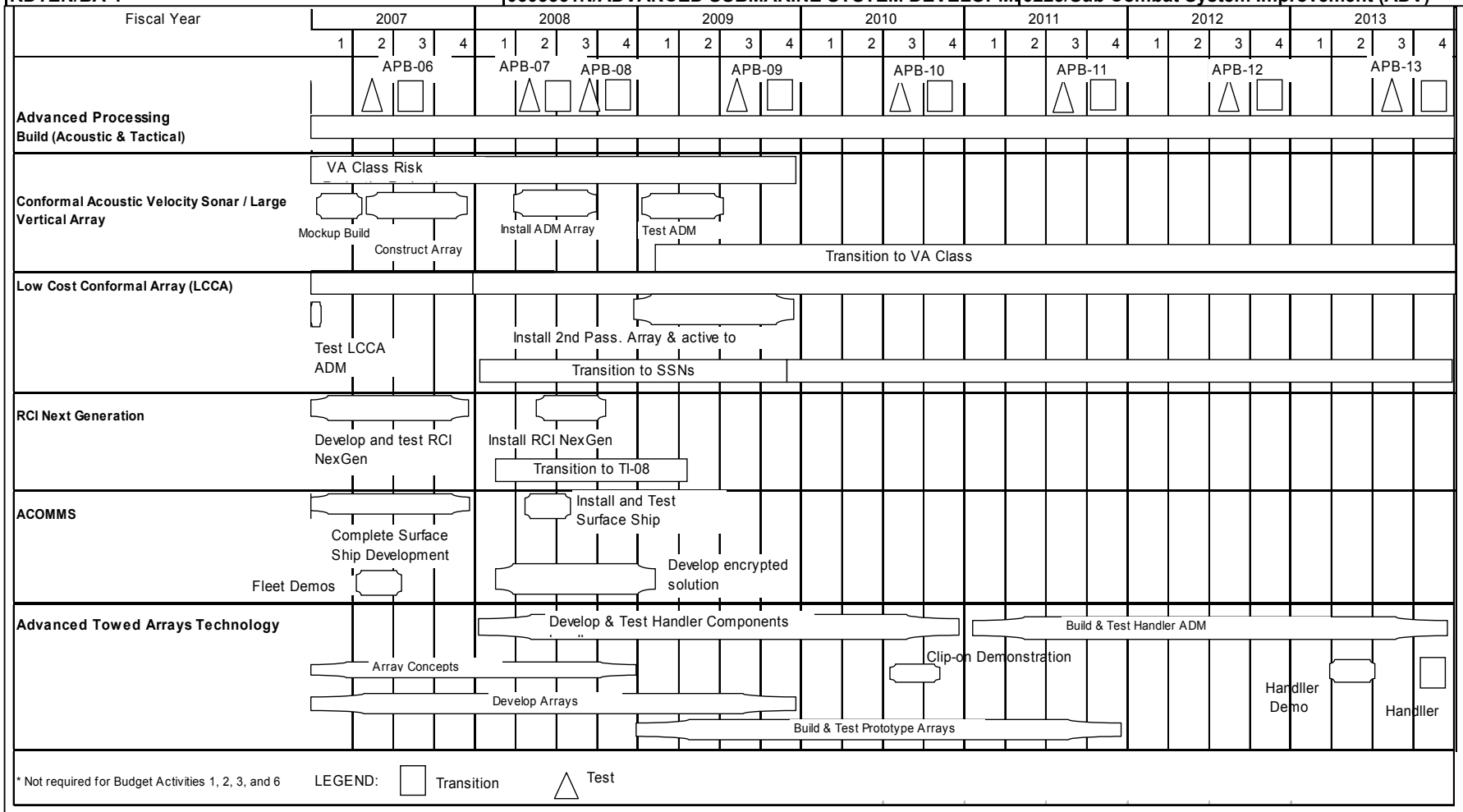
- Naval Undersea Warfare Center (NUWC), Newport, RI
- Naval Research Laboratory (NRL), Washington, DC.
- Naval Surface Warfare Center (NSWC), Carderock, MD.
- John Hopkins University/Applied Physics Lab (JHU/APL), Laurel, MD
- University of Texas/Applied Research Laboratory (UT/ARL), Austin, TX
- MITRE Corporation, McLean, VA
- Lincoln Laboratories, Cambridge, MA
- General Dynamic/Advanced Information Systems, Fairfax, VA
- Lockheed Martin, Manassas, VA
- Raytheon, Portsmouth, RI

Note: All performers support APB(A) and APB(T).

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603561N/ADVANCED SUBMARINE SYSTEM DEVELOPMENT**					PROJECT NUMBER AND NAME **0223/Sub Combat System Improvement (ADV)**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Product Development	WR	NUWC/Newport, RI	14.218	13.971	OCT-06	10.380	DEC-07	10.529	OCT-08	CONT	CONT	0.000
Product Development	WR	NRL, DC	0.356	0.090	OCT-06	0.000		0.000		0.000	0.446	0.000
Product Development	C/CPFF	Adaptive Methods, VA	0.000	0.200	DEC-06	0.200	JAN-08	0.200	DEC-08	CONT	CONT	0.000
Product Development	C/CPFF	AAC, NY	0.000	0.000		0.375	JAN-08	0.000		0.000	0.375	0.000
Product Development	C/CPFF	GA Tech Research Institute, GA	0.250	0.940	DEC-06	0.930	JAN-08	0.150	DEC-08	CONT	CONT	0.000
Product Development	C/CPFF	Multisensor Science, VA	0.000	0.000		0.150	JAN-08	0.150	DEC-08	CONT	CONT	0.000
Product Development	MIPR	U.S. Army Research Lab, MD	0.000	0.350	DEC-06	0.300	JAN-08	0.300	DEC-08	CONT	CONT	0.000
Product Development	C/CPFF	Chesapeake Science, MD	0.000	0.000		0.300	JAN-08	0.700	DEC-08	CONT	CONT	0.000
Product Development	C/CPFF	Lockheed Martin, NY	0.000	1.000	DEC-06	2.000	JAN-08	2.000	JAN-09	CONT	CONT	0.000
Product Development	WR	NSWC/Carderock, MD	2.705	4.620	OCT-06	6.336	JAN-08	5.024	OCT-08	CONT	CONT	0.000
Product Development	WR	NSWC/Dahlgren, VA	0.360	0.080	OCT-06	0.050	JAN-08	0.050	OCT-08	CONT	CONT	0.000
Product Development	WR	ONI, DC	0.045	0.000	DEC-06	0.000	JAN-08	0.000	DEC-08	CONT	CONT	0.000
Product Development	C/CPFF	NSMA, VA	2.020	2.400	OCT-06	1.000	JAN-08	1.000	NOV-08	CONT	CONT	0.000
Product Development	WR	ONR, VA	0.250	0.705	DEC-06	0.970	JAN-08	0.730	DEC-08	CONT	CONT	0.000
Product Development	WR	SSC/San Diego, CA	0.140	0.600	OCT-06	0.600	JAN-08	0.050	OCT-08	CONT	CONT	0.000
Product Development	WR	COMSUBLANT, VA	0.100	0.120	OCT-06	0.120	JAN-08	0.100	OCT-08	CONT	CONT	0.000
Product Development	WR	COMSUBPAC, HI	0.100	0.130	OCT-06	0.130	JAN-08	0.100	OCT-08	CONT	CONT	0.000
Product Development	MIPR	U.S. Army/MITRE, NJ	1.800	1.000	DEC-06	0.000		0.000		0.000	2.800	0.000
Product Development	MIPR	U.S. AFB/MIT Lincoln Labs, MA	1.744	1.750	DEC-06	1.890	NOV-07	1.890	DEC-08	CONT	CONT	0.000
Product Development	C/CPFF	PSU/ARL, PA	0.150	0.240	JAN-07	0.000		0.000		0.000	0.390	0.000
Product Development	C/CPFF	PSU/ARL, PA	0.350	0.350	DEC-06	0.400	JAN-08	0.200	DEC-08	CONT	CONT	0.000
Product Development	C/CPFF	UT/ARL, TX	4.601	4.280	DEC-06	4.550	JAN-08	4.550	DEC-08	CONT	CONT	0.000
Product Development	C/CPFF	JHU/APL, MD	12.006	10.787	DEC-06	6.110	JAN-08	6.660	DEC-08	CONT	CONT	0.000
Product Development	C/CPFF	Lockheed Martin, VA	5.056	3.100	DEC-06	7.420	JAN-08	5.000	DEC-08	CONT	CONT	0.000
Product Development	C/CPFF	Progeny, VA	0.237	0.220	DEC-06	1.500	JAN-08	0.200	DEC-08	CONT	CONT	0.000
Product Development	C/CPFF	METRON, VA	1.508	0.750	DEC-06	0.600	JAN-08	0.600	DEC-08	CONT	CONT	0.000
Product Development	C/CPFF	Alion Sciences, VA	0.000	1.617	DEC-06	1.317	JAN-08	1.417	DEC-08	CONT	CONT	0.000
Product Development	C/CPFF	SEDNA, VA	0.000	1.664	DEC-06	0.500	JAN-08	0.500	DEC-08	CONT	CONT	0.000
Product Development	C/CPFF	DSR/GD, VA	8.151	1.000	DEC-06	2.250	JAN-08	2.500	DEC-08	CONT	CONT	0.000

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS												DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603561N/ADVANCED SUBMARINE SYSTEM DEVELOPMENT**					PROJECT NUMBER AND NAME **0223/Sub Combat System Improvement (ADV)**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Product Development	C/CPFF	Northrop Grumman, VA	0.400	0.000		0.000		0.000		0.000	0.400	0.000
Product Development	WR	SPAWAR, CA	0.400	0.000		0.000		0.000		0.000	0.400	0.000
Product Development	MIPR	U.S. Army Research Lab, MD	0.000	0.350	DEC-06	0.000		0.000		0.000	0.350	0.000
Product Development	C/CPFF	SAIC, VA	0.000	0.300	DEC-06	0.200	JAN-08	1.000	DEC-08	CONT	CONT	0.000
Subtotal Product Development			**56.947**	**52.614**		**50.578**		**45.600**		**CONT**	**CONT**	**0.000**
Remarks:												
Program Management Support	C/CPFF	Stanley and Associates, VA	1.000	0.000	DEC-06	0.000		0.000		0.000	1.000	0.000
Program Management Support	C/CPAF	BAE Systems, MD	1.000	2.000	DEC-06	1.335	JAN-08	1.460	DEC-08	CONT	CONT	0.000
Program Management Support	C/CPFF	EG&G, VA	0.950	0.000	DEC-06	0.000		0.000		0.000	0.950	0.000
Travel	WR	NAVSEA PEO IWS 5, DC	0.075	0.075		0.075	OCT-07	0.075	OCT-08	CONT	CONT	0.000
Subtotal Management Services			**3.025**	**2.075**		**1.410**		**1.535**		**CONT**	**CONT**	**0.000**
Remarks:												
Total Cost			**59.972**	**54.689**		**51.988**		**47.135**		**CONT**	**CONT**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603561N/ADVANCED SUBMARINE SYSTEM DEVELOPMI**	PROJECT NUMBER AND NAME **0223/Sub Combat System Improvement (ADV)**



CLASSIFICATION:	UNCLASSIFIED					
EXHIBIT R-4a, SCHEDULE DETAIL					DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603561N/ADVANCED SUBMARINE SYSTEM DEVELOPMENT**			PROJECT NUMBER AND NAME **0223/Sub Combat System Improvement (ADV)**		
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Advanced Processing Builds (Acoustic/Tactical)							
APB-06 Sea Test	2Q						
Transition APB-06 to ARCI/BYG-1	3Q						
APB-07 Sea Test		2Q					
Transition APB-07 to ARCI/BYG-1		3Q					
APB-08 Shore Test		3Q					
Transition APB-08 to ARCI/BYG-1		4Q					
APB-09 Sea Test			3Q				
Transition APB-09 to ARCI/BYG-1			4Q				
APB-10 Shore Test				3Q			
Transition APB-10 to ARCI/BYG-1				4Q			
APB-11 Sea Test					3Q		
Transition APB-11 to ARCI/BYG-1					4Q		
APB-12 Shore Test						3Q	
Transition APB-12 to ARCI/BYG-1						4Q	
APB-13 Sea Test							3Q
Transition APB-13 to ARCI/BYG-1							4Q
Conformal Acoustic Velocity Sonar/Large Vertical Array							
Mock-up Build	1Q-2Q						
Construct ADM array	2Q-4Q						
Install ADM array		2Q-3Q					
Test ADM array			1Q-3Q				
Transition to VIRGINIA Class			1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Low Cost Conformal Array (LCCA)							
Test ADM array	1Q						
Install 2nd Passive Array & add active staves to ADM & gather data			1Q-4Q	1Q-4Q			
Transition to SSNs		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL (CONTINUATION)						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603561N/ADVANCED SUBMARINE SYSTEM DEVELOPMENT**			PROJECT NUMBER AND NAME **0223/Sub Combat System Improvement (ADV)**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
RCI Next Generation							
Develop and Test RCI Next Gen	1Q-4Q						
Install RCI Next Gen		2Q-4Q					
Transition to TI08		1Q-4Q	1Q-2Q				
ACOMMS							
Fleet Demos	2Q-3Q						
Complete Surface Ship Development	1Q-4Q						
Install and Test Surface Ship ACOMMS		2Q-3Q					
Developed Encrypted Solution		1Q-4Q	1Q				
Advanced Towed Array Technology							
Develop TLTL Concepts	1Q-4Q	1Q-4Q					
Develop Array	1Q-4Q	1Q-4Q	1Q-4Q				
Build & Test Prototype TLTL Arrays			1Q-4Q	1Q-4Q	1Q-4Q		
SSN Clip-on TLTL Array Demonstration				3Q-4Q			
Transition TLTL Array to PMS 401					4Q		
Develop TLTL Handler Components		1Q-4Q	1Q-4Q	1Q-2Q			
Build & Test TLTL ADM Handler				3Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
SSN TLTL ADM Handler Demonstration							1Q-2Q
Transition TLTL Handler to PMS401							4Q

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603561N/ADVANCED SUBMARINE SYSTEM DEVELOPMENT**				PROJECT NUMBER AND NAME **2033/Adv Submarine System Development**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	73.383	79.901	57.652	62.435	57.449	56.588	61.157
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Advanced Submarine Research and Development (R&D) Program is a non-acquisition program that develops, matures, and transitions Hull, Mechanical, and Electrical (HM&E) technologies from S&T to operational platforms, develops submarine design and naval architecture products destined for backfit, forward fit, and/or future submarines, and operates unique R&D experimentation, modeling, and simulation facilities to enhance submarine stealth, maneuverability, and affordability. The program is structured to support near term technology insertion to achieve VIRGINIA Class cost reduction and influence future submarine concepts and core technologies. In support of Sea Power 21, Sea Trial experimentation supports the naval enterprises in identifying and prototyping capabilities and technologies that support the warfighter. Focus is on the Undersea Enterprise (USE), the Naval Network/FORCENET Enterprise (NNFE), Naval Expeditionary Combat Enterprise (NECE), Surface Warfare Enterprise (SWE), and Special Operations Force Enterprise (SOFE). In addition to enterprise support, experimentation will identify technologies that support the Global War on Terror (GWOT). Experimentation and demonstration is conducted in a joint warfighting context with other services, (i.e. the U.S. Marines, U.S. Army, and the U.S. Air Force), to enable early assessment of warfighting capabilities, and to contribute to better technology selection decisions for potential spiral development. This program also supports Information Exchange Programs with the United Kingdom, Canada, Germany, and Australia.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603561N/ADVANCED SUBMARINE SYSTEM DEVELOPMENT**	PROJECT NUMBER AND NAME **2033/Adv Submarine System Development**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Payloads and Sensors/Subtotal Cost	17.332	18.192	18.264
RDT&E Articles Quantity	0	0	0

Develop promising advanced technologies and/or concepts capable of revolutionizing submarine design, reducing cost, improving payload flexibility, increasing capability, reducing weight and space requirements, exploring alternative payload launch mechanisms, increasing reliability with concomitant decreases in required maintenance, and improving material strength. Develop payload demonstrations targeted at improving flexible ocean interface, Intelligence/Surveillance/Reconnaissance (ISR) requirements, and universal encapsulation methods from undersea platforms. Conduct Navy and joint SEA TRIALS that take the demonstrations to the Fleet in order to assess the operational value of the technologies and systems under consideration. The SEA TRIALS/experiments support examination and assessment of potential new Fleet capabilities based on the Sea Power 21 Pillars of SEA SHIELD, SEA BASING, SEA STRIKE, and FORCENET.

FY07 Accomplishments include the following: Conducted an underwater encapsulation demonstration applicable to a small missile. Provided analytical support to the Joint Test and Evaluation (JT&E) program Joint Command and Control for War on Terror Activities (JC2WTA). Completed REML full-scale integration test and conducted land based concept demonstration test. Developed final design guidance for designing non-pressure hull structural components from composite materials. Conduct the Water Piercing Missile Launch (WPML) missile fly out test from a submerged static platform to demonstrate water-piercing technology. Update report to Congress on "Submarine Technology Insertion."

FY08 Planned Accomplishments include the following: Prepare for FY09 demonstration of an underwater launch of an encapsulated All-Up Round (AUR) against a surface target in a test range. Conduct End-To-End lab test full-scale at NUWC, Newport. Conduct two additional tests needed to complete the underwater encapsulation tests. Conduct an at-sea demonstration of the procedures developed and technologies selected under the JT&E program JC2WTA. Conduct data analysis on WPML test and conduct additional missile fly out tests from a moving submerged translator platform. Update report to Congress on "Submarine Technology Insertion."

FY09 Planned Accomplishments include the following: Conduct a demonstration of an underwater launch of an encapsulated AUR against a surface target in a test range, then assess the results and determine the need for an at-sea demonstration launching an encapsulated small missile at a surface target from a submarine prior to transition to an acquisition program. Prepare and procure long lead items for at-sea full scale demonstration of WPML concept.

	FY 2007	FY 2008	FY 2009
Stealth/Subtotal Cost	11.751	11.330	15.837
RDT&E Articles Quantity	0	0	0

Develop technologies and tools to increase the safety of submarines by recognizing and mitigating sources of noise, improving the probability of safe transit in the vicinity of mine fields, ensuring that submarines can penetrate contested waters by reduced acoustic observables, and remaining undetected in the littorals. Operate the Large Scale Vehicles (LSV 2) and the Intermediate Scale Measurement System (ISMS) to conduct large model experiments for submarines focusing on stealth, maneuvering and control, affordability, and operational effectiveness.

FY07 Accomplishments include the following: Continued Large Scale Vehicle operations and maintained LSV and ISMS test ranges. Completed CAVES outer decoupler level two and began inner decoupler level one qualification. Performed scale measurements to support investigation of direct radiation phenomena. Developed and fabricated external damping treatment. Obtained full scale data from a naval vessel to support investigation of alternating current electromagnetic (AC EM) signatures.

FY08 Planned Accomplishments include the following: Continue Large Scale Vehicle operations and maintain LSV and ISMS test ranges. Conduct material characterization of inner decoupler material and complete level one qualification. Conduct scaled test of external damping treatment. Complete analysis of AC EM signature data.

FY09 Planned Accomplishments include the following: Continue Large Scale Vehicle operations and maintain LSV and ISMS test ranges. Complete level two qualification of inner decoupler material and conduct full scale patch test. Develop user interface and conduct performance testing of tactical decision aid.

	FY 2007	FY 2008	FY 2009
Total Ownership/Affordability/Subtotal Cost	1.917	4.546	8.196
RDT&E Articles Quantity	0	0	0

Demonstrate technologies that have the potential to reduce total life cycle costs of the system by providing reduced construction costs, commonality of interfaces, longer life of parts, and/or lower maintenance requirements.

FY07 Accomplishments include the following: Studied the remaining hydraulic actuators in the sail and in the external hydraulics supply system for potential replacement with EAS. Completed development of the Universal Modular Mast (UMM)EAS performance specification and developed EAS performance specification for control surfaces. Developed a standard rotary EAS test plan and initiated qualification testing on additional 10,000 and/or 20,000 3-position rotary EAS ADMs.

Conducted panel and scaled cylindrical shell testing on damping material. Modified acoustic tile configuration on candidate SSN-668i submarine. Obtained acoustic data during acoustic trials on candidate SSN-688 and SSN-688i submarines. Initiated development of a Common Electric Hull Penetrator (CEHP) for communications Imaging and Electronic Warfare (I&EW) sensors in the submarine sail. Developed new EAS technology and composite materials for the existing UMM. Completed Small Business Innovative Research (SBIR) development and fabrication of two prototype composite UMM System guide trunks for testing.

FY08 Planned Accomplishments: Initiate qualification on 10,000 and/or 20,000 in-lb 3-position rotary EAS ADMs. Continue development of BCA to replace 35 rotary 2 and 3 position hydraulic actuators with EAS's. Complete BCA to replace the current UMM hydraulic actuation system with an EAS. Complete study to replace remaining hydraulic actuators with EAS in the sail and in the external hydraulics supply system. Develop EAS performance specification for snorkel induction valve, head valve, mast hoist system, and the radar in the sail. Develop BCA to replace stern plane, bow plane, and rudder control surface hydraulic actuators with EAS. Conduct pop up and Intermediate Scale Measurement System tests to assess damping configuration. Develop a business case for installing CEHP's on new construction VIRGINIA Class hulls. Develop performance specification for the CEHP and procure two prototypes for shore-based testing and evaluation. Conduct an engineering analysis and evaluation of laboratory scale chemical

trials and alternate chemistries for CO2 capture material to determine the optimum form of solid phase sorbent for an advanced CO2 removal system for submarine air purification.

FY09 Planned Accomplishments: Continue qualification testing on 10,000 and/or 20,000 in-lb 3-position rotary EAS ADM's. Develop EAS performance specification for selected external hydraulics system applications. Complete BCA to replace stern plane, bow plane, and rudder control surface hydraulic actuators with EAS. Procure EAS ADM for snorkel induction valve, mast hoist system, and the radar. Conduct pop up and Intermediate Scale Measurement System tests to assess damping configuration. Complete testing and transition of a new CEHP to VIRGINIA Class for implementation during new construction. Perform shore-based UMM system level tests and evaluate performance of UMM EAS and guide trunk composite material. Design a full scale prototype CO2 removal system.

	FY 2007	FY 2008	FY 2009
Advanced Propulsion/Ship Concept Developments/Subtotal Cost	42.383	45.833	15.355
RDT&E Articles Quantity	0	0	0

Overcome selected technological barriers that are expected to have significant impact on submarine hull, mechanical, and electrical (HM&E) systems to enable design options for a submarine with VIRGINIA Class capability in three technical areas: Shaftless Propulsion, External Weapon Stow and Launch, and Radical Ship HM&E Infrastructure Reduction. Develop submarine alternative propulsion and stern configurations with potential to significantly reduce submarine acquisition cost. Demonstrate critical performance parameters via Appropriate Scale Demonstrators in realistic environmental conditions. Evaluate integration of technologies and approaches for cost reduction in future nuclear submarines. Develop understanding of ship concept studies and submarine cost drivers and model analysis.

This work will apply to future submarine designs and will begin the long-lead concept work on the next undersea strategic deterrent platform, for which design work must begin in earnest early next decade. Conduct concept studies and mission utility studies for variant submarine designs, including VIRGINIA derivatives. Develop a future undersea superiority system alternative to the reduced submarine program.

FY07 Accomplishments include the following: Completed small scale TANGO BRAVO demonstrations and concept development. Provided Go/No Go Assessment and Phase 2 contract awards for TANGO BRAVO External Weapons Stow and Launch and Radical Ship Infrastructure Reduction technology areas. Demonstrated Shaftless Propulsion at component level. Continued development of innovative technologies to support the undersea superiority initiative. Assessed feasibility and risk for Affordable Material Propulsors and developed R&D roadmap. Initiated development of a Deep Water Active Detection System (DWADS), Reliable Acoustic Path (RAP) Line Array system, Shallow Water Array Processing (SWAP) system, Distributed Netted Sensors (DNS) Command Control and Communication system, Medium Frequency Acoustic Communications system, Deployable Autonomous Distributed System (DADS) and ASW Command Common Tool Set. Also, conducted studies, analysis and assessments of potential transformational submarine and ASW technologies. Completed selected concept studies for future submarine variants to inform requirements setting process.

FY08 Planned Accomplishments: Complete component level TANGO BRAVO technology demonstrations. Demonstrate maneuvering and sea keeping aspects of Shaftless propulsion at small scale. Assess Go/No Go for TANGO BRAVO Phase 3 Shaftless Propulsion award. Continue development of innovative technologies to support the undersea superiority initiative.

Continue development of a Deep Water Active Detection System (DWADS), Reliable Acoustic Path (RAP) Line Array system, Shallow Water Array Processing (SWAP) system, Distributed Netted Sensors (DNS) Command Control and Communication system, Medium Frequency Acoustic Communications system, Deployable Autonomous Distributed System (DADS) and as ASW Command Common Tool Set. Continue studies, analysis and assessments of potential transformational submarine and ASW technologies. Initiate planning for development of new technologies resulting from aforementioned studies.

FY09 Planned Accomplishments: Complete TANGO BRAVO Prototype level demonstrations. Commence Submarine Shaftless Stern Demonstrator (S3D) program. Initial efforts will include concept studies, demonstration platform down select and specification development.

C. OTHER PROGRAM FUNDING SUMMARY:

Not applicable.

D. ACQUISITION STRATEGY:

Sole source conform studies contracts with Electric Boat (EB) and Northrup Grumman Newport News (NGNN).

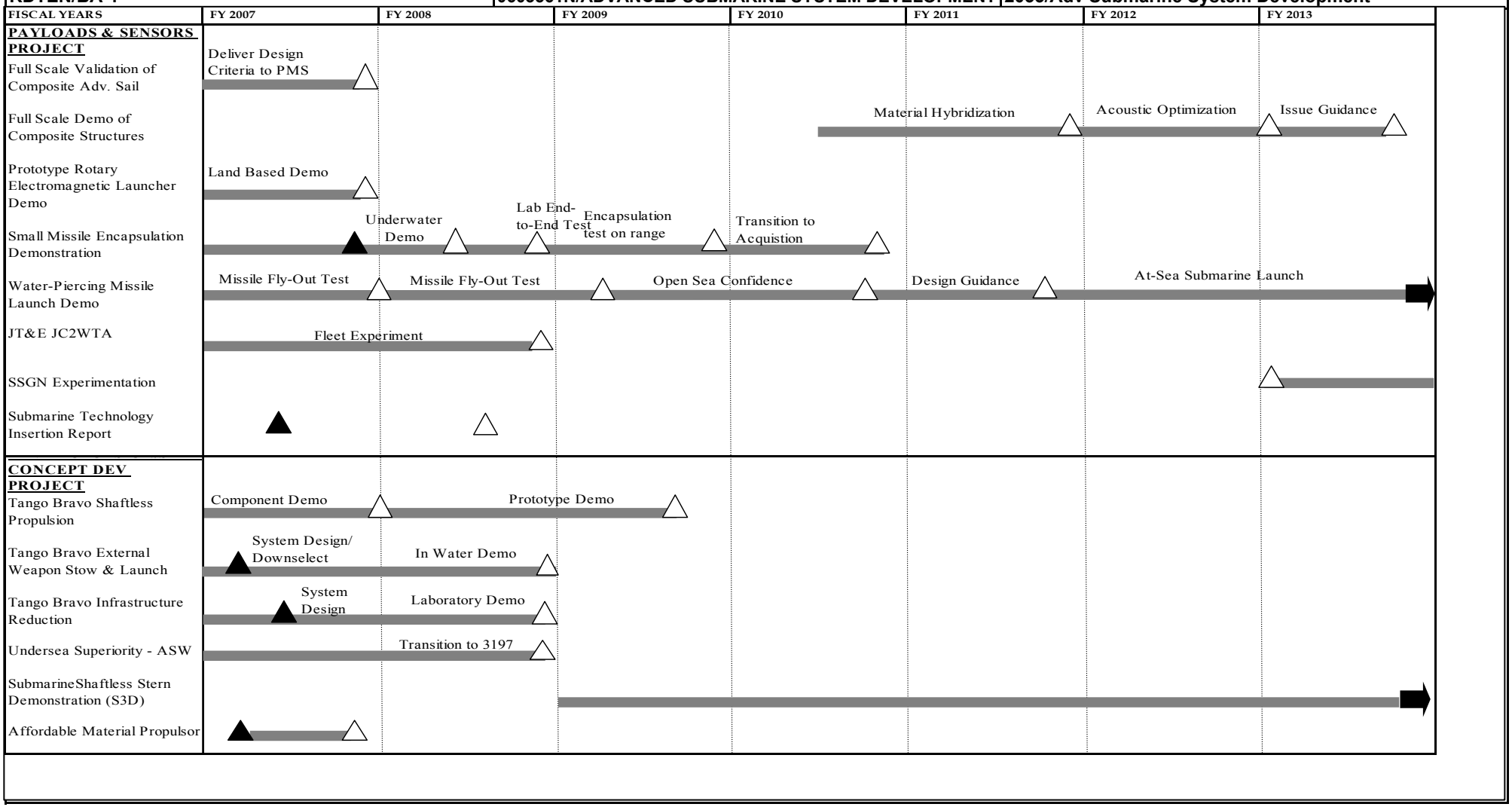
E. MAJOR PERFORMERS:

Northrop Grumman Newport News, Newport News, VA	04/07	11/07	11/08
Electric Boat Corp., Groton, CT	11/06	11/07	11/08
Naval Surf Warfare Ctr, Carderock, MD	10/06	10/07	10/08
Naval Undersea Warfare Ctr, Newport, R.I	10/06	10/07	10/08
Raytheon, Portsmouth, RI	11/06	12/07	12/08

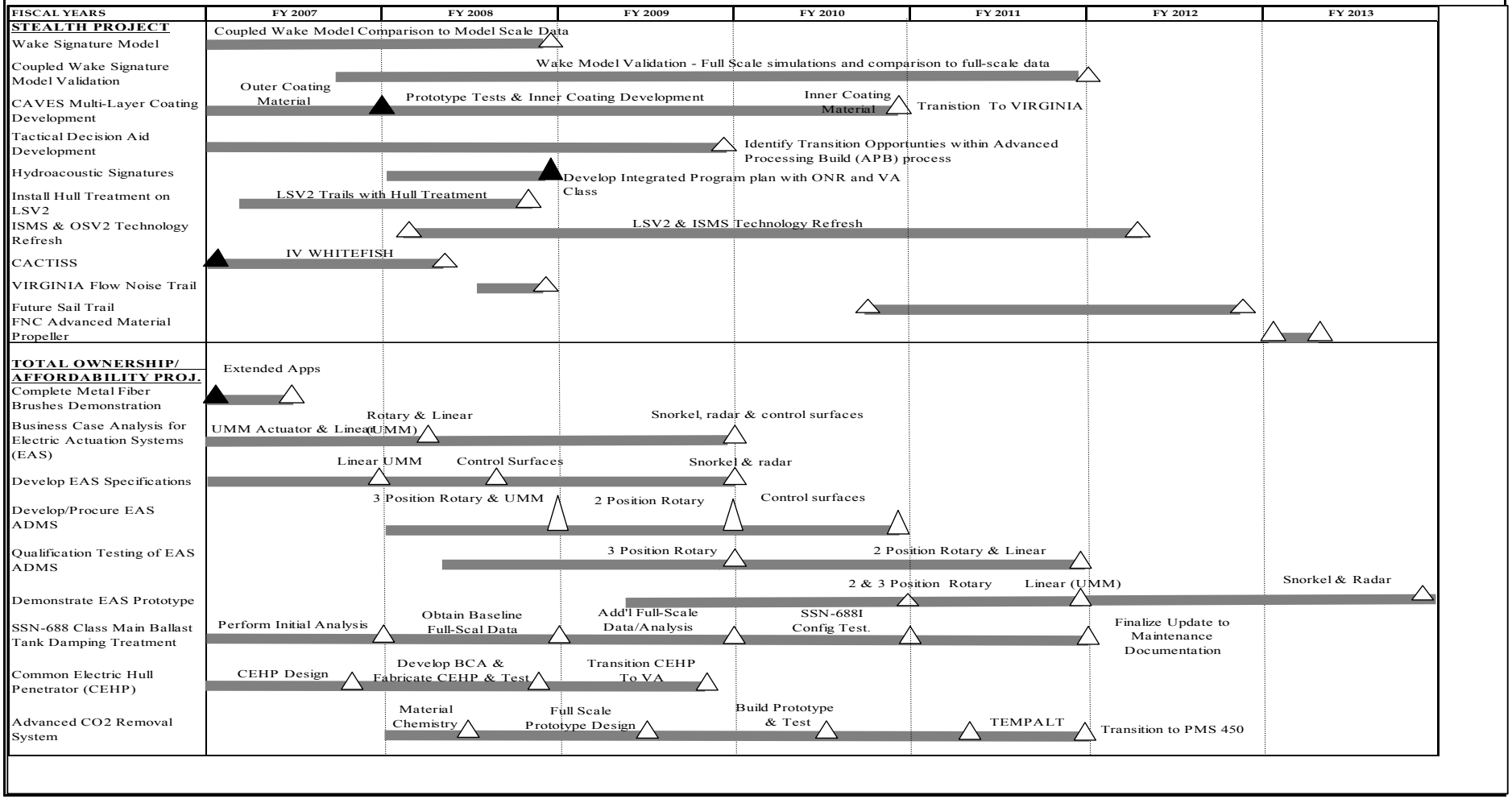
CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603561N/ADVANCED SUBMARINE SYSTEM DEVELOPMENT**					PROJECT NUMBER AND NAME **2033/Adv Submarine System Development**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Product Development	SS/CPFF	NGNN Newport News, VA	0.763	0.826	VAR	0.549	VAR	2.071	DEC-08	0.000	4.209	0.000
Product Development	SS/CPFF	EB Groton, CT	20.594	2.328	VAR	2.062	VAR	7.509	DEC-08	0.000	32.493	0.000
Product Development	SS/CPFF	Raytheon	4.518	4.294	VAR	1.316	VAR	6.188	DEC-08	0.000	16.316	0.000
Product Development	WR	NSWC Bethesda, MD	20.506	10.866	VAR	12.928	VAR	15.566	OCT-08	0.000	59.866	0.000
Product Development	SS/CPFF	ARL/PSU, State College,PA	0.671	0.437	VAR	0.185	VAR	0.528	DEC-08	0.000	1.821	0.000
Product Development	SS/CPFF	UT/ARL, Austin TX	2.000	3.400	MAR-07	2.500	VAR	0.000		0.000	7.900	0.000
Product Development	SS/CPFF	JHU/APL Laurel MD	0.000	5.317	VAR	6.721	VAR	0.000		0.000	12.038	0.000
Product Development	Various	Various	1.400	9.045	VAR	13.778	VAR	6.877	VAR	0.000	31.100	0.000
Product Development	WR	NUWC Newport, RI	3.010	5.493	VAR	6.140	VAR	0.887	OCT-08	0.000	15.530	0.000
Product Development	WR	NUWC Newport, RI	9.397	11.013	VAR	11.958	VAR	2.700	DEC-08	0.000	35.068	0.000
Product Development	WR	ONR, Arlington, VA	0.372	3.756	VAR	4.310	VAR	0.000		0.000	8.438	0.000
Product Development	WR	Lockheed Martin	0.000	3.985	VAR	4.949	VAR	0.000		0.000	8.934	0.000
Product Development	WR	SPAWAR San Diego CA	0.000	3.850	VAR	1.400	VAR	0.000		0.000	5.250	0.000
Product Development	WR	SSP, Arlington VA	0.000	0.000		1.200	VAR	0.000		0.000	1.200	0.000
Subtotal Product Development			**63.231**	**64.610**		**69.996**		**42.326**		**0.000**	**240.163**	**0.000**
Remarks: Various/VAR is used for lines with funding associated because multiple activities are being funded for these Cost Categories and there are different award dates for the different activities.												
Contractor Engineering Support	SS/CPFF	Various	2.654	1.706	NOV-06	2.463	OCT-07	0.706	OCT-08	0.000	7.529	0.000
Government Engineering Support	WR	Various	1.026	0.700	OCT-06	1.040	OCT-07	0.729	OCT-08	0.000	3.495	0.000
Travel	WR	NAVSEA HQ	0.060	0.080	OCT-06	0.080	OCT-07	0.080	OCT-08	0.000	0.300	0.000
Subtotal Support Costs			**3.740**	**2.486**		**3.583**		**1.515**		**0.000**	**11.324**	**0.000**
Remarks:												
Developmental Test & Evaluation	SS/CPFF	EB	0.413	0.100	FEB-07	0.500	NOV-07	0.000		0.000	1.013	0.000
Developmental Test & Evaluation	SS/CPFF	Raytheon	4.000	4.210	VAR	2.500	DEC-07	6.188	DEC-08	0.000	16.898	0.000
Developmental Test & Evaluation	WR	NAVAIR	0.868	0.191	MAY-07	1.204	OCT-07	0.075	OCT-08	0.000	2.338	0.000
Developmental Test & Evaluation	Various	Various	3.303	0.545	VAR	1.200	OCT-07	3.050	OCT-08	0.000	8.098	0.000

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS												DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603561N/ADVANCED SUBMARINE SYSTEM DEVELOPMENT**					PROJECT NUMBER AND NAME **2033/Adv Submarine System Development**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Developmental Test & Evaluation	WR	NUWC Newport	0.116	0.517	OCT-06	0.418	OCT-07	0.580	OCT-08	0.000	1.631	0.000
Developmental Test & Evaluation	WR	NSWC Carderock	1.604	0.724	OCT-06	0.500	OCT-07	2.918	OCT-08	0.000	5.746	0.000
Developmental Test & Evaluation	SS/CPFF	NGNN	0.000	0.000		0.000		1.000	NOV-08	0.000	1.000	0.000
Subtotal Test and Evaluation			**10.304**	**6.287**		**6.322**		**13.811**		**0.000**	**36.724**	**0.000**
Remarks: Various/VAR is used for lines with funding associated because multiple activities are being funded for these Cost Categories and there are different award dates for the different activities.												
Total Cost			**77.275**	**73.383**		**79.901**		**57.652**		**0.000**	**288.211**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603561N/ADVANCED SUBMARINE SYSTEM DEVELOPMENT**	PROJECT NUMBER AND NAME **2033/Adv Submarine System Development**



CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603561N/ADVANCED SUBMARINE SYSTEM DEVELOPMENT**	PROJECT NUMBER AND NAME **2033/Adv Submarine System Development Continued**



CLASSIFICATION:	UNCLASSIFIED					
EXHIBIT R-4a, SCHEDULE DETAIL					DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603561N/ADVANCED SUBMARINE SYSTEM DEVELOPMENT**			PROJECT NUMBER AND NAME **2033/Adv Submarine System Development**		
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Payloads & Sensors Project							
Complete Comp. Adv. Sail development, transition to VA class	1Q-4Q						
Rotary Electromagnetic Launcher Land Based Demo	2Q-4Q						
Small Missile Encapsulation Land Based Test							
Small Missile Encapsulation Underwater Demo	4Q						
Small Missile Encapsulation Full-Scale End-to-End Lab Test		4Q					
Small Missile Encapsulation All-Up Round Test			2Q-4Q				
Water Piercing Missile Launch Fly Out Test	3Q-4Q	3Q-4Q					
Water Piercing Missile Launch Open Sea Confidence Test			3Q				
Water Piercing Missile Launch At-Sea Prep & Demo				1Q-4Q	1Q-4Q	1Q-4Q	
SSGN Experimentation							1Q-4Q
JT&E JC2WTA - Fleet Experiment		2Q-4Q					
Advanced Propulsion/Ship Concept Development Project							
Tango Bravo Shaftless Propulsion	1Q-4Q	1Q-4Q	1Q-3Q				
Tango Bravo External Weapon Stow & Launch	1Q-4Q	1Q-4Q					
Tango Bravo Infrastructure Reduction	1Q-4Q	1Q-4Q					
Undersea Superiority - VA Cost Reduction							
Undersea Superiority - ASW	1Q-4Q	1Q-4Q					
Submarine Shaftless Stern Demonstration (S3D)			1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Affordable Material Propulsor Feasibility Study	2Q-4Q						
Stealth Project							
Wake Signature Prediction Capability	1Q-4Q	1Q-4Q					
Wake Signature Tool Validation	4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q		
CAVES Outer Decoupler Coating Development	1Q-4Q						
CAVES Outer Decoupler Prototype Tests and Qualification	3Q-4Q	1Q-3Q					
CAVES Inner Decoupler Development	4Q	1Q-4Q	1Q-4Q				
CAVES Inner Decoupler Prototype Tests and Qualification				1Q-4Q			
Tactical Decision Aid Interface Development & Testing	1Q-4Q	1Q-4Q	1Q-4Q				
Integrated Hydroacoustic Program Plan		1Q-4Q					
Composite Duct Eval, LSV2 (VIRGINIA Cost Savings)	1Q						

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL (CONTINUATION)						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603561N/ADVANCED SUBMARINE SYSTEM DEVELOPMENT**			PROJECT NUMBER AND NAME **2033/Adv Submarine System Development**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
LSV2 RAV install hull treatment on pressure hull and sail	2Q-4Q	1Q-3Q					
Future sail trials, LSV2				4Q	1Q-4Q	1Q-3Q	
VIRGINIA Flow Noise trial, LSV2		3Q-4Q					
ONR, FNC Advanced Material Propeller, LSV2							1Q-2Q
LSV2 Technology refresh		2Q	2Q	2Q	4Q	1Q	
Technology refresh of Intermediate Scale Meas. System					1Q-3Q		
Total Ownership/Affordability Project							
Comp. Adv. Metal Fiber Brushes Demonstration	1Q-2Q						
Complete three Business Case Analyses for implenting EAS's	1Q-4Q	1Q-4Q					
Develop four new EAS performance specifications	1Q-4Q		1Q-4Q				
Initiate/complete shore-based testing/validation on nine ADM's	1Q-4Q	1Q-4Q	1Q-4Q		1Q-4Q		
Conduct six at-sea full scale EAS demonstrations			1Q-4Q	1Q-4Q		1Q-4Q	1Q-4Q
Perform Intitial Analysis - SSN 688 Class Main Ballast Tank Damping	1Q-4Q						
Optain Baseline Full-Scale Data		1Q-4Q					
Add'l Full-Scale Data/Analysis			1Q-4Q				
SSN-688I Configuration Test				1Q-4Q			
Final Maintenance Documentation Update					1Q-4Q		
Develop and Test Electric Common Hull Penetrator (CEHP)	1Q-4Q	1Q-4Q	1Q-4Q				
Develop and Test UMM Composite Electric Mast	1Q-4Q	1Q-4Q	1Q-4Q				
Advanced CO2 Removal System		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q		

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603561N/ADVANCED SUBMARINE SYSTEM DEVELOPMENT**				PROJECT NUMBER AND NAME **3197/Undersea Superiority**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	0.000	0.000	36.933	37.770	22.424	0.000	0.000
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Project Unit 3197: This Project supports Navy Undersea Superiority through the application of advanced development and testing of organic and offboard sonar and tactical control systems. This Project transitions technologies developed by Navy technology bases, the private sector, ONR, Future Naval Capabilities, and DARPA. This non-acquisition Project addresses technology challenges to improve ASW in littoral and open ocean environments for a variety of operational missions by relevant tactical ASW capabilities. Prototype hardware / software systems are developed to demonstrate technologically promising system concepts in laboratory and at-sea submarine environments. Technologies are selected by the Chief of Naval Operation's (CNO) ASW Initiative which was established to support the CNO's vision to "fundamentally change the way ASW is currently conducted to render the enemy submarine irrelevant against US and coalition forces". It matures promising undersea warfare technologies via a spiral development methodology, establishes military utility through sea testing and self assessment, and supports transition to production as merited by results.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603561N/ADVANCED SUBMARINE SYSTEM DEVELOPMENT**	PROJECT NUMBER AND NAME **3197/Undersea Superiority**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Undersea Superiority	0.000	0.000	36.933
RDT&E Articles Quantity	0	0	0

FY09 planned accomplishments include the following: Efforts will transition from funding under Project 2033 in FY08 to Project 3197 in FY09. Continue development of Deep Water Active Detection System (DWADS), Reliable Acoustic Path (RAP) Line Array system, Shallow Water Array Processing (SWAP) system, Distributed Netted Sensors (DNS) Command Control and Communication system, Medium Frequency Acoustic Communications system, Deployable Autonomous Distributed System (DADS) and ASW Command and Control Common Tool Set to include development, integration, prototyping, land based and at-sea testing of Advanced Development Models (ADMs). Continue studies, analysis and assessments of potential transformational ASW technologies. Initiate planning for development of new technologies resulting from aforementioned studies.

C. OTHER PROGRAM FUNDING SUMMARY:

Not applicable.

D. ACQUISITION STRATEGY:

Use competitively awarded contracts from Broad Agency Announcement (BAA) solicitations.

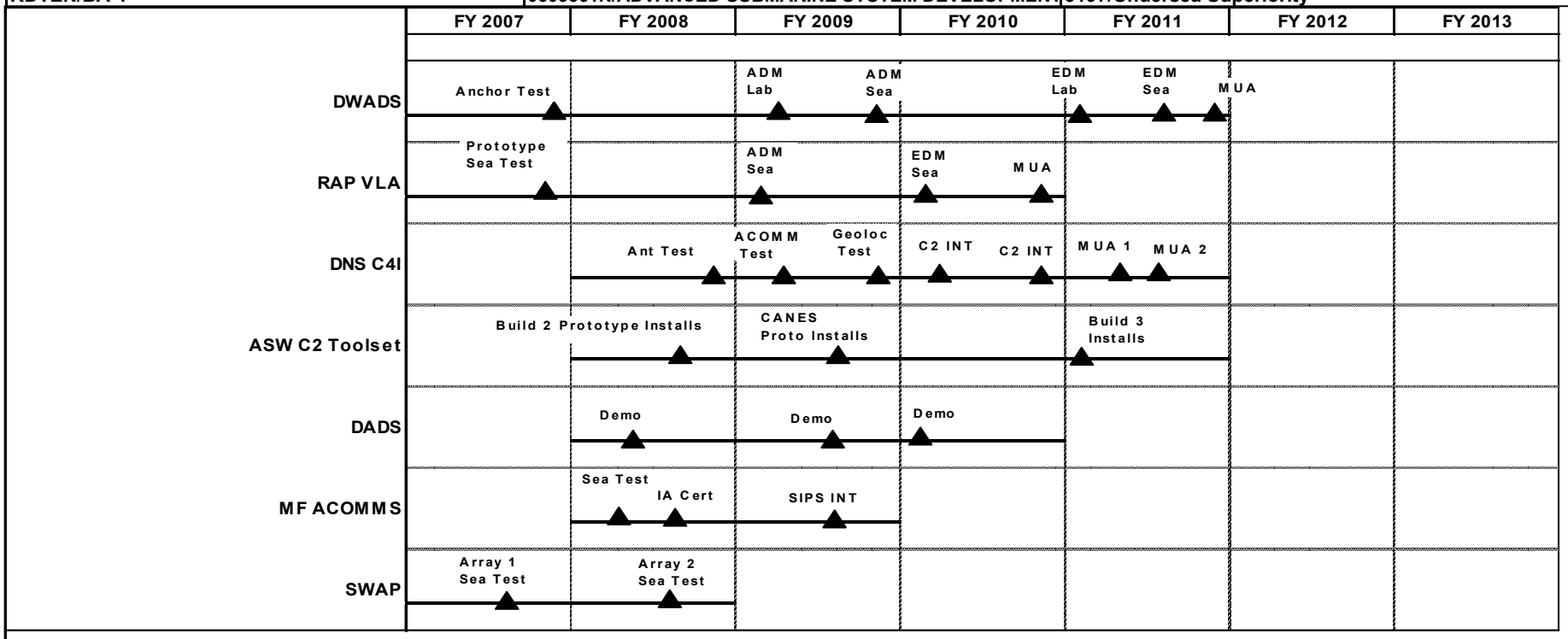
E. MAJOR PERFORMERS:

- Naval Undersea Warfare Center (NUWC), Newport, RI
- John Hopkins University/Applied Physics Lab (JHU/APL), Laurel, MD
- University of Texas/Applied Research Laboratory (UT/ARL), Austin, TX
- Lincoln Lab, Cambridge, MA
- Lockheed Martin, Manassas, VA

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603561N/ADVANCED SUBMARINE SYSTEM DEVELOPMENT**					PROJECT NUMBER AND NAME **3197/Undersea Superiority**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Product Development	WR	ONR, VA	0.000	0.000		0.000		2.000	NOV-08	CONT	CONT	0.000
Product Development	WR	NUWC/Newport, RI	0.000	0.000		0.000		1.220	OCT-08	CONT	CONT	0.000
Product Development	WR	Marine Acoustics, NC	0.000	0.000		0.000		1.200	DEC-08	CONT	CONT	0.000
Product Development	MIPR	U.S. AFB/MIT Lincoln Labs, MA	0.000	0.000		0.000		1.100	NOV-08	CONT	CONT	0.000
Product Development	C/CPFF	JHU/APL, MD	0.000	0.000		0.000		5.400	DEC-08	CONT	CONT	0.000
Product Development	C/CPFF	Lockheed Martin, VA	0.000	0.000		0.000		7.858	DEC-08	CONT	CONT	0.000
Product Development	C/CPFF	Sedna, VA	0.000	0.000		0.000		0.650	DEC-08	CONT	CONT	0.000
Product Development	C/CPFF	SAIC, VA	0.000	0.000		0.000		0.720	DEC-08	CONT	CONT	0.000
Subtotal Product Development			**0.000**	**0.000**		**0.000**		**20.148**		**CONT**	**CONT**	**0.000**
Remarks:												
Test and Evaluation	WR	SPAWAR, San Diego, CA	0.000	0.000		0.000		0.800	OCT-08	CONT	CONT	0.000
Test and Evaluation	WR	NUWC/Newport, RI	0.000	0.000		0.000		3.050	OCT-08	CONT	CONT	0.000
Test and Evaluation	C/CPFF	JHU/APL, MD	0.000	0.000		0.000		2.600	DEC-08	CONT	CONT	0.000
Test and Evaluation	C/CPFF	UT/ARL, TX	0.000	0.000		0.000		6.600	DEC-08	CONT	CONT	0.000
Test and Evaluation	MIPR	U.S. AFB/MIT Lincoln Labs, MA	0.000	0.000		0.000		0.125	DEC-08	CONT	CONT	0.000
Test and Evaluation	WR	Various, Various	0.000	0.000		0.000		3.200	DEC-08	CONT	CONT	0.000
Subtotal Test and Evaluation			**0.000**	**0.000**		**0.000**		**16.375**		**CONT**	**CONT**	**0.000**
Remarks: Note: Various is used for lines with funding associated because multiple activities are being funded for these Cost Categories and there are different award dates for the different activities.												
Program Management Support	C/CPAF	BAE SYSTEMS, MD	0.000	0.000		0.000		0.400	DEC-08	CONT	CONT	0.000
Travel	WR	NAVSEA PEO IWS 5, DC	0.000	0.000		0.000		0.010	OCT-08	CONT	CONT	0.000
Subtotal Management Services			**0.000**	**0.000**		**0.000**		**0.410**		**CONT**	**CONT**	**0.000**
Remarks:												

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS												DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603561N/ADVANCED SUBMARINE SYSTEM DEVELOPMENT**					PROJECT NUMBER AND NAME **3197/Undersea Superiority**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Total Cost			**0.000**	**0.000**		**0.000**		**36.933**		**CONT**	**CONT**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603561N/ADVANCED SUBMARINE SYSTEM DEVELOPMENT**	PROJECT NUMBER AND NAME **3197/Undersea Superiority**



Note: Previous to FY 09 this effort was funded via Project 2033.

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603561N/ADVANCED SUBMARINE SYSTEM DEVELOPMENT**			PROJECT NUMBER AND NAME **3197/Undersea Superiority**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Deep Water Active Distributed System (DWADS):							
Anchor Test	4Q						
Advance Development Model (ADM) Tests			2Q-4Q				
Engineering Development Model (EDM) Tests					1Q-3Q		
Military Utility Assessment (MUA)					4Q		
Reliable Acoustic Path Vertical Line Array (RAP VLA):							
Prototype At Sea Test	4Q						
ADM Sea Test			2Q				
EDM Sea Test				2Q			
MUA				4Q			
DNS C4I:							
Antenna Test		4Q					
Acoustic Comms Test			2Q				
GEO Location			4Q				
C2 Integration of DWAD-RAP				2Q-4Q			
MUA					2Q-3Q		
ASW Common Toolset:							
Build 2 Prototype (B2P) Installation		3Q					
CANES Installation and Test			3Q				
Build 3 Installation and Test					1Q		
Deployable Autonomous Distributed System (DADS):							
Technology Demonstrations		2Q	3Q	1Q			
MF Acomms:							
Sea Test		2Q					
Info Assurance Test		3Q					
SIPS/IPS Integration			3Q				
SWAP:							
Array 1 and 2 Sea Tests	3Q	3Q					

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603561N/ADVANCED SUBMARINE SYSTEM DEVELOPMENT**	PROJECT NUMBER AND NAME **9999/Congressional Add**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
9812N/9812C/Experimental Research Transformational Submersible	4.383	0.000	0.000
RDT&E Articles Quantity	0	0	0

The Congressional add will provide for the initial studies, conceptual designs, and concept of operations for a transformational submersible using cutting edge commercial technologies with a focus on affordable portability, modularity, reduction of vehicle size, manning and annual operational support cost. The Experimental Research Transformation Submersible (XRTS) will support mission criteria and be affordable using commercial (COTS) based materials and equipment. In FY07, the Navy will evaluate the feasibility of performing various R&D missions with a commercially owned, commercially operated submersible, and develop a business case analysis for such use.

	FY 2007	FY 2008	FY 2009
9813C/Inner & Outer Decoupler Matl-Fiberoptic Conformal	1.947	0.000	0.000
RDT&E Articles Quantity	0	0	0

Develop inner and outer decoupler materials to support the development and future application of large conformal arrays on submarines while maintaining or improving ship's stealth performance. The Congressional add will be used for the development, test, evaluation, and qualification of outer decoupler materials to support large conformal arrays such as the Conformal Velocity Sonar (CAVES) Large Vertical Array (LVA) and large Wide Aperture Array (lgWAA) concepts. Analysis will be performed to determine cost effective approaches for developing novel conformal array inner decouplers. Preliminary designs will be developed and supported by laboratory performance testing at small scale.

	FY 2007	FY 2008	FY 2009
0223C/Fiber Optic Conformal Acoustic Velocity System	1.112	0.000	0.000
RDT&E Articles Quantity	0	0	0

The Congressional add will be used to continue development of fiber optic functionality for the CAVES Large Vertical Array (LVA) Advanced Development Model (ADM) which is a precursor to the VIRGINIA program Large Wide Aperture Array (LgWAA) replacement array.

	FY 2007	FY 2008	FY 2009
9987N/Large Displacement UUV at Sea Launch & Recovery	4.385	0.000	0.000
RDT&E Articles Quantity	0	0	0

Funding will be used to define, document and provide interfaces, modular support equipment, and launch & recovery documentation for rapid affordable integration of Large Displacement UUVs and undersea payloads into SSGN Large Tubes. Land based facilities and in-water tests will be executed to demonstrate modular integration techniques and procedures. Payload interfaces and modular integration approach will maximize compatibility for potential use on other submarine classes.

	FY 2007	FY 2008	FY 2009
9988N/Low Cost Thin Line Fiber Optic Towed Array	0.971	0.000	0.000
RDT&E Articles Quantity	0	0	0

Develop a much lower cost, very low noise, vibration resistant laser required for shipboard fiberoptic sensor applications such as TB-33, VIRGINIA Lightweight WAA, and

FiberOptic CAVES. Current lasers are either expensive, or noisy.

	FY 2007	FY 2008	FY 2009
9999/Acoustic Materials for Integral Bow Conformal Array	0.000	0.994	0.000
RDT&E Articles Quantity	0	0	0

This funding will support research and development into the design and configuration of acoustic materials to support Integrated Bow Conformal Array concepts.

	FY 2007	FY 2008	FY 2009
9999/Navy Submarine Hydraulic Oil Recycling and Waste Reduction	0.000	0.994	0.000
RDT&E Articles Quantity	0	0	0

This funding will support continuation of a Small Business Innovation Research (SBIR) project (N03-073) to develop an innovative high performance and high efficiency membrane hydraulic & lube oil filter. Plus-Up resources will fund a Phase II Base and Phase II Option Research and Development (R&D) effort.

	FY 2007	FY 2008	FY 2009
9999/Low Cost Laser Module Assembly for High Frequency Fiber Optics	0.000	0.994	0.000
RDT&E Articles Quantity	0	0	0

Funds will be used to develop and evaluate promising laser interrogation technologies for a common towed array fiber optic receiver that is lower cost, more insensitive to vibration, and more reliable than in current underwater fiber optic acoustic sensor systems. Service needs lower cost, more insensitive to vibration, and more reliable laser solutions for fiber optic towed array receivers.

	FY 2007	FY 2008	FY 2009
9999/Twinline Thinline Submarine Towed Array	0.000	3.180	0.000
RDT&E Articles Quantity	0	0	0

Funds will be used to continue the development of a submarine twinline thinline towed array capability to support navy plans for an in-water demonstration in FY09. Service needs a twinline thinline towed array capability to provide a cost effective means to achieve significant improvements in Submarine ASW detection, fire control and self defense capabilities. The add will be used to complete the design of the TLTLTA systems and initiate long lead procurements for material items.

	FY 2007	FY 2008	FY 2009
9999/CISRT Enabling Materials Technology	0.000	2.385	0.000
RDT&E Articles Quantity	0	0	0

TBD

	FY 2007	FY 2008	FY 2009
9999/Controllable Shock Absorber for Advanced Submarines	0.000	1.789	0.000
RDT&E Articles Quantity	0	0	0

This funding will be used to perform research and development associated with a controllable shock mitigation device for future submarine designs. This effort includes analysis, testing and evaluation of candidate concepts.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603561N/ADVANCED SUBMARINE SYSTEM DEVELOPMENT**	PROJECT NUMBER AND NAME **9999/Congressional Add**

	FY 2007	FY 2008	FY 2009
9999/Submarine Artificial-Intelligence (AI) Based Combat System Kernal	0.000	2.384	0.000
RDT&E Articles Quantity	0	0	0

Funds will be used to refine both the Process and Implementation aspects of the AI-based Mission-Focused Command Decision Support Module (MFCDSM) as an important component of the Combat System of the Future; to demonstrate several specific spirals; and to facilitate transitioning a basic capability to the fleet.

	FY 2007	FY 2008	FY 2009
9999/Undersea Launched Missile Studies (ULMS)	0.000	4.967	0.000
RDT&E Articles Quantity	0	0	0

This funding will used to conduct concept studies for a follow-on platform to the OHIO Class submarine and to perform analyses and trade studies to identify necessary R&D to begin in FY 09 and beyond.

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION							DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**			R-1 ITEM NOMENCLATURE **0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS**				
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	10.169	14.806	10.212	10.353	10.598	10.808	11.024
0770 / Adv Sub Supp Equip Prog	4.756	4.215	4.369	4.462	4.573	4.662	4.754
1739 / Submarine Arctic W/F Development	5.413	5.504	5.843	5.891	6.025	6.146	6.270
9999 / CONGRESSIONAL ADDS	0.000	5.087	0.000	0.000	0.000	0.000	0.000

A. MISSION DESCRIPTION:

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.

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
FY 08 Pres Budget Controls	10.318	9.865	10.215
FY 09 Pres Budget Controls	10.169	14.806	10.212
Total Adjustments	-0.149	4.941	-0.003
Undistributed General Reductions	-0.149	-0.179	- 0.003
Congressional Increases	0.000	5.120	0.000
Subtotal	-0.149	4.941	- 0.003
Schedule: Not Applicable			
Technical: Not Applicable			

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS**				PROJECT NUMBER AND NAME **0770/Adv Sub Supp Equip Prog**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	4.756	4.215	4.369	4.462	4.573	4.662	4.754
RDT&E Articles Qty	0	0	0	0	0	0	0

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 (RCS and EO/IR), Laser Detection and Low Probability of Intercept (LPI) Receiver.

Situational Awareness sub-projects include: PATRIOT Automated Rangefinder (Phase B), Imaging Technologies, Optical Sensor Networks, Low Cost Expendable Sensor (LCES), Advanced Camera Technology (360 Degree Imaging System), Specific Emitter Identification (SEI), and LCES Payload improvements.

Intelligence, Surveillance and Reconnaissance sub-projects include: Alternate Communications Acquisition Direction Finding (CADF) Antenna Testing and Passive Surveillance Radar (PSR) At-Sea testing.

All programs funded in this project are non-acquisition category programs. Program plans and priorities are established by N87. The test articles identified consist of critical components that will be fully developed during engineering development into Engineering Development Models (EDMs).

ASSEP Programs will eventually be broken down into initial and research, for both Imaging and Electronic Warfare. An inclusive category will also be included for initiatives which will describe categories like "submarine sensors" which do not readily categorize into Imaging or Electronic Warfare.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS**	PROJECT NUMBER AND NAME **0770/Adv Sub Supp Equip Prog**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Threat Warning / Self Protection	0.162	0.154	0.296
RDT&E Articles Quantity	0	0	0

FY 07-09
Mast Signature Reduction (EO/IR/RCS)
Digital EW Jammers
Low Probability Intercept, Receiver Improvements

	FY 2007	FY 2008	FY 2009
Situational Awareness Enhancements	4.549	4.061	4.073
RDT&E Articles Quantity	0	0	0

FY 07-09
Patriot Program and Upgrades
Optical Sensor Networks
Low Cost Expendable Sensor (LCES)
Specific Emitter Identification (SEI) Improvements
Advanced Camera Technology (360 Degree Imaging)

	FY 2007	FY 2008	FY 2009
Intelligence, Surveillance and Reconnaissance Enhancements	0.045	0.000	0.000
RDT&E Articles Quantity	0	0	0

FY 07-09
Alternate CADF Antenna Test Support
Passive Surveillance Radar (PSR) Testing Support

C. OTHER PROGRAM FUNDING SUMMARY:
Line Item No. & Name
(U)Other Program Funding Summary: Not applicable.
(U) Related RDT&E: Not applicable.

D. 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

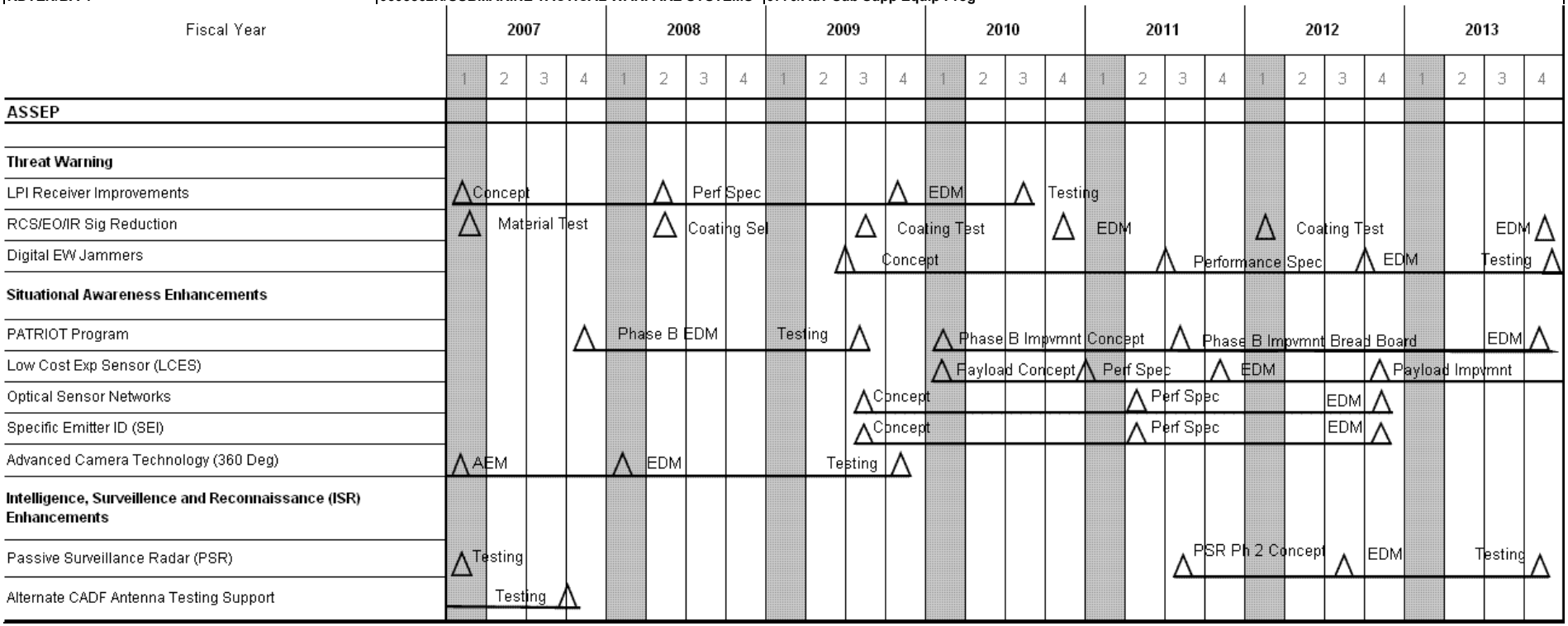
requirements identified in CNO letters, Serial N77/3U629212, dated 04 Sep 03, Serial N77/3U629205, dated 01 Apr 03, and Serial N77/1U651534, dated 30 Oct 01, COMSUBLANT/COMSUBPAC Command Capability Issues (CCIs), Virginia Class SSN Operational Requirements Document objectives, a review, assessment and 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.

E. MAJOR PERFORMERS:

NAWC, China Lake, CA
NUWC, Newport, RI
NASA JPL, Pasadena, CA
JHU, Columbia, MD
Applied EM
Navy Research Laboratories (NRL)

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS**					PROJECT NUMBER AND NAME **0770/Adv Sub Supp Equip Prog**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Primary Hardware Development	SS/CPIF	ARETE/AEM/EDO/JHU/JPL/NRL	1.395	1.924	OCT-06	1.541	OCT-07	2.011	OCT-08	TBD	CONT	0.000
Systems Engineering	WR	NUWC Newport, RI	0.679	0.846	OCT-06	1.262	OCT-07	0.532	OCT-08	CONT	CONT	0.000
Systems Engineering	WR/RC	NAWC China Lake	1.550	1.736	OCT-06	1.157	OCT-07	1.565	OCT-08	CONT	CONT	0.000
Subtotal Product Development			**3.624**	**4.506**		**3.960**		**4.108**		**0.000**	**CONT**	**0.000**
Remarks:												
Engineering Technical Services	CPAF	AT&T GSI, Vienna,VA	0.210	0.220	JAN-07	0.225	NOV-07	0.230	NOV-08	CONT	CONT	0.000
Subtotal Support Costs			**0.210**	**0.220**		**0.225**		**0.230**		**0.000**	**0.000**	**0.000**
Remarks:												
Travel	WR	Various	0.030	0.030		0.030		0.031			0.121	0.000
Subtotal Management Services			**0.030**	**0.030**		**0.030**		**0.031**		**0.000**	**0.121**	**0.000**
Remarks:												
Total Cost			**3.864**	**4.756**		**4.215**		**4.369**		**0.000**	**0.121**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS**	PROJECT NUMBER AND NAME **0770/Adv Sub Supp Equip Prog**



CLASSIFICATION:	UNCLASSIFIED					
EXHIBIT R-4a, SCHEDULE DETAIL					DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS**			PROJECT NUMBER AND NAME **0770/Adv Sub Supp Equip Prog**		

Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Threat Warning/Self Protection							
LPI Receiver Improvements (Concept)	Q1						
LPI Receiver Improvements (Performance Spec)		Q2					
LPI Receiver Improvements (EDM)			Q4				
LPI Receiver Improvements (testing)				Q3			
Signal Reduction (material selection)							
Signal Reduction (material testing)	Q1						
Signal Reduction (Coating Selection)		Q2					
Signal Reduction (Coating testing)			Q3				
Signal Reduction (EDM)				Q4			
Signal Reduction (Coating testing)						Q1	
Signal Reduction (EDM)							Q4
Digital EW Jammers - Concept Studies		Q2					
Digital EW Jammers -Performance Spec					Q2		
Digital EW Jammers - EDM						Q3	
Digital EW Jammers - OT/At-Sea Testing							Q4
Patriot Program (Phase B EDM)	Q4						
Patriot Program (Testing)			Q3				
Patriot Program (Phase B Improvement concept)				Q1			
Patriot Program (Phase B Improvement Bread Board)					Q3		
Patriot Program (Phase B Improvement EDM)							Q4
Low Cost Expendable Sensors (LCES) Payload Concept				Q1			
LCES Performance Spec				Q4	Q1		
LCES EDM					Q4		
LCES Payload improvement						Q4	
Optical Sensors Network (Concept)			Q3				
Optical Sensors Network (Performance spec)					Q2		
Optical Sensors Network (EDM)						Q4	
Specific Emitter ID (SEI) (Concept)			Q3				
Specific Emitter ID (SEI) (Performance spec)					Q2		

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL (CONTINUATION)						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS**			PROJECT NUMBER AND NAME **0770/Adv Sub Supp Equip Prog**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Specific Emitter ID (SEI) (EDM)						Q4	
Advanced Camera Technology (360 degree imaging) AEM	Q1						
Advanced Camera Technology (360 degree imaging) EDM		Q1					
Advanced Camera Technology (360 degree Imaging) DT/OT			Q4				
PSR At-Sea Testing	Q1						
PSR At-Sea Testing (Phase 2) (Concept)					Q3		
PSR At-Sea Testing (Phase 2) (EDM)						Q3	
PSR At-Sea Testing (Phase 2) (Testing)							Q4
Alternate CADF Antenna testing support	Q3						

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS**				PROJECT NUMBER AND NAME **1739/Submarine Arctic W/F Development**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	5.413	5.504	5.843	5.891	6.025	6.146	6.270
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Submarine Arctic Warfare Development 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 Project also provides the framework for various R&D programs to conduct test and evaluation in shallow water and Arctic regions.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS**	PROJECT NUMBER AND NAME **1739/Submarine Arctic W/F Development**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Conduct ICEX and Arctic Transit Mission, ICEX Workup and Training, Ice Camp	5.413	5.504	5.843
RDT&E Articles Quantity	0	0	0

FY07-09 Plans:

Conduct Ice Exercise (ICEX) mission, Arctic transit mission, ICEX workup, ICEX training, and Ice Camp. Provide planning and logistics, and support Ice Camp Operations and Scientific Ice Expedition (SCICEX) accommodations. Support Arctic deployments, including inter-fleet transfers, as required by the Submarine Force Commanders. Investigate, research, develop and deploy new systems for Arctic submarine support. Support testing and tactical development required to improve submarine Arctic operability and warfighting. Coordinate and provide technical and logistical support for the Ice Camp in the Arctic Ocean in FY07 and FY09.

C. OTHER PROGRAM FUNDING SUMMARY:

Not applicable.

D. ACQUISITION STRATEGY:

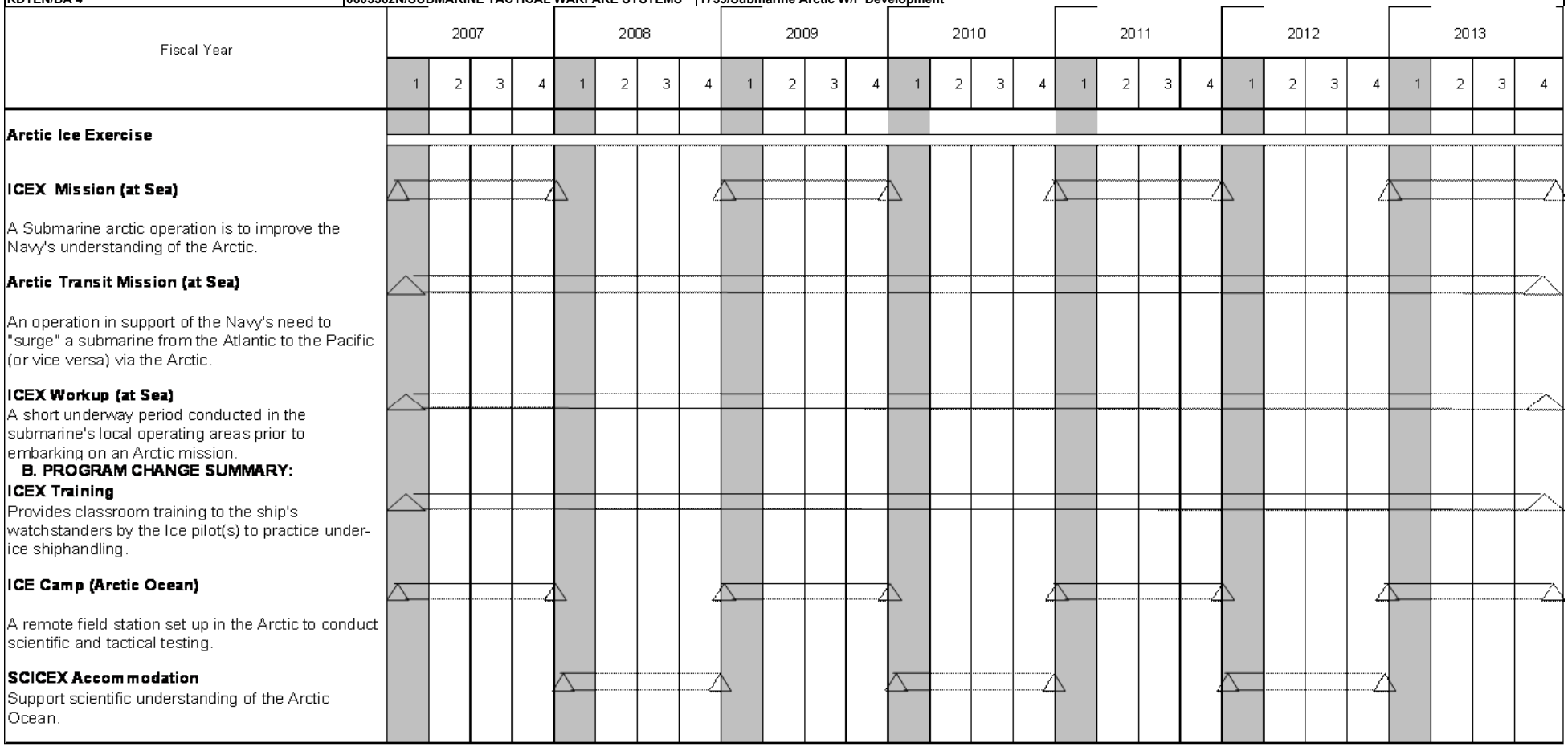
Use sole source and competitively awarded contracts through the Fleet Industrial Supply Center (FISC) regional contracting office for equipment and technical services. NAVSEA university omnibus contract will be used for procurement of logistics support for Ice Camps.

E. MAJOR PERFORMERS:

Command Submarine Force US Pacific Fleet (COMSUBPAC) and University of Washington Applied Physics Laboratory (UW/APL). Develop and definitize an Arctic-Deploying Side Scan Sonar replacement plan, which will deliver a significant, improved, and qualitative view of the underside of the Ice Canopy Sighting, and tracking of surfaceable features of current submarines, and the VIRGINIA class submarine.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS**					PROJECT NUMBER AND NAME **1739/Submarine Arctic W/F Development**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Developmental Test & Evaluation	WR	SUBDEVRON FIVE, HI	2.436	3.990	OCT-06	4.054	DEC-07	4.393	NOV-08	CONT	CONT	0.000
Developmental Test & Evaluation	C/CPFF	APL/University of Washington	0.550	1.300	NOV-06	1.300	JAN-08	1.300	OCT-08	CONT	CONT	0.000
Subtotal Test and Evaluation			**2.986**	**5.290**		**5.354**		**5.693**		**CONT**	**CONT**	**0.000**
Remarks:												
Program Management Support	C/CPFF	EG&G, VA	0.153	0.000		0.000	FEB-08	0.000	NOV-08	0.000	0.153	0.000
Program Management Support	C/CPFF	BAE SYSTEMS, MD	0.000	0.113	NOV-06	0.140	FEB-08	0.140	NOV-08	CONT	CONT	0.000
Travel	WR	NAVSEA PEO IWS 5, DC	0.010	0.010	NOV-06	0.010	JAN-08	0.010	NOV-08	CONT	CONT	0.000
Subtotal Management Services			**0.163**	**0.123**		**0.150**		**0.150**		**CONT**	**CONT**	**0.000**
Remarks:												
Total Cost			**3.149**	**5.413**		**5.504**		**5.843**		**CONT**	**CONT**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS**	PROJECT NUMBER AND NAME **1739/Submarine Arctic W/F Development**



R-1 Line Item No: 45

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

CLASSIFICATION:	UNCLASSIFIED					
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS**			PROJECT NUMBER AND NAME **1739/Submarine Arctic W/F Development**		
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
ICEX Mission (at Sea)	1Q-4Q		1Q-4Q		1Q-4Q		1Q-4Q
Arctic Transit Mission (at Sea)	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
ICEX Workup (at Sea)	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
ICEX Training	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
ICE Camp (Arctic Ocean)	1Q-4Q		1Q-4Q		1Q-4Q		1Q-4Q
SCICEX Accommodation	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q

CLASSIFICATION:	UNCLASSIFIED		
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION			DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS**	PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**	

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Organic Submarine Airborne ISRT Stealthy Affordable Capsule System (SACS)	0.000	2.782	0.000
RDT&E Articles Quantity	0	0	0

Organic Submarine Airborne ISRT Demo.

	FY 2007	FY 2008	FY 2009
High Awareness Littoral Observing (HALO) Sensor-360 Degree Imaging System	0.000	0.994	0.000
RDT&E Articles Quantity	0	0	0

High Awareness Littoral Observing Halo.

	FY 2007	FY 2008	FY 2009
Submarine Targeting Agile Array with Rapid Zooming	0.000	1.311	0.000
RDT&E Articles Quantity	0	0	0

Submarine Targeting Agile Array with Rapid Zooming.

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION							DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**			R-1 ITEM NOMENCLATURE **0603563N/SHIP CONCEPT ADVANCED DESIGN**				
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	21.154	39.341	31.111	30.154	29.573	30.136	30.704
2196 / "Design, Tools, Plans and Concepts"	1.806	1.336	1.380	1.414	1.396	1.424	1.448
3161 / NAVSEA Tech Authority	9.556	28.864	29.731	28.740	28.177	28.712	29.256
9999 / CONGRESSIONAL ADDS	9.792	9.141	0.000	0.000	0.000	0.000	0.000

A. MISSION DESCRIPTION:

Explore alternative surface ship force structures, advanced surface ship & unmanned surface vehicles concepts, and the potential technologies for these force structures and advanced concepts in support of pre-acquisition mission needs analysis, mission area analysis, SCN and R&D planning. The objective is a 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 development engineering, mission effectiveness analysis, and other analyses 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 3161 - This project funds a broad assortment of initiatives supporting NAVSEA Technical Authority through integrated efforts in Cross Platform Systems Development (CPSD), furthering Sea Enterprise through the development of support elements for Technical Warrant holders and meeting relevant needs of the warfare community. The areas of exploration for CPSD include surface ship concept advanced development, submarine concepts, next generation unmanned surface vehicle, high speed ships and craft, ship engineering and analysis technology center, tool integration and technical data exchange, embedded interoperability engineering, and mission capability system engineering. The research products developed by this project directly influence future acquisition programs by providing a range of technically acceptable alternatives and evaluation of emerging technologies.

(U) Project 9999: See project description on the R2a.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	R-1 ITEM NOMENCLATURE **0603563N/SHIP CONCEPT ADVANCED DESIGN**	

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
FY 2008 President's Budget	21.689	30.858	31.134
FY 2009 President's Budget	21.154	39.341	31.111
Total Adjustments	- 0.535	8.483	-0.023
Summary of Adjustments			
SBIR	-0.520		0.002
Navy Working Capital Fund Rate			-0.025
Cancelled Accounts	- 0.015		
Congressional Add		9.200	
Contractor Efficiencies		-0.065	
Revised Economic Assumptions		-0.190	
Executive Realignment		-0.462	
Total Adjustments	-0.535	8.483	-0.023

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/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 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	1.806	1.336	1.380	1.414	1.396	1.424	1.448
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project develops and explores alternative surface ship force structures, advanced surface ship & unmanned surface vehicles concepts, and the potential technologies for these force structures, along with advanced concepts in support of pre-acquisition mission needs analysis, mission area analysis, and SCN and R&D planning. The objective is a 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, surface ship mission effectiveness studies, and advanced design concept studies for the ships that may become part of the SCN plan.

(U) This project provides the foundation for an 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, weapons 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 development engineering, mission effectiveness analysis, and other analyses 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 alternative 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 Initial Capabilities Documents (ICD) and analogous early requirements documents 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 fundamental to the Navy's formulation of the future fleet.

(U) Efforts under Project 2196 transition directly to early stage ship design in PE 0603564N, Ship Preliminary Design and Feasibility Studies, and similar Program Executive Office (PEO) ship design programs. 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:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603563N/SHIP CONCEPT ADVANCED DESIGN**	PROJECT NUMBER AND NAME **2196/"Design, Tools, Plans and Concepts"**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.693	0.537	0.647
RDT&E Articles Quantity	0	0	0

U) Ship Concepts and Mission Need Analysis: Develop ship concepts and perform analysis for potential ships and Force Architecture 5-10 years out in SCN plan.
FY07: Directed Energy Weapon Impacts; Barely Manned Patrol Craft Study; Small Combatant Study-Pase 2; Force Architecture Studies to support NECC; ASW-LCS Studies; T3-LCS concept
FY08: LSD (X) concept studies; Driected Energy Impacts-Phase 2; Barely Manned Patrol Craft Design; Gap analysis for Expeditionary Strike Force; Competition for New Risk Area Projects
FY09: Concept designs for NECC/ESF Gap Analysis; Competition for New Risk Area Projects

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.311	0.250	0.245
RDT&E Articles Quantity	0	0	0

(U) Total Ship Technology Assessment: Analyze the benefits and impacts of new ship and hull, mechanical & electrical (HM&E) concepts, technologies and warfare systems.
FY07: Advanced Model TKMS for operational use (PEO LMW and PEO Ships focus); TKMS Capability Extensions based on Operational Feedback and emergent Customer Requirements
FY08: Support LSD Replacement AOA effort with technology identification using TKMS; Competition for New Risk Area Projects
FY09: Support LSD Replacement Design Team with tech. assessment, selection, and monitoring using TKMS; Analyze TKMS needs of TAO Replacement; Competition for New Risk Area Projects

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.516	0.374	0.313
RDT&E Articles Quantity	0	0	0

U) Ship Concept Design and Engineering Tools, Methods, and Criteria: Improve capability for rapid and accurate ship performance/cost/risk assessments and tradeoff studies.
FY07: ASSET Expanded Capability; COGENT UTE/TIES (II); LEAPS Composites Analysis; LEAPS Apps for Small Craft; Competition for New Risk Area Projects
FY08: ASSET Expanded Capability; LEAPS Composites Analysis (II); LEAPS Distribution System Modeling; LEAPS Apps for Small Craft (II); Competition for New Risk Area Projects
FY09: ASSET Expanded Capability; LEAPS Distribution System Modeling (II);LEAPS Apps for Small Craft (III); Competition for New Risk Area Projects

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.286	0.175	0.175
RDT&E Articles Quantity	0	0	0

((U) Mission Systems Interface Development and Demonstration: Requirements development to counter asymmetric, peer and littoral enemies with tailored, modularized mission systems.
FY07: VTOL AEW requirements analysis and JCTD planning; OTH prototype test and evaluation; Modularized weapon system interface definition and documentation

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603563N/SHIP CONCEPT ADVANCED DESIGN**	PROJECT NUMBER AND NAME **2196/"Design, Tools, Plans and Concepts"**

FY08: OTH - Unmanned Vehicle test and evaluation; Small combatant / craft stabilized weapon system concept development and ship impact analysis

FY09: Expeditionary Strike Force modular mission package definition; small combatant in-theater rearming concept development

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
(U) Related RDT&E									
(U) PE 0603512N (Carrier Systems Development)	156.248	84.806	72.683	61.070	44.864	44.477	46.373		
Development)	49.993	9.450	9.561	9.606	9.622	9.791	9.967		
Studies	25.766	18.736	10.642	25.794	12.696	3.639	0.638		
(U) PE 0604300N (SC21 Total Ship Systems Engineering)	820.065	621.544	658.223	880.899	1,004.274	839.915	702.464		
(U) PE 0604567N (Ship Contract Design/Live Fire T&E)	51.729	62.404	73.698	69.270	101.536	91.287	90.106		
Interoperab.	64.088	53.427	53.435	39.139	38.621	38.120	37.621		

D. 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.

E. MAJOR PERFORMERS:

Field Activities & Locations - Work Performed:

NSWC Carderock, Bethesda, MD - Future ship open architectures, advanced ship concepts, ship & ship system technology assessments, design & engineering tool upgrades

NSWC Dahlgren, Dahlgren, VA - Future force architectures, mission effectiveness analyses, analytical tool development

SPAWAR, San Diego, CA - C4ISR systems concept development & integration

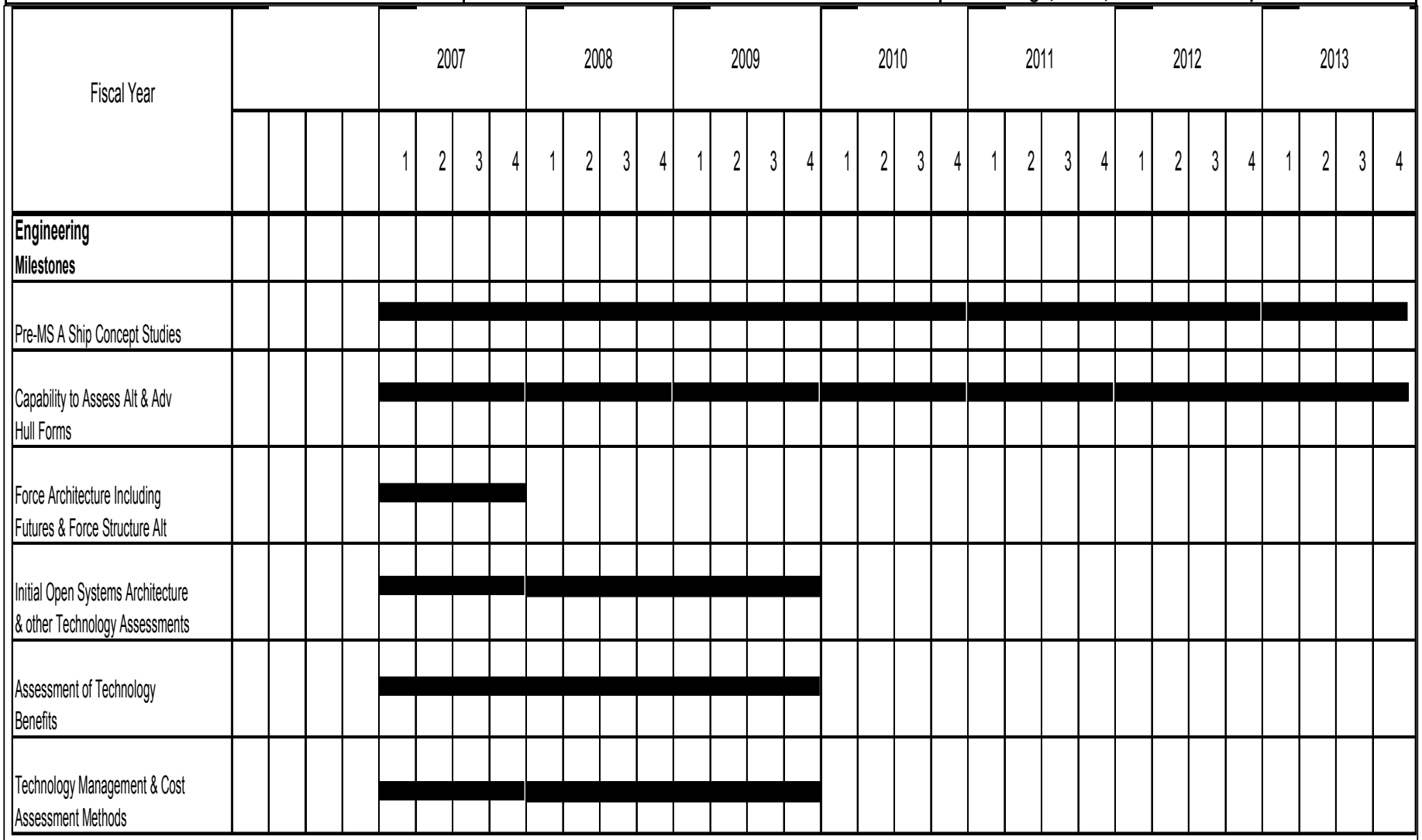
Contractors & Locations - Work Performed

TBD - Systems engineering analyses, trade studies, ship concept design, cost impact analysis

TBD - Software, tools development

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS												DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **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 Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Systems Enginerring	various	Other Various Contractors	61.172	0.324	TBD	0.271	TBD	0.273	TBD	CONT	CONT	0.000
Engineering Development	WX & RX	NAVSEA, Dahlgren Div,	6.712	0.652	TBD	0.275	TBD	0.275	TBD	CONT	CONT	0.000
	WX & RX	NSWC PHDNAVSEA, Carderock Div,	1.788	0.000		0.000		0.000			1.788	0.000
Demonstration & Evaluation	WX & RX	NAVSEA, Carderock Div,	39.210	0.710	TBD	0.720	TBD	0.762	TBD	CONT	CONT	0.000
	WX & RX	SPAWAR	0.150	0.100	TBD	0.050	TBD	0.050	TBD	CONT	CONT	0.000
Tooling	WX\RXPD	SPAWAR	10.391	0.000		0.000		0.000		0.000	10.391	0.000
Subtotal Product Development			**119.423**	**1.786**		**1.316**		**1.360**		**CONT**	**CONT**	**0.000**
Remarks:												
Subtotal Support Costs			**0.000**	**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	**0.000**
Remarks:												
Subtotal Test and Evaluation			**0.000**	**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	**0.000**
Remarks:												
Travel			0.030	0.020		0.020		0.020		CONT	CONT	0.000
Subtotal Management Services			**0.030**	**0.020**		**0.020**		**0.020**		**CONT**	**CONT**	**0.000**
Remarks:												
Total Cost			**119.453**	**1.806**		**1.336**		**1.380**		**CONT**	**CONT**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603563N/SHIP CONCEPT ADVANCED DESIGN**	PROJECT NUMBER AND NAME **2196/"Design, Tools, Plans and Concepts"**



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603563N/SHIP CONCEPT ADVANCED DESIGN**			PROJECT NUMBER AND NAME **2196/"Design, Tools, Plans and Concepts"**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Pre-MS A Ship Concept Studies	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
Capability to Assess Alt & Adv Hull Forms	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
Force Architecture Including Futures & Force Structure Alt	Q1 Q2 Q3 Q4						
Initial Open Systems Architecture & Other Technology Assessments	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4				
Assessment of Technology Benefits	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4				
Technology Management & Cost Assessment Methods	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4				
CPSD projects (10), transition to 3161 in FY07							

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603563N/SHIP CONCEPT ADVANCED DESIGN**				PROJECT NUMBER AND NAME **3161/NAVSEA Tech Authority**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	9.556	28.864	29.731	28.740	28.177	28.712	29.256
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

A. (U) Mission Description and Budget Item Justification: This project has been established to support NAVSEA Technical Authority through coordinated, collaborative, cross-platform systems development resulting in advanced capabilities across NAVSEA business lines through reuse, adaptation and extension of processes, procedures, and tools necessary to develop and explore alternative surface ship and submarine force structures; advanced submarine concepts, surface ship & unmanned surface vehicle concepts; interoperability; and development of systems level engineering criteria to support these force structures and advanced concepts as part of pre-acquisition mission needs analysis, mission area analysis, SCN, and R&D planning. The objective is the coordination of ongoing early-stage concept design and development efforts for cross-platform applicability to result in a more affordable, mission-capable, and interoperable surface ship and submarine forces including ships and submarines with reduced manning, increased producibility, reduced operating and support costs, and greater utilization of the latest technology.

(U) Efforts under Project 3161 enhance ongoing efforts within Project 2196 and transition directly to early-stage ship design for Ship and Submarine Preliminary Design and Feasibility Studies and other Program Executive Office (PEO) ship and submarine design programs. While these efforts support concept exploration and mission needs assessment for potential future ship and submarine acquisition programs, they are not direct efforts for specific, authorized shipbuilding programs. This project is the only R&D effort (Government or commercial) that provides a coordinated, collaborative approach to the development of cross-platform naval ship, submarine, and weapon system design and engineering capabilities in the areas of design tools, criteria, and methods. This project also provides innovative solutions for current Fleet issues involving Technical Authority, such as current interoperability issues with new systems or platforms.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603563N/SHIP CONCEPT ADVANCED DESIGN**	PROJECT NUMBER AND NAME **3161/NAVSEA Tech Authority**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.584	2.479	2.554
RDT&E Articles Quantity	0	0	0

(U) Ship Concept Advanced Development: Directly supports the Navy□s ability to understand risk and ROM cost of surface warfare assets; Pre-Milestone A ship and craft design and analysis. (CPSD 1)

FY07: Deployable/Recoverable OTH Comm Relays Prototype Development/Transition; High Speed Open Ocean Combatant Structural Design Criteria; Competition for New Risk Area Projects

FY08: Friction Stir Welding of Al for Naval Applications; Future Expeditionary Warfare Concept Study; UCAV Ship Support Study; High Speed Open Ocean Phase 2; Competition for New Risk Area Projects

FY09: Friction Stir Welding of Al for Naval Applications phase 2; Future Expeditionary Warfare Concept Designs; UCAV Ship Support Study Phase 2; Competition for New Risk Area Projects.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	1.547	2.695	2.778
RDT&E Articles Quantity	0	0	0

(U) Ship Design and Certification Tools and Technical Data Exchange: Evaluation tools to certify the safety and mission capability of ships and submarines. Integrated strategy for NAVSEA suite used to support of ship certs. (CPSD 2)

FY07: NEMO-LEAPS Integrator phase 4; Fleet Incident Situational Response program; LEAPS Modeling and Simulation Translator phase 2.

FY08: Extend tools and ship model integration supporting Fleet Incident Situational Response program. Extend and integrate modeling & simulation tools supporting LFT&E. Competition for New Risk Area Projects.

FY09: Extend and integrate analytical tools supporting high performance naval ship technologies. Demo tech data exchange between LFT&E M&S environment and shipbuilder CAD environments; Extend M&S integrated environmental to additional engineering disciplines. Competition for New Risk Area Projects.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	1.509	2.597	2.677
RDT&E Articles Quantity	0	0	0

(U) Advanced Ship Systems Development: Develop and validate advanced tools and processes to reduce technical risk to naval platform acquisition programs in support of naval Technical Authority (CPSD 3).

FY07: Conduct Future Fleet Engineering Systems and Service Life Studies; Initiate development of Full Ship Finite Element Modeling Baseline for Future Ships; Initiate development of Acoustic Spectrum Management Tools for Surface Ships.

FY08: Continue development and validation of Full Ship Finite Element Modeling Baseline; Expand development of Acoustic Spectrum Management Tools for Surface Ships capabilities and resolution; Initiate platform ballasting and deballasting design tool studies. Initiate Open Systems Architecture Baseline Combat System Studies for

transition into new acquisition platfoms and in-service ship upgrades.

FY09: Validate Future Fleet Engineering Systems and Service Life Studies; Continue development and validation of Full Ship Finite Element Modeling Baseline and expand resolution for damage control assessment; Continue platform ballasting and deballasting design tool studies; Validate ship system commercial design tools for advanced material handling and machining.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.757	1.729	1.779
RDT&E Articles Quantity	0	0	0

(U) Next Generation USV: Development and demonstration of Unmanned Surface Vehicle (USVs) with focus on autonomous behavior, modularity, new ship classes for pre AoA studies. (CPSD 4)

FY07: Automated Launch and Retrieval System Prototype; Autonomous Path Selection and Collision Avoidance Prototype; Rapidly Deployable MUTE USV Design; Payload Pwr Support Concept Design

FY08: Rapidly Deployable MUTE USV Prototype; Payload Power Support Prototype; Long Range Endurance design; Autonomous Health Monitoring and Recovery design; Competition for New Projects

FY09: Long Range Endurance prototype; Autonomous Health Monitoring and Recovery prototype; Competition for New Risk Area Projects.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	1.288	3.138	3.226
RDT&E Articles Quantity	0	0	0

(U) High Speed Ships and Craft: Investigate concepts for future high speed ships and craft that promise improved mission effectiveness in mobility, survivability, and warfare mission areas. (CPSD 5)

FY07: High Speed Propulsion Plant Architecture-phase 2; Ship Synthesis Modeling-phase 2; Propulsion Systems Engineering; Competition for New Risk Area Projects

FY08: High Speed Advanced Actuators design and prototype construction; Plant architecture systems engineering process integration into NVR; Competition for New Risk Area Projects

FY09: Drag Reduction Transition to fleet demonstrator; AWJ-21 design tool validation and NVR integration; Competition for New Risk Area Projects

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.715	2.939	3.027
RDT&E Articles Quantity	0	0	0

(U) Alternative Power Systems: Investigate concepts for ships and craft with alternative power/propulsion systems evaluating effectiveness in mobility, survivability, and warfare mission areas. (CPSD 6)

FY07: Propulsion Plant Architecture Study-phase 2; Nuclear Frigate Preliminary Design; Fuel Cell Concept SYSENG and validation with LDTS Data; Competition for New Risk Area Projects

FY08: Fuel Cell At Sea Demonstration design; Rim Driven Ducted Propulsor design; Competition for New Risk Area Projects

CLASSIFICATION:	UNCLASSIFIED		
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)			DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603563N/SHIP CONCEPT ADVANCED DESIGN**	PROJECT NUMBER AND NAME **3161/NAVSEA Tech Authority**	

FY09: Fuel Cell At Sea Demonstration prototype construction; Rim Driven Ducted Propulsor prototype construction; Competition for New Risk Area Projects

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.000	1.173	1.207
RDT&E Articles Quantity	0	0	0

(U) Ship Engineering & Analysis Technology Center (formerly Hydrodynamic/Hydroacoustic Technology Center (H/HTC)): Provides Government activities, shipbuilders, academia and contractors the following (FY07-FY09): high performance computing systems; commercial and research software libraries; classified and unclassified connectivity; high end data visualization; and collaboration tools/Centralized data repository. Provide the framework of continued world class computing upon which specific task funding will build. (project 2196 in FY06) (CPSD 7)

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.715	3.842	3.956
RDT&E Articles Quantity	0	0	0

(U) Future Submarine Design: Develop ship concept studies and evaluate technologies to define the Next Generation Submarine, common SSN-SSBN Hull and Payload Modularity. (CPSD 8)

FY07: Navy After Next Tech Validations; SUBCODE Concept Design Tool Dev - phase 2; Technical Warrant Holder Concept Validation Support; Submarine Design Processes and Standards Development

FY08: Navy After Next Tech Validations; Technical Warrant Holder Concept Validation Support; SUBCODE Concept Design Tool Dev - phase 3; Submarine Design Processes and Standards Development

FY09: Navy After Next Tech Validations; Technical Warrant Holder Concept Validation Support; SUBCODE Concept Design Tool Dev - phase 4; Submarine Design Processes and Standards Development

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	1.258	4.036	4.160
RDT&E Articles Quantity	0	0	0

(U) Embedded Interoperability (I/O) Engineering: Establishes and executes a dedicated process for evaluating the interoperability performance of warfare systems early in the acquisition cycle, prior to certification. Embedded I/O ensures that fewer mission critical system failuresdegrade the ultimately fieldedwarfighting capability. Focus on emerging Open Architecture warefare systems. (CPSD 9)

FY07: Develop tactics, techniques and procedures (TTP) for CVN 69, 74, and 76based on FY06 work; Interoperability test and assessment planning for LCS-1,LPD 18.Develop BFIMS.

FY08: Develop TTP for LPD 18; Pre-certification for the interoperability test and assessment of CVN 77, CVN 73,LHD 7, DDG Modernization and DDG 1000. EnhanceBFIMS capabilities.

FY09: Develop TTP for CVN 77 and DDG Modernization based on FY 08 work; Pre-certification for the interoperability test and assessment of LCS 1 & 2, CG Modernization, DDG 1000 and CVN 21 (CVN 78). Develop TTP for LCS 1 & 2 based on FY 09 work.

	FY 2007	FY 2008	FY 2009

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603563N/SHIP CONCEPT ADVANCED DESIGN**	PROJECT NUMBER AND NAME **3161/NAVSEA Tech Authority**

Accomplishments/Effort/Subtotal Cost	1.183	4.236	4.367
RDT&E Articles Quantity	0	0	0

(U) Mission Capability Systems Engineering: Develop force level systems engineering criteria and guidance at the systems of systems (SoS) and Family of Systems (FoS) level. (CPSD 10)

FY07: Continue to refine the Warfare Systems Engineering Process; update concepts to Mission Capability Based Requirements; review Warfare System Integrated Architectures for interoperability; evaluate the development of Warfare Systems Integrated Architectures and ensure alignment to FORCEnet Architecture; evaluate systems engineering principles to Sea Trial Experiments aligned with mission capability gaps. Develop transition documentation for experiments achieving positive military utility assessments; analyze and develop ground level Key Performance Parameters for use across all AT/FP programs.

FY08 and beyond: Continue to provide technical standards, definitions and requirements for National Security Systems (NSS), integrated architecture views for warfare systems of systems, independent technical analysis of warfare systems design and development options and the development of technical artifacts and associated products required by applicable source references by using specially selected Technical Authority Warrant Holders.

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
(U) Related RDT&E									
(U) PE 0603512N (Carrier Systems Development)	153.894	88.064	71.937	60.369	44.339	44.097	46.127		
Development)	14.135	9.424	9.456	9.493	9.517	9.719	9.926		
Studies	21.314	18.627	10.560	25.588	12.609	3.622	0.636		
(U) PE 0604300N (SC21 Total Ship Systems Engineering)	817.528	617.923	652.858	873.516	997.010	835.763	700.520		
(U) PE 0604567N (Ship Contract Design/Live Fire T&E)	72.055	62.114	73.073	68.650	100.768	90.811	89.846		

D. 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 and submarine acquisition programs. This program also supports development, demonstration, evaluation, and validation of engineering tools, methods, and criteria for those concept designs and assessments. This program supports the NAVSEA Technical Warrant Holders by providing validated engineering tools, methods, and criteria for ship, submarine and weapon system concept designs and assessments while fostering collaboration and coordination of efforts resulting in more effective use of funding.

E. MAJOR PERFORMERS:

Field Activities & Locations - Work Performed:

NSWC Carderock, Bethesda, MD - Future ship open architectures, advanced ship concepts, ship & ship system technology assessments, design & engineering tool upgrades

NSWC Dahlgren, Dahlgren, VA - Future force architectures, mission effectiveness analyses, analytical tool development

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603563N/SHIP CONCEPT ADVANCED DESIGN**	PROJECT NUMBER AND NAME **3161/NAVSEA Tech Authority**

SPAWAR, San Diego, CA - C4ISR systems concept development & integration

Contractors & Locations - Work Performed

TBD - Systems engineering analyses, trade studies, ship concept design, cost impact analysis

TBD - Software, tools development

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603563N/SHIP CONCEPT ADVANCED DESIGN**					PROJECT NUMBER AND NAME **3161/NAVSEA Tech Authority**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Systems Engineering	various	Various Contractors	0.000	2.721	TBD	2.498	TBD	2.548	TBD	CONT	CONT	0.000
	WX&RX	NSWC, NUWC, CDSA	0.000	2.335	TBD	10.760	TBD	11.094	TBD	CONT	CONT	0.000
Engineering Development	WX&RX	NSWC, NUWC	0.000	1.500	TBD	11.215	TBD	11.563	TBD	CONT	CONT	0.000
			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Demonstration & Evaluation	WX&RX	NSWC	0.000	1.400	TBD	4.191	TBD	4.324	TBD	CONT	CONT	0.000
	WX&RX	SPAWAR	0.000	1.500		0.100		0.102		CONT	CONT	0.000
Subtotal Product Development			**0.000**	**9.456**		**28.764**		**29.631**		**CONT**	**CONT**	**0.000**
Remarks:												
Subtotal Support Costs			**0.000**	**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	**0.000**
Remarks:												
Subtotal Test and Evaluation			**0.000**	**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	**0.000**
Remarks:												
Travel			0.000	0.100		0.100		0.100		CONT	CONT	0.000
Subtotal Management Services			**0.000**	**0.100**		**0.100**		**0.100**		**CONT**	**CONT**	**0.000**
Remarks:												
Total Cost			**0.000**	**9.556**		**28.864**		**29.731**		**CONT**	**CONT**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603563N/SHIP CONCEPT ADVANCED DESIGN**	PROJECT NUMBER AND NAME **3161/NAVSEA Tech Authority**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	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																												
Ship Concepts Advanced Development																												
Ship Design and Certification Tools and Technical Data Exchange																												
Advanced Ship Systems Development																												
Next Generation USV																												
High Speed Ships and Craft																												
Alternative Power Systems																												
Ship Engineering & Analysis Technology Center																												
Future Submarine Design																												
Embedded Interoperability Engineering																												
Mission Capability Systems Engineering																												

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603563N/SHIP CONCEPT ADVANCED DESIGN**			PROJECT NUMBER AND NAME **3161/NAVSEA Tech Authority**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Cross Platform Systems Development	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
Ship Concepts Advanced Development	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
Ship Design and Certification Tools and Technical Data Exchange	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
Advanced Ship Systems Development	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
Next Generation USV	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
High Speed Ships and Craft	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
Alternative Power Systems	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
Ship Engineering & Analysis Technology Center	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
Future Submarine Design	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
Embedded Interoperability Engineering	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
Mission Capability Systems Engineering	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603563N/SHIP CONCEPT ADVANCED DESIGN**	PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Advanced Capabilities Group	2.040	0.000	0.000
RDT&E Articles Quantity	0	0	0

(U) Advanced Capabilities Group - To conduct a series of studies in FY2007 in topics ranging from capability based costing of ship platforms to early stage assessment of mission effectiveness and system performance

	FY 2007	FY 2008	FY 2009
Machinery Analytical for Controls & Monitoring System	1.317	0.000	0.000
RDT&E Articles Quantity	0	0	0

(U) Machinery Analytical for Controls & Monitoring System - This add will integrate remote monitoring technologies with Navy shipboard CBM systems to significantly improve diagnostics, troubleshooting, remote monitoring and assessment for distance support and maintenance planning, informing shipboard operators at the first sign of pending problems and enabling them to take proactive corrective measures before a failure occurs.

	FY 2007	FY 2008	FY 2009
Scout Radar Stealth Upgrades for Special Warfare Crafts	0.979	0.000	0.000
RDT&E Articles Quantity	0	0	0

(U) Scout Radar Stealth Upgrades for Special Warfare Crafts - To further refine the initial process of converting a Low Probability of Intercept (LPI) Radar with a six foot scanner to a LPI Radar with a smaller scanner capable of being used on Combatant Craft (small boats).

	FY 2007	FY 2008	FY 2009
Advanced Video Processing Technologies (AVPT)	0.000	0.986	0.000
RDT&E Articles Quantity	0	0	0

	FY 2007	FY 2008	FY 2009
SCOUT MK3	0.000	0.986	0.000
RDT&E Articles Quantity	0	0	0

	FY 2007	FY 2008	FY 2009
Autonomous Maritime Navigation Program	5.456	4.784	0.000
RDT&E Articles Quantity	0	0	0

U) Autonomous Maritime Navigation Program - AMN involves development of sensor fusion processing; development of automated data interpretation processing; development of intelligent autonomy and control , integration of these components into a fully autonomous dynamic navigation planning and operations capability, and integration into Navy test craft for system maturing and testing. System by design will be portable to other military platforms, both unmanned and manned, to enable very high levels of autonomous operations to reduce manpower requirements and improve both war fighter safety and conditions.

	FY 2007	FY 2008	FY 2009

CLASSIFICATION:	UNCLASSIFIED		
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)			DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603563N/SHIP CONCEPT ADVANCED DESIGN**	PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**	

Low-Signature Modular Weapon Platform	0.000	2.385	0.000
RDT&E Articles Quantity	0	0	0

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION							DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**			R-1 ITEM NOMENCLATURE **0603564N/SHIP PRELIMINARY DESIGN & FEASIBILITY STUDIES**				
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	25.109	25.987	14.627	26.717	12.626	3.588	0.600
0408 / SHIP DEVELOPMENT (ADV)	0.542	3.466	4.549	1.555	0.580	0.604	0.600
3127 / Sea Base to Shore Connectors (Cncpt Stud)	12.988	12.900	0.000	0.000	0.000	0.000	0.000
3132 / Intertheater Connectors (Concept Studies)	7.161	0.000	0.000	0.000	0.000	0.000	0.000
3195 / JCC(X)	0.000	1.970	10.078	25.162	12.046	2.984	0.000
9993N / Support For Naval Ship Hydrodynamic Test Facilitie	4.418	7.651	0.000	0.000	0.000	0.000	0.000
9999 / CONG ADDS	0.000	0.000	0.000	0.000	0.000	0.000	0.000

A. MISSION DESCRIPTION:

0408 Ship Development project supports the evaluation of advanced and alternative technologies through the Surface Ship Technology (SURFTECH) process for suitability for meeting total ship concepts capability needs.

The objective of this project is to provide the decision makers with feasible, affordable alternatives to be selected for further development. AGOR Ocean - Funds in FY08-FY10 are for design development efforts to support procurement of two AGOR Ocean Class Vessels in FY12 & FY13.

3127 Sea Base to Shore Connectors (Concept Studies) is intended to provide the functional replacement for the Landing Craft Air Cushion (LCAC) whose SLEP extended service life ends beginning in 2014. It will provide the surface assault portion of the Joint Expeditionary Maneuver Warfare tactical solution set requirement.

3131 Intratheater Connectors (Concept Studies) develops future capabilities concepts in support of intratheater connectors.

3132 Intertheater Connectors (Concept Studies) conducts feasibility studies and preliminary design studies for a high speed sealift ship to delivernon-self deployingaircraft to the sea base.

3195 - JCC(X) is a mobile, self-sustaining platform (that may be based on the LPD 17 hull form) with robust C4ISR capability for a Joint Force Commander and staff and provides in-theater command and control should a land-based headquarters be unavailable, constrained or threatened. RDT&E profile supports necessary preliminary efforts in order to award detail design and procurement contract.

9993N Support for Naval Ship Hydrodynamic Test Facility and the Common Composite Island Concept are Congressional Adds

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	R-1 ITEM NOMENCLATURE **0603564N/SHIP PRELIMINARY DESIGN & FEASIBILITY STUDIES**	

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
Previous Presidents Budget Controls (FY 08 PRES Controls)	25.766	18.736	10.642
Current Presidents Budget Controls (FY 09 PRES Controls)	25.109	25.987	14.627
Total Adjustments	-0.657	7.251	3.985
Summary of Adjustments			
Programmatic - Design UNOLS AGOR Class Ships	0.000	0.000	4.000
Small Business Innovation Research (SBIR)	-0.657		
Navy Working Capital Fund	0.000	0.000	0.004
Congressional Add		7.700	
Exec Realign/ Program Reductions		-0.449	-0.019
Total	-0.657	7.251	3.985

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603564N/SHIP PRELIMINARY DESIGN & FEASIBILITY STUDIES**				PROJECT NUMBER AND NAME **0408/SHIP DEVELOPMENT (ADV)**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	0.542	3.466	4.549	1.555	0.580	0.604	0.600
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project supports the evaluation of advanced and alternative technologies through the Surface Ship Technology (SURFTECH) process for suitability for meeting total ship concepts capability needs. The objective of this project is to provide the decision makers with feasible, affordable alternatives to be selected for further development.
In support of surface ship advanced technology development and transformation, the surface ship community has instituted a technology evaluation process to coordinate, identify, prioritize, and integrate technology insertion and development efforts and assist RDT&E community efforts to initiate appropriate technology development. The current acquisition guidelines require the development of critical technologies after Milestone A. If significant gap analysis, planning, and early development efforts are not conducted in parallel with Concept Development the Navy will not be able to provide broad, cross-platform direction to surface navy development efforts in an effective manner and will not effectively leverage limited resources to quicken the pace of both development and transition of critical mission technologies for timely acquisition.

AGOR OCEAN - Funding has been placedin FY08-FY10 to support FY11 and FY12 procurement of two general purpose research vessels designed for integrated, interdisciplinary research. These vessels will support science, educational and engineering operations in all oceans. The vessels will operate within University Oceanographic Laboratory System (UNOLS).

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603564N/SHIP PRELIMINARY DESIGN & FEASIBILITY STUDI**	PROJECT NUMBER AND NAME **0408/SHIP DEVELOPMENT (ADV)**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.542	3.466	4.549
RDT&E Articles Quantity	0	0	0

As new ship concepts with desired mission capabilities are developed, SURFTECH will continuously identify, prioritize, and integrate technology insertion and development efforts and assist the RDT&E community efforts to initiate appropriate technology development. SURFTECH will provide continuous analysis of and feedback to ongoing technology development efforts to ensure project relevance and timely transition to meet acquisition schedules, which will be documented in the Technology Plan.

AGOR OCEAN:
RDT&E profile supports necessary preliminary efforts in order to award detail design and procurement contract.

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
SCN/BLI 5087 Oceangraphic Ships					92.500	92.500		TBD	185.000

D. ACQUISITION STRATEGY:
0408 -On-going
AGOR OCEAN Using phased acquisition strategy to support procurement of two research vessels by 2017. Fixed price type contract will be used.

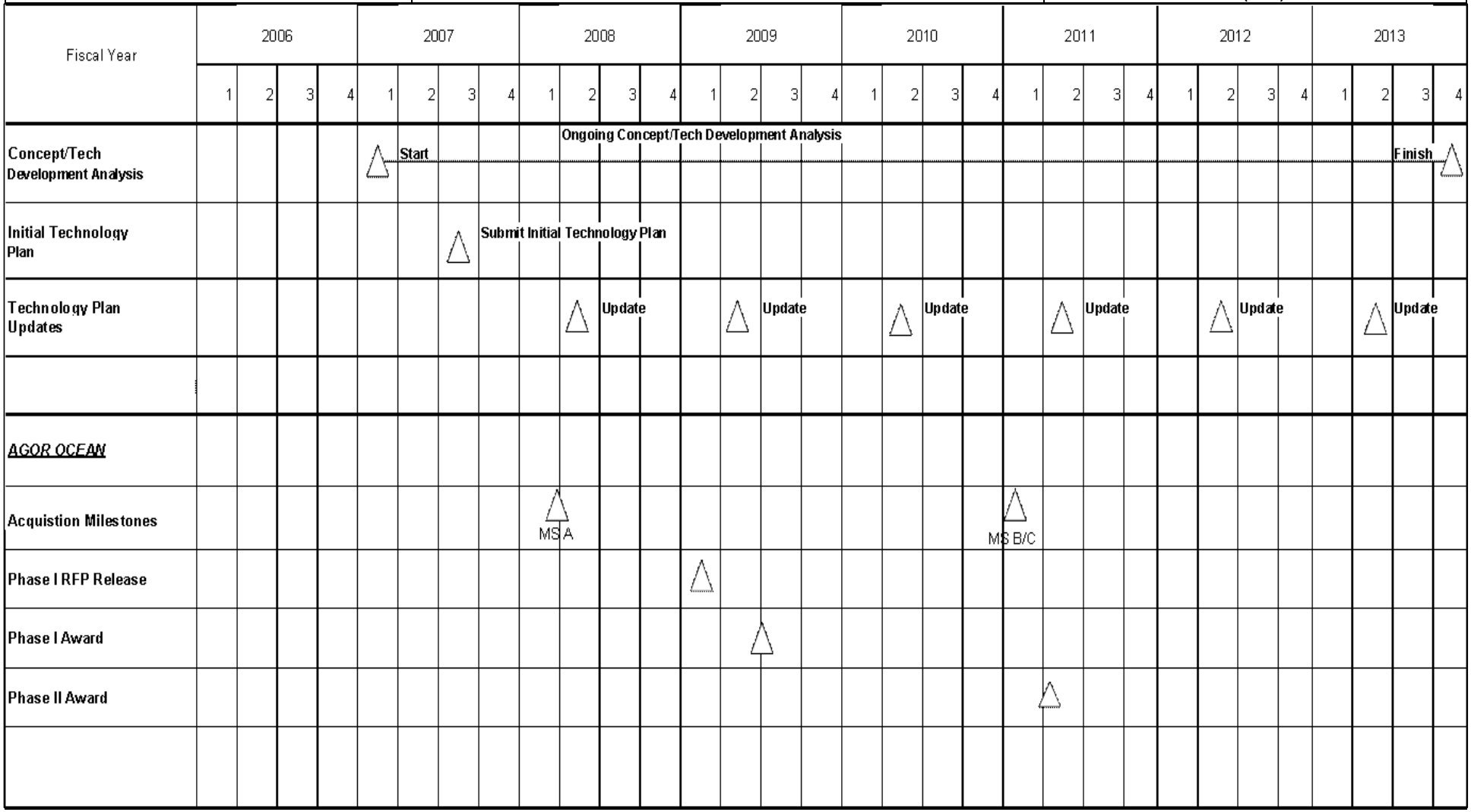
E. MAJOR PERFORMERS:
0408 - Various
AGOR OCEAN

Field Activities & Locations - Work Performed:
NSWC, Carderock, MD - Concept development and engineering support
NAVO Stennis Space Center, MS - Concept development and engineering support

Contractors & Locations - Work Performed:
CSC, Washington, DC - Engineering Support
ALION-JJMA, Washington, DC - Program Support
Universities & Locations - Work Performed:

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603564N/SHIP PRELIMINARY DESIGN & FEASIBILITY STUDIES**					PROJECT NUMBER AND NAME **0408/SHIP DEVELOPMENT (ADV)**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Contract/Functional Design (AGOR Ocean)	TBD	TBD	0.000	0.000		0.000		3.000	JAN-08	0.000	3.000	0.000
Subtotal Product Development			**0.000**	**0.000**		**0.000**		**3.000**		**0.000**	**3.000**	**0.000**
Remarks:												
Integrated Logistics (Non AGOR)	Various	Various	0.000	0.096	APR-07	0.100	TBD	0.100	TBD	0.460	0.756	0.000
Configuration Mngt (Non AGOR)	Various	Various	0.000	0.390	JAN-07	0.400	TBD	0.408	TBD	1.753	2.951	0.000
Subtotal Support Costs			**0.000**	**0.486**		**0.500**		**0.508**		**2.213**	**3.707**	**0.000**
Remarks:												
Subtotal Test and Evaluation			**0.000**	**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	**0.000**
Remarks:												
Contractor Engineering Support (AGOR Ocean)	MAC	CSC	0.000	0.000		1.124	JAN-08	0.331	JAN-09	0.400	1.855	0.000
Government Engineering Support (AGOR Ocean)	WX	Various	0.000	0.000		0.350	JAN-08	0.075	JAN-09	0.075	0.500	0.000
Program Management Support (AGOR Ocean)	MAC	Alion/JJMA	0.000	0.000		1.400	JAN-08	0.543	JAN-09	0.500	2.443	0.475
Travel (AGOR Ocean)	PD	NAVSEA	0.000	0.000		0.050	JAN-08	0.032	JAN-09	0.025	0.107	0.000
Program Management (Non AGOR)	Various	Various	0.000	0.056	JAN-07	0.042	JAN-08	0.060	JAN-09	0.256	0.414	0.000
Subtotal Management Services			**0.000**	**0.056**		**2.966**		**1.041**		**1.256**	**5.319**	**0.000**
Remarks:												
Total Cost			**0.000**	**0.542**		**3.466**		**4.549**		**3.469**	**12.026**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603564N/SHIP PRELIMINARY DESIGN & FEASIBILITY STUDIES**	PROJECT NUMBER AND NAME **0408/SHIP DEVELOPMENT (ADV)**



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603564N/SHIP PRELIMINARY DESIGN & FEASIBILITY STUDIES**			PROJECT NUMBER AND NAME **0408/SHIP DEVELOPMENT (ADV)**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
AGOR OCEAN - Milestone A		2Q					
AGOR OCEAN - Phase I RFP Release			1Q				
AGOR OCEAN - Phase I Award			2Q				
AGOR OCEAN - Milestone B/C					1Q		
AGOR OCEAN - Phase II Award					2Q		
Non AGOR Concept /Tech Development Analysis	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Non AGOR Initial Technology Plan	3Q						
Non AGOR Technology Plan Updates		2Q	2Q	2Q	2Q	2Q	2Q

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603564N/SHIP PRELIMINARY DESIGN & FEASIBILITY STUDIES**				PROJECT NUMBER AND NAME **3127/Sea Base to Shore Connectors (Cncpt Stud)**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	12.988	12.900	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Provides the surface assault portion of the Joint Expeditionary Maneuver Warfare tactical solution set requirement to project, sustain, retrograde and re-employ joint combat power from the sea and Sea Base, independent of tides, water depth, underwater obstacles, or beach gradient. Provides the functional replacement for LCAC SLEP whose SLEP extended service life ends beginning in 2014. The program is currently developing an Initial Capabilities Document.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603564N/SHIP PRELIMINARY DESIGN & FEASIBILITY STUDI**	PROJECT NUMBER AND NAME **3127/Sea Base to Shore Connectors (Cncpt Stud)**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	12.988	12.900	0.000
RDT&E Articles Quantity	0	0	0

Complete ICD in the beginning of FY 07

Start and complete AoA in FY07

Started Concept Refinement in FY 06 to complete in FY07: Refines the initial concept and develops a technology development strategy.

Start preparation of Capability Development Document (CDD) in FY 08 to complete in FY10: The CDD outlines an affordable increment of militarily useful, logistically supportable and technically mature capability.

Prepare for and participate in Milestone A Review in FY07.

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
SCN 0204411N Surface Connector (55112)	0.000	0.000	0.000	0.000	217.080	0.000	215.881	3,773.300	4,206.261
RDT7EN 0604567 Sea Base Connector (3133)	0.000	14.320	26.154	9.854	1.878	1.942	1.999	0.000	57.188

D. ACQUISITION STRATEGY:

FY07 - ICD, FY07 - AoA,FY07 Concept Refinement, FY10 CDD Complete, FY11 Technology Development Complete

E. MAJOR PERFORMERS:

Field Activities & Locations - Work Performed
NSWC Philadelphia, Phil. PA.
Philadelphia, PA
Systems Engineering - Propulsion Systems
NSWC Panama City, FL
Panama City, FL
Systems Engineering - Hull, Mechanical & Electrical
NUWC Keyport, FL
Keyport, FL
Systems Engineering - Command and Control

Contractors & Locations - Work Performed
Textron Marine & Land Systems, New Orleans LA - SSC Concept Study & Skirt Technology
Rolls-Royce, Walpole, MA - Marine Gas Turbine
Goodrich, Jacksonville, FL - Composite Fan propulsor Assembly
NG Electric Systems, Sunnyvale, CA - Integrated Power Systems and Mechanical Drive Options
Umoe Mandal, Virginia Beach, VA - Concept Study & Fiber Reinforced Plastic
Alion Science and Tech., Chicago, IL - Hybrid ACV Propulsion
Technology Systems Inc, Brunswick, MA - Augmented Reality Visualization

Universities & Locations - Work Performed
Penn State ARL, State College, PA - Maintenance Network

Field Activities & Locations - Work Performed
NSWC Philadelphia, Phil. PA.Philadelphia, PA Systems Engineering - Propulsion Systems
NSWC Panama City, FL Panama City, FL Systems Engineering - Hull, Mechanical & Electrical
NUWC Keyport, FL Keyport, FL Systems Engineering - Command and Control

Contractors & Locations - Work Performed

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603564N/SHIP PRELIMINARY DESIGN & FEASIBILITY STUDI**	PROJECT NUMBER AND NAME **3127/Sea Base to Shore Connectors (Cncpt Stud)**

Textron Marine & Land SystemsNew Orleans LASSC Concept Study & Skirt Technology
Rolls-Royce Walpole, MA Marine Gas Turbine
GoodrichJacksonville, FL Composite Fan propulsor Assembly
NG Electric SystemsSunnyvale, CA Integrated Power Systems and Mechanical Drive Options
Umoe Mandal Virginia Beach, VAConcept Study & Fiber Reinforced Plastic
Alion Science and Tech.Chicago, IL Hybrid ACV Propulsion
Technology Systems IncBrunswick, MAAugmented Reality Visualization

Universities & Locations - Work Performed
Penn State ARLState College, PA Maintenance Network

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603564N/SHIP PRELIMINARY DESIGN & FEASIBILITY STUDIES**				PROJECT NUMBER AND NAME **3132/Intertheater Connectors (Concept Studies)**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	7.161	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Intertheater Connectors - conduct feasibility studies and preliminary design studies for a high speed sealift ship to deliver non-self deploying aircraft to the seabase. The ship will provide an improved MEB force closure for the seabase by deploying troops, non-self deploying aircraft and other high demand/low density (HD/LD) items via rapid surface strategic lift directly to the seabase. Analysis developed during Joint Staff sponsored Advanced Mobility Concept Study also indicates that rapid surface lift can close larger forces faster than airlift in certain circumstances. Consequently, the Intertheater Connector is envisioned to be a strategic sealift vessel capable of supporting closure of Marine Expeditionary Brigade, Army SBCT, Navy, Air Force or SOF units.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603564N/SHIP PRELIMINARY DESIGN & FEASIBILITY STUDI**	PROJECT NUMBER AND NAME **3132/Intertheater Connectors (Concept Studies)**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	3.095	0.000	0.000
RDT&E Articles Quantity	0	0	0

R&D Efforts for Intertheater Connector - Develop and Validate tools in critical technology areas to allow Navy to Warrant /Certify possible designs of high speed intertheater connectors; Resistance and Powering, Hull/Propulsor Interaction, Seakeeping and Structural Loads.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	4.066	0.000	0.000
RDT&E Articles Quantity	0	0	0

Engineering and Acquisition Support - Engineering and program management including requirements development, acquisiton documentation development in support of acquisition milestones. Concept studies in support of Concept Decision and AOA.

C. OTHER PROGRAM FUNDING SUMMARY:

N/A

D. ACQUISITION STRATEGY:

Concept studies will be conducted to determine how to best meet new Navy requirements for the intertheater connector.

E. MAJOR PERFORMERS:

Field Activities & Locations - Work Performed:

NSWC, Carderock, MD - Concept development and engineering support

NSWC, Panama City, FL - Concept development

NFESC Pt Hueneme CA - Concept developmentSPAWAR Systems Center, Charleston SC - Concept development and engineering support

NAVAIR Pax River, MD - Concept development and engineering support

Office of Naval Research, Arlington, VA - Concept Development

Contractors & Locations - Work Performed:

CSC, Washington, DC - Engineering Support

Universities & Locations - Work Performed:

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603564N/SHIP PRELIMINARY DESIGN & FEASIBILITY STUDIES**				PROJECT NUMBER AND NAME **3195/JCC(X)**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	0.000	1.970	10.078	25.162	12.046	2.984	0.000
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(3195) JCC(X) is a mobile, self-sustaining platform (that may be based on the LPD 17 hull form) with robust C4ISR capability for a Joint Force Commander and staff and provides in-theater command and control should a land-based headquarters be unavailable, constrained or threatened.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603564N/SHIP PRELIMINARY DESIGN & FEASIBILITY STUDI**	PROJECT NUMBER AND NAME **3195/JCC(X)**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.000	1.970	10.078
RDT&E Articles Quantity	0	0	0

Budgeted funds will fund JCC(X) requirements documentation and other JCC(X) preliminary design and feasibility study efforts necesary to obtain a Program Decision to proceed with start of functional designs in FY 2009.

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
BLI: 5521500 (JCC(X) SCN)						1,923,978.000	0.000		

D. ACQUISITION STRATEGY:

E. MAJOR PERFORMERS:

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603564N/SHIP PRELIMINARY DESIGN & FEASIBILITY STUDIES**					PROJECT NUMBER AND NAME **3195/JCC(X)**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Prelim Design & Feasibility Studies	VARIOUS	VARIOUS	0.000	0.000		1.970		10.078		40.192	52.240	0.000
Subtotal Product Development			**0.000**	**0.000**		**1.970**		**10.078**		**40.192**	**52.240**	**0.000**
Remarks:												
Subtotal Support Costs			**0.000**	**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	**0.000**
Remarks:												
Subtotal Test and Evaluation			**0.000**	**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	**0.000**
Remarks:												
Subtotal Management Services			**0.000**	**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	0.000
Subtotal Ship Preliminary Design & Feasilbility Studies to acheive JCC(X) Acquisition			**0.000**	**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	**0.000**
Remarks:												
Total Cost			**0.000**	**0.000**		**1.970**		**10.078**		**40.192**	**52.240**	**0.000**

EXHIBIT R4, Schedule Profile		Date: February 2008
APPROPRIATION/BUDGET / PROGRAM ELEMENT NUMBER AND NAME		PROJECT NUMBER AND NAME
RDTEN/BA-4	PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY STUDIES	3195 JCC(X)

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	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
JCC(X) Ship Preliminary Design & Feasibility Studies to achieve JCC(X) Acquisiton Milestones																												
MS A(Concept Decision)											△																	
MS B																						△						
Detailed Design & Construction																						△	—	—	—	—	—	—

CLASSIFICATION:
UNCLASSIFIED

EXHIBIT R-4
SCHEDULE PROFILE

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603564N/SHIP PRELIMINARY DESIGN & FEASIBILITY STUDIES**			PROJECT NUMBER AND NAME **3195/JCC(X)**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
MS A			3Q				
MS B						2Q	
Detailed Design and Construction						2Q-4Q	1Q-4Q

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603564N/SHIP PRELIMINARY DESIGN & FEASIBILITY STUDIES**				PROJECT NUMBER AND NAME **993N/Support For Naval Ship Hydrodynamic Test F**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	4.418	7.651	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) Part of the FY08 Congressional add is for support for Naval Ship Hydrodynamics Test Facilities. The amount is $4,968K. Another part of this Congressional add is for a Common Composite Island Concept. The amount is $2,683K.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603564N/SHIP PRELIMINARY DESIGN & FEASIBILITY STUDI**	PROJECT NUMBER AND NAME **9993N/Support For Naval Ship Hydrodynamic Test Facilitie**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000
RDT&E Articles Quantity	0	0	0

C. OTHER PROGRAM FUNDING SUMMARY:

D. ACQUISITION STRATEGY:

E. MAJOR PERFORMERS:

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	R-1 ITEM NOMENCLATURE **0603573N/ADVANCED SURFACE MACHINERY SYSTEMS**	

COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	8.107	1.590	0.000	0.000	0.000	0.000	0.000
9999 / Congressional Add	8.107	1.590	0.000	0.000	0.000	0.000	0.000

A. MISSION DESCRIPTION:

(U) Project 9999 - See the R2a for descriptions.

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
FY 2008 President's Budget	2.789	0.000	0.000
FY 2009 President's Budget	8.107	1.590	0.000
Total Adjustments	5.318	1.590	0.000
Summary of Adjustments			
SBIR	-0.161		
Minor Reductions	- 0.021	-0.010	
Congressional adds	5.500	1.600	
Subtotal	5.318	1.590	0.000

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603573N/ADVANCED SURFACE MACHINERY SYSTEMS**	PROJECT NUMBER AND NAME **9999/Congressional Add**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
9043C/9043 Advanced Combatant Materials Research	4.195	1.590	0.000
RDT&E Articles Quantity	0	0	0

(U)FY 2007 - Due to changing operational requirements, ships will require improved stealth, speed, and payload flexibility, which can place additional burdens on ship weight. The Advanced Combatant Materials funding will investigate high strength, damage tolerant, lightweight materials and associated advanced fabrication technologies that can achieve significant weight reduction or improved performance. These include improved marine aluminum alloys, solid state welding processes, novel titanium alloy processing, advanced steels for improved blast and ballistic protection, and a breakthrough in composite - metal joining invented in the UK.

(U) FY 2008 - Continued FY 2007 effort.

	FY 2007	FY 2008	FY 2009
9819C LCS Advanced Lightweight Metals Tech for Aluminum Structure	1.760	0.000	0.000
RDT&E Articles Quantity	0	0	0

(U)The purpose of the add is to address several concerns regarding the use of aluminum alloys for high-speed ship construction. In Navy service experience, aluminum structures have been characterized by extensive cracking due to fatigue, corrosion fatigue, and stress-corrosion cracking that were attributed to poor weld quality, poor weld repair, and sensitization due to the thermal effects of natural aging and welding. Aluminum is more difficult to weld than steel. Aluminum welds exhibit low fatigue properties and high fatigue crack growth rates as compared with steel. Aluminum exhibits a loss of strength at elevated temperatures. Improper selection of aluminum alloys can lead to localized and galvanic corrosion problems. In addition, the LCS design utilizes an aluminum alloys that has no prior Navy experience.

	FY 2007	FY 2008	FY 2009
9994N Lightweight Metals Tech for Aluminum Intensive Marine Structures	0.977	0.000	0.000
RDT&E Articles Quantity	0	0	0

(U) The program will provide an aluminum design methodology that integrates the alloy composition and processing history with design tools to enable ship designers to predict the performance of aluminum structures. This capability is an enabling technology for developing lighter weight structures with improved properties to ensure the performance, reliability, and survivability of new ship designs including LCS Flight 1, LHA(R), and JMAC.

	FY 2007	FY 2008	FY 2009
9995N Advanced Lightweight Metals Technology for Aluminum Intensive	1.175	0.000	0.000
RDT&E Articles Quantity	0	0	0

(U) Provide research, development, testing and evaluation of conventionally modified and new aluminum alloys and processing technologies for use in the production of ship structures for LCS Flight 1, JMAC, JHSV and other high speed, shallow draft ships. The objective of the program is to modify existing alloys/tempers to meet specific combinations of Navy service requirements, develop new aluminum alloys and tempers for design and re-design of structures and provide phase diagram data/thermodynamics modeling to support alloy development.

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION							DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**			R-1 ITEM NOMENCLATURE **0603581N/LITTORAL COMBAT SHIP (LCS)**				
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	663.935	304.117	371.008	281.407	138.912	168.373	116.364
3096 / Littoral Combat Ship	55.282	69.717	154.467	115.568	65.992	50.957	23.349
3129 / LCS Mission Package Development	168.387	106.871	170.499	113.839	72.920	117.416	93.015
4018 / Littoral Combat Ship Construction	430.672	36.312	46.042	52.000	0.000	0.000	0.000
9999 / CONGRESSIONAL ADDS	9.594	91.217	0.000	0.000	0.000	0.000	0.000

A. MISSION DESCRIPTION:

This Program Element (PE) provides funds for detailed design, development, construction, integration and testing of the Littoral Combat Ship (LCS). LCS will be a fast, agile, and networked surface combatant with capabilities optimized to defeat asymmetric threats, and assure naval and joint force access into contested littoral regions. It will use open-systems-architecture design, modular weapons, and sensor systems, and a variety of manned and unmanned vehicles to expand the battlespace and project offensive power into the littoral. LCS will operate with focused-mission packages that deploy manned and unmanned vehicles to execute a variety of missions, including littoral anti-submarine warfare (ASW), anti-surface warfare (SUW) and mine countermeasures (MIW). LCS will also possess inherent capabilities, regardless of mission package installed, including intelligence, surveillance, reconnaissance (ISR), homeland defense, Maritime Interdiction/Interception Operations (MIO), anti-terrorism/force protection (AT/FP), air self-defense, joint littoral mobility, and Special Operating Forces (SOF) and logistic support for movement of personnel and supplies. This relatively small, high-speed surface combatant will compliment the U.S. Navy's AEGIS Fleet, DDG 1000, and CG(X) by operating in environments where it is less desirable to employ larger, multi-mission ships. It will have the capability to deploy independently to overseas littoral regions, remain on station for extended periods of time either with a battle group or through a forward-basing arrangement and will be capable of underway replenishment. It will operate with Carrier Strike Groups, Surface Action Groups, in groups of other similar ships, or independently for diplomatic and presence missions. Additionally, it will have the capability to operate cooperatively with the U.S. Coast Guard and Allies.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	R-1 ITEM NOMENCLATURE **0603581N/LITTORAL COMBAT SHIP (LCS)**	

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY08 Pres Controls)	329.383	217.502	171.146
Current President's Budget (FY09 Pres Controls)	663.935	304.117	371.008
Total Adjustments	334.552	86.615	199.862
(U) Summary of Adjustments			
Congressional Program Adjustments	-1.200	91.800	
Congressional Undistributed Adjustments		-1.989	
Program Adjustments		-3.196	200.639
Undistributed General Adjustments	-0.386		-0.777
SBIR	-8.334		
Reprogrammings	344.472		
Total	334.552	86.615	199.862

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**				PROJECT NUMBER AND NAME **3096/Littoral Combat Ship**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	55.282	69.717	154.467	115.568	65.992	50.957	23.349
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Littoral Combat Ship (LCS) will be a fast, agile, and networked surface combatant with capabilities optimized to defeat asymmetric threats, and assure naval and joint force access into contested littoral regions. The threats challenging our naval forces in the littorals include mines, attacks by small surface craft, and quiet diesel submarines armed with a variety of anti-ship weapons. Such threats have great potential to be effectively employed by many less capable countries and non-state actors to prevent access, and use, of littoral areas by U.S. forces.

The LCS will use open-systems-architecture design, modular weapons, and sensor systems, and a variety of manned and unmanned vehicles to expand the battlespace and project offensive power into the littoral. LCS will operate with focused-mission packages that deploy manned and unmanned vehicles to execute a variety of missions, including littoral anti-submarine warfare (ASW), anti-surface warfare (SUW) and mine countermeasures (MIW). LCS will also possess inherent capabilities, regardless of mission package installed, including intelligence, surveillance, reconnaissance (ISR), homeland defense, Maritime Interdiction/Interception Operations (MIO), anti-terrorism/force protection (AT/FP), air self-defense, joint littoral mobility, and Special Operating Forces (SOF) and logistic support for movement of personnel and supplies.

This relatively small, high-speed surface combatant will compliment the U.S. Navy's AEGIS Fleet, DDG 1000, and CG(X) by operating in environments where it is less desirable to employ larger, multi-mission ships. It will have the capability to deploy independently to overseas littoral regions, remain on station for extended periods of time either with a battle group or through a forward-basing arrangement and will be capable of underway replenishment. It will operate with Carrier Strike Groups, Surface Action Groups, in groups of other similar ships, or independently for diplomatic and presence missions. Additionally, it will have the capability to operate cooperatively with the U.S. Coast Guard and Allies.

The RDT&E portion of the LCS Program is comprised of design and development efforts required to deliver the Flight 0 Class Ships, including modular MIW, ASW, and SUW mission packages, construction of the first two Flight 0 Class Ships that will deliver in 2008, and the incorporation of lessons learned from the design, construction, and testing of the first two ships. Also includes introduction of improved waterjets on both designs and a waterjet tunnel extension on the LM LCS design which will comprise the Flight 0+ baseline.

The LCS Program achieved Milestone A and Program Initiation in May 2004, and is scheduled for a Milestone A update in FY08.

The LCS design and development phase includes platform design and development, experimentation and ship system design and integration, hull platform testing, initiation of a Navy Design Package, total ship system engineering and integration, and planning and conduct of system testing, including procurement of ordnance, Early Operational

Assessments (EOA), and Developmental Test and Operational Assessment (DT/OA). Developmental Test and Evaluation (DT&E) will concentrate on verifying integration and interoperability of employed technologies and systems in the LCS Seaframe designs and modular mission packages to achieve the mission capabilities and performance requirements as defined in the LCS Program's Capabilities Development Document (CDD). DT&E functions will include the evaluation of Critical Technical Parameters (CTP), Measures of Effectiveness (MOE), Measures of Suitability (MOS), and Key Performance Parameters (KPP) for the core Seaframe and the focused missions.

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EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**	PROJECT NUMBER AND NAME **3096/Littoral Combat Ship**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
LCS Class Design Services	4.800	0.000	32.000
RDT&E Articles Quantity	0	0	0

Provides for a Class Design Services contracts to both industry design teams for continued design refinement of the Flight 0 and 0+ baseline configurations and design development of future LCS Class Ships. The Navy will use the industry designs to develop a Navy Design Package, a technical data and build specifications package that may be used to support future ship acquisitions.

FY 2007/2008: Develop, review approve and implement various Engineering Change Proposals determined necessary to the Flight 0+ design Seaframe resulting from production design drawing refinement and improvements to systems and components of each design Seaframe. Develop, review, approve and implement various Engineering Change Proposals resulting from system and design improvements. Examples include but are not limited to Engine Room Airborne Noise Abatement, Multiple Fire Alarm System stations, Anti-Terrorism Force Protection improvements, Producability and Modeling and Simulation Improvements etc. These changes will then be incorporated in the drawing packages used by the shipbuilders as the baseline for production.

FY 2009: Translate the Flight 0+ baseline design drawings and associated documentation along with information obtained and systems/component changes determined necessary as a result of the Post Delivery Test and Trial period into detailed production drawings and documents. These drawings will also incorporate production, assembly and fabrication lessons learned from the previous seaframes as well as operator feedback from the Seaframe and Mission Package Crews obtained during the Testing and Trials Period. The result of this effort are detailed LCS Flight 0+ design and fabrication drawing packages which may be incorporated as Government Furnished Information into a Request For Proposal solicitation for the future Seaframes.

	FY 2007	FY 2008	FY 2009
LCS Program	12.800	13.400	17.400
RDT&E Articles Quantity	0	0	0

Provides for overall LCS Program operations including technical, production, and logistics oversight, and acquisition, contract, Earned Value (EV), risk, S&T and financial management.

FY 2007: Completed LCS Program restructure in accordance with CNO and SECNAV direction. Continued Milestone B preparation and initiated acquisition strategy development. Supported Joint Requirements Oversight Council (JROC) reviews and conducted Integrated Product Teams (IPT) as part of Milestone B decision process. Continued contract administration of LCS 1 and LCS 2 construction contracts. Initiated development of required documentation for proposal solicitation and evaluation for FY08 Flight 0+ Class Ships. Continued oversight and analyses of contractor Earned Value (EV). Supported Naval Audit Service reviews of LCS 1 and LCS 2 construction contractors. Initiated implementation of corrective actions.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**	PROJECT NUMBER AND NAME **3096/Littoral Combat Ship**

FY 2008: Continue support of Joint Requirements Oversight Council (JROC) reviews and conduct Integrated Product Team (IPT) and Overarching Integrated Product Team (OIPT) events in support of Milestone brief to the Defense Acquisition Executive (DAE). Revise acquisition strategy. Continue contract administration of LCS 1 and LCS 2 construction contracts. Continue oversight and analyses of contractor Earned Value (EV). Complete Naval Audit Service reviews of LCS 1 and LCS 2 construction contractors, and continue implementation and monitoring of corrective actions. Complete development of required documentation for proposal solicitation and evaluation for FY08 Flight 0+ Class ships. Conduct source selection and award one FY08 Flight 0+ Seaframe.

FY 2009: Continue contract administration of LCS construction contracts, and initiate development of documentation required for contract completion of LCS 1 and LCS 2 construction. Continue oversight and analyses of contractor Earned Value (EV). Award two FY09 Seaframes. Conduct planning activities and source selection for FY10 contract award.

	FY 2007	FY 2008	FY 2009
LCS System-of-Systems Development, Engineering & Experimentation	17.400	25.678	40.441
RDT&E Articles Quantity	0	0	0

Provides for LCS Program Navy systems engineering in support of Flight 0 design, development, certification, production, including ship system design and integration, combat and C4I design, integration, and test, aviation (manned and unmanned) integration, modular MIW, ASW, and SUW mission package integration, logistics product development and systems engineering activities required to perform risk analyses of new design and production technology concepts.

FY 2007: Continued review of industry engineering, integration, production, and logistics activities that comprise the design and build of the LCS flight 0 Ships. Oversaw the development of Rev C of the Build Specifications for the LM and GD LCS. Developed and boarded 109 changes (ECPs) to this baseline, including completed negotiation of LM Mission System and Ship Integration Team (MSSIT) ECP implementing Initial Capabilities Document (ICD) 1.2 for LCS1 and follow ships and GD waterjet improvement ECP for LCS 5 and follow (LCS-5AF) and processed dozens of industry-developed Requests for Deviations (RFDs) / Justification for Technical Deviations (JTDs). Conducted Design Review and Production Readiness Review for LCS-3 and LCS-4. Adjudicated/developed technical solutions for numerous issues including GD cable and insulation, LM machinery layout and shaft alignment. Conducted crew workload analyses to verify ship manning levels. Conducted Total Ship Crew Modeling. Developed Manpower Estimate Reports, Navy Training Systems Plans, and Independent Logistics Assessments. Oversaw precommissioning (PRECOM) crew training. Developed LCS Class maintenance concept and plan. Initiated development of ship familiarization handbooks. Developed plans for Interface Control Document (ICD) definition decoupling LCS Seaframe from Combat and C4I Systems. Completed LCS C4I Information Support Plan (ISP). Funded Joint Unmanned Systems Common Control (JUSC2) Advanced Concept Technology Demonstration (ACTD).

FY 2008: Continue review of industry engineering, integration, production, and logistics activities that comprise the design and build of the LCS Flight 0 Class Ships. Manage development and approval of technical baselines (Build Specification) and Engineering Change Proposals (ECP). Conduct adjudication of Requests for Deviation/Justification for Technical Deviations. Conduct Independent Verification and Validation (IV&V) for Mission System Ship Integration ICD 1.2 implementation on LCS 1 and LCS 2. Complete development of Tactical Common Data Link (TCDL) solution for LCS integration with VTUAV. Complete development of LCS Capabilities and Limitations Document. Fund completion

of JUSC2 ACTD. Conduct GD aluminum structure "grillage" and associated testing. Conduct LM Seaframe structure model testing, and LM Offboard Vehicle Launch, Recovery and Handling risk reduction testing to raise Technology Readiness Levels. Develop training equipment to support Train to Qualify. Support completion of pre-delivery certifications for LCS 1 and LCS 2. Conduct systems engineering special studies and analyses in response to design, production, and logistics issues. Conduct quality control and assurance efforts. Initiate preparations for LCS 1 and LCS 2 pre-deployment tests and trials. Update Flight 0 baseline to support FY08 and FY09 awards (Flight 0+). Flight 0+ includes ECPs that reflect lessons learned, Naval Vessel Rules (NVR), and life-cycle enhancements for waterjets on both designs.

FY 2009: Continue review of industry engineering, integration, production, and logistics activities that comprise the design and build of the LCS Flight 0+ Class ships. Manage development and approval of Flight 0+ technical baselines (Build Specifications) and ECPs. Manage final integration of ASW, SUW, and MIW Mission Packages for LCS 1 and LCS 2 and IV&V. Support completion of post-delivery certifications for LCS 1 and 2. Develop facilities support plans for CONUS locations. Support LCS 1 and 2 post-deployment test and trials. Conduct system engineering special studies and analyses in response to emergent design/production issues highlighted in testing. Implement TCDL integration solution for LCS 1 and 2. Initiate efforts on SH-60B Datalink

	FY 2007	FY 2008	FY 2009
LCS Total System Training Architecture	0.000	7.462	6.103
RDT&E Articles Quantity	0	0	0

Provides for an LCS with a shipboard and shorebased embedded training capability to satisfy individual, unit, team and force training both in port and at sea, and provides capability to leverage DDG 1000 Total Ship Training System efforts, as well as support LCS Train to Qualify requirements.

FY 2008: Complete LCS 2 (General Dynamics Design) Trainer.

FY 2009: Complete upgrade to LCS 1 (Lockheed Martin design) trainer.

	FY 2007	FY 2008	FY 2009
LCS Test & Evaluation	20.282	23.177	58.523
RDT&E Articles Quantity	0	0	0

Execute formal LCS Test and Evaluation (T&E) program, Developmental Testing and Operational Testing (DT/OT) including Live Fire Test and Evaluation (LFT&E) and procurement of T&E Ordnance. Developmental Test and Evaluation (DT&E) will concentrate on verifying integration and interoperability of employed technologies and systems in the LCS Seaframe designs and modular mission packages to achieve the mission capabilities and performance requirements as defined in the LCS Program's Capabilities Development Document (CDD). DT&E functions will include the evaluation of Critical Technical Parameters (CTP), Measures of Effectiveness (MOE), Measures of Suitability (MOS), and Key Performance Parameters (KPP) for the core Seaframe and the focused missions. Operational Testing for the LCS will be conducted in three phases; three phases of IOT&E on each Seaframe design to support the development of the initial seaframe deliveries and a specific mission package, and FOT&E, as required, when new capabilities are developed or refined.

FY 2007: Completed development of an updated LCS T&E strategy in response to LCS program restructure. Initiated draft of updated Test and Evaluation Master Plan (TEMP) in

accordance with updated T&E strategy. Developed detailed Post Delivery Test and Trials (PDTT) plans for LCS 1 and LCS 2 including Mission Packages. Initiated detailed LFT&E shock and survivability modeling efforts. Continued review and assessment of industry test activities.

FY 2008: Complete the development of a Flight 0 TEMP based on the currently approved CDD and update, as required, to support the Flight 0+ CDD expected to enter the review cycle early 2008. Complete development of detailed plans for assessment of both LCS Seaframe designs equipped with each focused mission capabilities. Objectives of these events will include assessment of all Seaframe Key Performance Parameters and Additional Attributes and will be done in conjunction with the Post Delivery Test and Trials (PDT&T) periods of LCS 1 and 2. The planning will include developing detailed scenarios for evaluation of each focused mission capability (MCM, ASW, and SUW) and core Seaframe capability including Air Defense, Surface Warfare (SUW) Self Defense, Aviation capability, Seakeeping/Safe Operating Envelope/Directional Stability trials, and support the conduct of events necessary for the completion of crew certification. Key products to be developed include a TEMP, and Detailed Test Plans and Data Acquisition and Management Plans (DAMP). Continue LFT&E modeling and simulation (M&S), and Surrogate Testing and Component & System Shock Tests. Continue review and assessment of industry test activities. Initiate procurement of T&E Ordnance to support LCS 1 and LCS 2 tests and trials.

FY 2009: Continue LCS LFT&E Modeling and Simulation and validation testing. Initiate LCS 1 and LCS 2 Developmental Testing. DT&E will include the evaluation of Critical Technical Parameters (CTP), Measures of Effectiveness (MOE), Measures of Suitability (MOS), Key Performance Parameters (KPP), and Additional Attributes for the core Seaframe and the focused mission capabilities. Conduct the following specific tests for LCS 1 and 2:
Aviation Certification Testing (including assessment of TRIGON system on LCS 1, and Dynamic Interface testing of both Seaframes with MH-60 and RQ-8B).
Engineering Operational Sequencing System/Combat System Operational Sequencing System (EOSS/CSOSS) validation
Class Tactics Publication validation
Combat Systems operations test - support to Combat System certification
Underway Replenishment Qualification Trials
Structural Test Firings (57mm, Super Rapid blooming Off-board Chaff (SRBOC))

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
BLI 1600 (OPN)	78.741	0.000	131.241	234.673	242.184	252.298	227.441	CONT	CONT
BLI 2127 (SCN)	93.000	337.106	920.000	1,379.503	1,379.555	1,839.850	2,760.162	CONT	CONT
BLI 4221 (WPN)			2.786	24.522	47.353	45.261	10.701	CONT	CONT
BLI 0443 (APN)	37.419	37.432	55.337	73.347	75.560	96.345	102.799	CONT	CONT
BLI 1B5B/15BR0 (O&MN)	3.349	28.499	34.791	47.246	30.028	30.389	30.283	CONT	CONT
BLI 1B4B/14B50 (O&MN)		8.400	11.959	0.472	0.484	0.519	0.544	CONT	CONT

D. ACQUISITION STRATEGY:

The LCS Program takes an evolutionary approach to acquisition that emphasizes completion of two initial Seaframe designs, the LCS Flight 0 Class ships, by two industry teams. The incorporation of lessons learned from the design, construction, and testing of two ships, as well as introduction of improved waterjets on both designs and a waterjet tunnel extension on the LM LCS design will comprise the Flight 0+ baseline to be awarded in FY08 and FY09. The LCS Program Acquisition Strategy, uses a limited competition approach for existing industry teams to compete for the construction of Flight 0+ Class Ships in FY08 through FY09.
The LCS Program will concurrently initiate Class Design Services contracts to both industry design teams for development of a Navy Design Package.

The LCS Program achieved Milestone A and Program Initiation in May 2004, and is scheduled for a Milestone A update in FY08.

E. MAJOR PERFORMERS:

Major Contractors:
General Dynamics - Bath Iron Works, Bath, ME
Austal USA, Mobile, AL
Lockheed Maritime Systems and Sensors, Moorestown, NJ
Marinette Marine Corporation, Marinette, WI

Government Field Activities:
NSWC Dahlgren, Dahlgren, VA
NSWC Carderock, Philadelphia, PA
Space and Naval Warfare Command (SPAWAR), Charleston, SC
NSWC/ Port Hueneme, Port Hueneme, CA

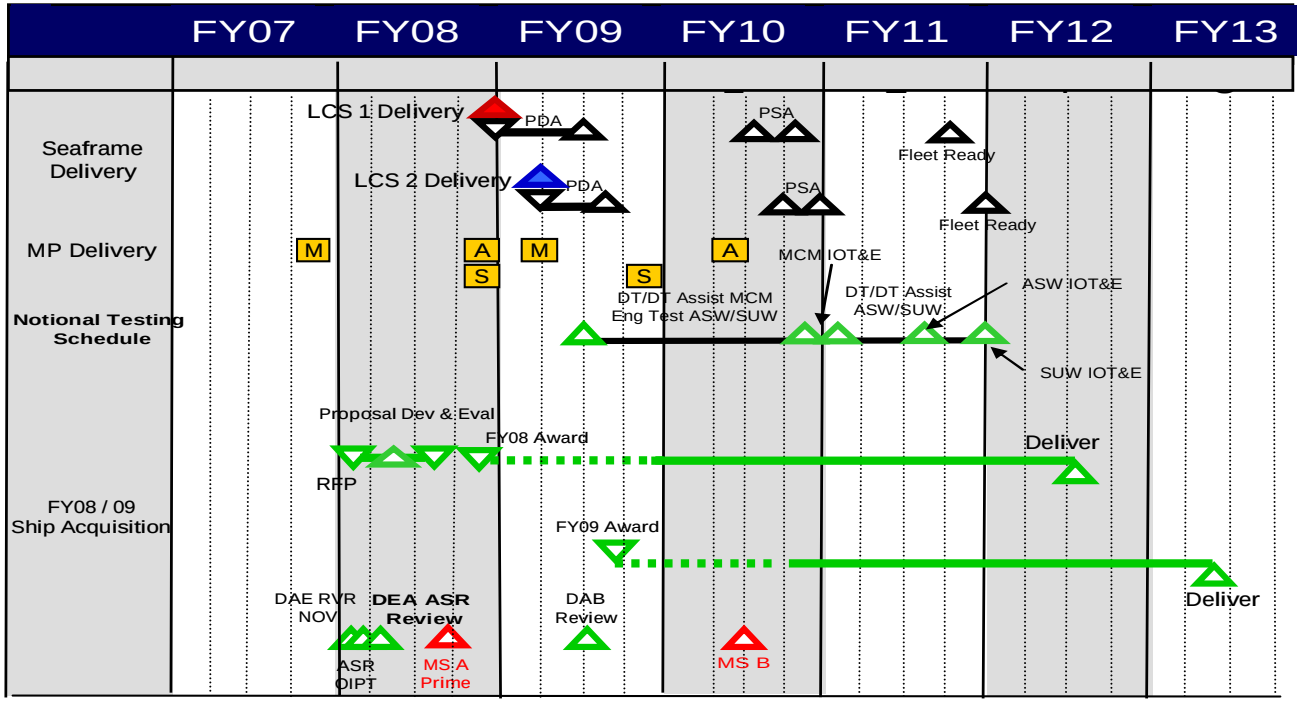
Universities:
Johns Hopkins University Applied Physics Lab, Laurel, MD

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**					PROJECT NUMBER AND NAME **3096/Littoral Combat Ship**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Preliminary Design (Flight 0)	Compet	LM, BIW, Raytheon	32.173	0.000		0.000		0.000		0.000	32.173	0.000
Final Design (Flight 0)	Compet	LM, BIW	175.263	0.000	NOV-06	0.000		0.000		0.000	175.263	0.000
Class Design Services	Compet	TBD	0.000	4.800		0.000		32.000		0.000	36.800	0.000
LCS 1 & 2 Shore Trainers	Cost Plus	LM, BIW	0.000	0.300		7.460		6.103		0.000	13.863	0.000
SH-60B Datalink	Compet	LM, BIW	0.000	0.000		0.000		2.435		0.000	2.435	0.000
Flight 0 C4I	SPD	PEO C4I	0.000	1.982		3.000		4.000		0.000	8.982	0.000
Life Cycle Support Plan	Compet	DCMA/LM	0.000	1.000	MAR-07	0.000		0.000		0.000	1.000	0.000
Combat System C4I Spiral Development	Various	Various	0.000	0.000		0.000		12.000		0.000	12.000	0.000
Subtotal Product Development			**207.436**	**8.082**		**10.460**		**56.538**		**0.000**	**282.516**	**0.000**
Remarks:												
Government Engineering Support	WX	NSWC/CD, Bethesda, MD	16.503	0.000		0.000		0.000		0.000	16.503	0.000
Government Engineering Support	WX	NSWC/DD, Dahlgren, VA	19.756	1.351	NOV-06	3.500		5.000		0.000	29.607	0.000
Government Engineering Support	WX	NSWC/PC, Panama City, FL	19.815	1.788	NOV-06	0.500		0.500		0.000	22.603	0.000
Government Engineering Support	WX	NUWC, Newport, RI	7.609	0.150	MAR-07	0.150		0.190		0.000	8.099	0.000
Government Engineering Support	WX	NAWC AD, Pax River	7.950	0.195	JAN-07	1.630		1.700		0.000	11.475	0.000
Government Engineering Support	WX	NSWC/CR, Crane, IN	15.300	0.075	NOV-06	0.500		0.250		0.000	16.125	0.000
Government Engineering Support	WX	NSWC/SSES, Philadelphia, PA	15.570	2.800	NOV-06	8.000		7.850		0.000	34.220	0.000
Government Engineering Support	Various	Government Activities	7.260	6.000	VAR	4.100		4.516		0.000	21.876	0.000
Contractor Engineering Support	Seaport	Alion, Arlington, VA	19.351	0.000		0.000		0.000		0.000	19.351	0.000
Contractor Engineering Support	Seaport	Various	13.664	1.259	VAR	1.800		1.500		0.000	18.223	0.000
Labor (Research Personnel)	CPFF	APL/JHU, Laurel, MD	3.030	0.500	SEP-07	0.500		0.500		0.000	4.530	0.000
Government Engineering Support	RX	NAVAIR	0.000	0.000		2.000		0.000		0.000	2.000	0.000
Subtotal Support			**145.808**	**14.118**		**22.680**		**22.006**		**0.000**	**204.612**	**0.000**
Remarks:												
Test & Evaluation	Seaport	Alion, Arlington, VA	0.900	1.304	OCT-06	2.300	OCT-07	1.200	OCT-08	CONT	CONT	0.000
Test & Evaluation	WX	NSWC/CD, Bethesda, MD	0.500	0.150	OCT-06	0.000		0.000		CONT	CONT	0.000
Test & Evaluation	WX	NSWC/PHD, Port Hueneme, CA	5.467	2.400	OCT-06	2.250	OCT-07	6.000	OCT-08	CONT	CONT	0.000

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**					PROJECT NUMBER AND NAME **3096/Littoral Combat Ship**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Test & Evaluation	WX	NSWC/SSES, Philadelphia, PA	0.000	6.200	OCT-06	3.800	OCT-07	6.900	OCT-08	CONT	CONT	0.000
Test & Evaluation	WX	NSWC/PC, Panama City, FL	0.000	0.730	OCT-06	0.500	OCT-07	1.900	OCT-08	CONT	CONT	0.000
Test & Evaluation	WX	COMOPTEVFOR	1.483	0.366	OCT-06	0.900	OCT-07	1.500	OCT-08	CONT	CONT	0.000
Test & Evaluation	WX	NSWC/COR, Corona, CA	0.700	0.350	OCT-06	0.750	OCT-07	0.800	OCT-08	CONT	CONT	0.000
Test & Evaluation	WX	Various	0.000	6.782	OCT-06	6.100	OCT-07	15.900	OCT-08	CONT	CONT	0.000
T&E Ordnance	WX	IWS 3	0.000	0.000		5.577	OCT-07	3.323	OCT-08	CONT	CONT	0.000
T&E	Comp	LM/GD	0.000	0.000		0.000		20.000		CONT	CONT	0.000
T&E	WX	SPAWAR, SC	0.075	2.000	OCT-06	1.000		1.000		CONT	CONT	0.000
Subtotal T&E			**9.125**	**20.282**		**23.177**		**58.523**		**CONT**	**CONT**	**0.000**
Remarks:												
Government Travel		NAVSEA	0.483	0.200	OCT-06	0.250	OCT-07	0.300	OCT-08	CONT	CONT	0.000
CODB		PEO Ships	0.000	1.400	OCT-06	1.450	OCT-07	1.650	OCT-08	CONT	CONT	0.000
Program Management Support		Alion, Arlington, VA	0.000	7.802	OCT-06	7.800	OCT-07	9.070	OCT-08	CONT	CONT	0.000
Program Management Support		Various	0.000	0.570	OCT-06	0.660	OCT-07	2.680	OCT-08	CONT	CONT	0.000
Program Management Support		NSWC/SSES, Philadelphia, PA	0.000	0.458	OCT-06	0.750	OCT-07	0.750	OCT-08	CONT	CONT	0.000
Program Management Support		JJMA, Arlington, VA	0.000	0.540	OCT-06	0.450	OCT-07	0.550	OCT-08	CONT	CONT	0.000
Budget Reductions		DOD	0.000	1.830	OCT-06	2.040	OCT-07	2.400	OCT-08	CONT	CONT	0.000
Subtotal Management			**0.483**	**12.800**		**13.400**		**17.400**		**CONT**	**CONT**	**0.000**
Remarks:												
Total Cost			**362.852**	**55.282**		**69.717**		**154.467**		**CONT**	**CONT**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**	PROJECT NUMBER AND NAME **3096/Littoral Combat Ship**

Notional Acquisition Schedule



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CLASSIFICATION:	UNCLASSIFIED					
EXHIBIT R-4a, SCHEDULE DETAIL					DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**			PROJECT NUMBER AND NAME **3096/Littoral Combat Ship**		
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Mission System Development & Platform Exp	1Q-4Q						
Milestone B				2Q			
Flight 0 Class Design Services		1Q-4Q	1Q-4Q	1Q			
Post Delivery Testing / Operational Testing - Flight 0 Ships		4Q	1Q-4Q	1Q			
Developmental Testing / Operational Testing - Flight 0 RDTE Ships		4Q	1Q-4Q	1Q			1Q-4Q
Class Design Services			1Q-4Q	1Q-4Q			
Combat System & Turnkey C4I Dev.	1Q-4Q	1Q-4Q	1Q-4Q				
Shock Planning/Test (LFT&E)	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**				PROJECT NUMBER AND NAME **3129/LCS Mission Package Development**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	168.387	106.871	170.499	113.839	72.920	117.416	93.015
RDT&E Articles Qty	1	0	1	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Program provides focused war fighting capabilities in littoral mine warfare, small boat neutralization and littoral anti-submarine warfare to enable the US Joint Force to access and operate in the littoral. Mission module development includes architectures, interfaces and development of mission module. Mission systems development also includes the procurement of the first mission packages toused on the Flight 0 Littoral Combat Ships (LCS).

Mine Warfare Mission Modules will provide the Joint force commander with the capability to conduct organic mine countermeasure (MCM) operations ranging from first response mine detection and avoidance, to neutralization and sweeping in littoral conditions that preclude hunting, enabling Joint operations to be conducted ahead of power projection forces with reduced need for escorts. This will open transit lanes and operating areas for naval forces. MCM operations will reduce the timeline for access to the contested littoral thereby providing options to the joint force commander.

Littoral Anti-Submarine Warfare Modules will provide ASW capabilities while operating in a contested littoral environment. Leveraging multiple distributed sensors netted together, LCS will exploit real time undersea data, using maneuver and deception to enhance detection, classification, identification, targeting and destruction of enemy submarines.

Littoral Surface Warfare Mission Modules will provide the capability to detect, track and engage small boat threats, giving the joint force commander the ability to maximize striking power, shield high value units, or successfully move through a restricted area.

Over-the-Horizon Communication Package (formally known as ACP) provides Data Relay Capability to enable LCS to operate off-board sensors (ISR, MIW, SUW, and USW) at significantly extended ranges. This project provides funds for the design and development of the prototype and engineering development model (EDM) systems, integration with LCS/Vertical Take-Off and Landing Unmanned Aerial Vehicle (VTUAV).

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**	PROJECT NUMBER AND NAME **3129/LCS Mission Package Development**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	24.716	10.719	23.118
RDT&E Articles Quantity	0	0	0

MIW MISSION MODULES DEVELOPMENT

FY07: Continuation of mission module testing, integration & certification; Mission module fabrication for Mission Package; Human Systems Integration (HSI); ILS documentation development and updates; Mission Package training; Modeling & Simulation; and Remote Mine Hunting System (RMS) installation on LCS.
FY08:Completion of Spiral Alpha for mission module integration.
FY09: Continue finalization of Spiral Alpha mission module integration ($4.000); Support at-sea T&E ($9.000), System Eng ($5.038), T&E ($1.665). MIW Team Trainer Software ($3.415).

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	41.946	20.700	9.731
RDT&E Articles Quantity	0	0	0

ASW MISSION MODULE PACKAGE

FY07: Continuation of the development, integration, and testing of Unmanned Surface Vehicle (USV) bi-static mission module which includes Ultralite Towed Array Sonar (UTAS) and Multi-static Offboard Source (MSOBS) mission systems; Continue the development, integration, and testing of the Remote Towed Array (RTA) & Remote Towed Active Sonar (RTAS) mission systems;Continue the integration of the dipping sonar onto the USV; USV w/dipper testing; At sea array tow characteristics test.
FY08: Continuation of the development, integration, testing of MP#1 & MP#2
FY09: Continuation of the development, integration, testing ASW MP#2.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	53.306	36.300	67.450
RDT&E Articles Quantity	1	0	1

SUW MISSION MODULES DEVELOPMENT

FY07:Continue development of Build 0.1& 0.2 and testing with Mission Package Development Lab (MPDL); implement final safety approach process; Developed training/maintenance manuals; Provided Package prototype HW/SW to support certification efforts; continue Mission Package development and test evaluation ($45.627); Procured two(2)30 MM Guns(2 Guns per module ($6.000)); Supportive H/W (1.679).
FY08: Continue the SUW Mission Packages development (H/W & S/W), developmental efforts with the Army on Non-Line of Site-Launcher System (NLOS-LS); Continue developmental efforts for structure test on board ship and ship integration efforts ($33.780); Procure T&E Missiles and Supportive H/W ($2.520).

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**	PROJECT NUMBER AND NAME **3129/LCS Mission Package Development**

FY09: Continue developmental efforts with the Army on NLOS-LS ($12.400); Continue H/W Sys Engineering, Fabrication, Environmental & Safety, Integration, ILS, HSI, and PM efforts ($25.900); S/W efforts for build 3.0 into NLOS-LS ($6.000); Conduct structural test firing on board ship and other at-sea T&E efforts ($12.000); Procure two (2) 30MM Guns MP 2 (2 guns per module ($5.300)); Procure one (1) 30MM Gun MP 2 ($2.650); Procure and Fabricate 1 NLOS Module ($3.200).

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	41.475	31.305	59.883
RDT&E Articles Quantity	0	0	0

COMMON MISSION MODULES DEVELOPMENT

FY07: Installation of the Mission Package Computing Environment (MPCE) build 1 in ship ($1.214); Complete Command and Control (C2) build 1.1 for MIW ($10.213); begin Fire Scout integration and Rehosting Fire Scout Tactical Control System (TCS) S/W in LCS ($6.257); Continue Mission Package Integrator efforts (MIW, ASW, SUW, C2) ($8.012); USV Commonality efforts, integration and demonstration, common interface control documentation, Initiate development of C2, fund Technology Transition Initiative (TTI) for USV development($6.779).

FY08: Mission Package Computing Environment (MPCE) - Development, integration, & testing to support the H/W for Mission Packages ASW, MIW, and SUW ($2.950); Mission Package Integration and Certification, USV Development; integration of common Command and Control, and technical support for system test and evaluation ($28.355).

FY09: Common Command and Control integration, and technical support for system test and evaluation ($35.048); Continue MPCE development supporting HW for Mission Packages ($1.850); Continue Fire Scout integration and Rehosting Fire Scout TCS S/W in LCS($5.000); Portable Seaframe Simulator (PSS) development ($8.543); development and integration of the Portable Seaframe Launch and Recovery system ($1.800); Weapon Zone Enclosure support ($.900); Continue MVCS H/W & S/W development ($2.742) and T&E ($1.300); Test & Evalution support ($2.700).

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	6.944	7.847	10.317
RDT&E Articles Quantity	0	0	0

OVER-THE-HORIZON COMMUNICATION DEVELOPMENT

FY07 & FY08: Accomplishments: Award contracts to support the development of performance specifications for the Over-the-Horizon Communication Package development contract. Prepare program specifications, requirements and documentation including contract request for proposal (RFP), statement of work, Contract Data Requirements List (CDRLs) and systems requirements documents. Complete and obtain approval of Over-the-Horizon Communication Package acquisition documentation for MS B decision.

FY09: Integrate and procure Mission Module Radio (MMR over-the-horizon comm's).

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**	PROJECT NUMBER AND NAME **3129/LCS Mission Package Development**

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
BLI 1600 (OPN)	78.741	0.000	131.241	234.673	242.184	252.298	227.441	CONT	CONT
BLI 2127 (SCN)	93.000	337.106	920.000	1,379.503	1,379.555	1,839.850	2,760.162	CONT	CONT
BLI 4221 (WPN)			2.786	24.522	47.353	45.261	10.701	CONT	CONT
BLI 0443 (APN)	37.419	37.432	55.337	73.347	75.560	96.345	102.799	CONT	CONT
BLI 1B5B/15BRO (O&MN)		24.776	25.031	30.010	12.682	12.662	12.643	CONT	CONT
BLI 1B4B/14B50 (O&MN)		8.400	11.959	0.472	0.484	0.519	0.544	CONT	CONT
BLI 1C1C/11C70 (O&MN)	0.000	0.000	1.554	1.768	2.224	2.835	3.849	CONT	CONT

D. 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 three phase approach is planned for Flight 0+ ships. - Preliminary System Design, - Final System Design and - Detail Design and Construction.

(U) Over-the-Horizon Communication Package - A competitive contract will be awarded to two vendors for the design, development, integration and demonstration of the Advanced Communications Package. There will be a down select to one vendor for the production phase.

E. MAJOR PERFORMERS:

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**					PROJECT NUMBER AND NAME **3129/LCS Mission Package Development**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
MIW Mission Module Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
MIW - Sys Eng	WX	NSWC PC	41.358	19.001	OCT-06	7.743	OCT-07	9.038	OCT-08	6.400	83.540	0.000
Common - DATA MISSION PAYLOAD (Over-the-Horizon Communication Package)	Various	Various	0.000	0.000		0.000		10.317		0.000	10.317	0.000
Common - Spiral			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Common - Training			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Common - Common Vehicles (RMMVs & USVs)	Various	Various	8.204	5.476	JAN-07	0.000		0.000		0.000	13.680	0.000
Common - Common Vehicles - OTHCP Design, Dev & Integration	CPFF	TBD	0.000	2.105	JAN-07	7.847	FEB-08	0.000		0.000	9.952	0.000
Common - Common Vehicles - OTHCP Acquisition/PM Support	CPFF	BAH, McLean, VA	1.200	4.255	FEB-07	0.000		0.000		0.000	5.455	0.000
Common - Common Vehicles - OTHCP Engineering Support	WX	Various	0.200	0.584		0.000		0.000		0.000	0.784	0.000
Common - T&E	Various	Various	0.000	0.000		0.000		3.300	OCT-08	0.000	3.300	0.000
Common -MPCE			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Common -MPCE - H/W		NSWC PC	0.000	0.000		0.100	OCT-07	0.000	OCT-08	0.000	0.100	0.000
Common - MPCE - Sys Eng H/W		NSWC PC	1.300	2.974	OCT-06	1.650	OCT-07	0.000	OCT-08		5.924	0.000
Common - MPCE - Sys Eng S/W		NSWC PC	0.000	0.000		1.200	OCT-07	0.500	OCT-08	0.000	1.700	0.000
Common - Integration		NSWC PC	0.000	0.000		1.200	OCT-07	7.300	OCT-08	0.000	8.500	0.000
Common - Common C2	Various	Various	11.105	9.467	OCT-06	0.000		0.000		0.000	20.572	0.000
Common - MVCS - H/W		NSWC PC	0.000	0.000		1.506	OCT-07	1.468	OCT-08	0.000	2.974	0.000
Common - MVCS - S/W		NSWC PC	0.000	0.083		1.245	OCT-07	1.274	OCT-08	0.000	2.602	0.000
Common - MVCS - Integration		NSWC PC	0.000	2.943	OCT-06	2.235	OCT-07	0.000		0.000	5.178	0.000
Common - MVCS - ILS	Various	Various	0.000	0.000		0.535	OCT-07	0.000		0.000	0.535	0.000
Common - MPDL			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Common - MPI	CPAF	Northrop Grumman-Bethpage, NJ	4.034	7.125	DEC-07	10.927	NOV-07	14.600	OCT-08	0.000	36.686	0.000
Common - Overarching			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Common - Overarching - Sys Eng H/W	Various	Various	0.000	2.775		1.205		0.364		0.000	4.344	0.000
Common - Overarching - Sys Eng S/W			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Common - Overarching - Envir & Safety			0.000	0.000		0.000		1.456		0.000	1.456	0.000
Common - Overarching - Integration			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Common - Overarching - ILS			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Common - Overarching - HSI	Various	Various	0.000	0.000		0.000		0.000		0.000	0.000	0.000

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**					PROJECT NUMBER AND NAME **3129/LCS Mission Package Development**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Common - MPCE ILS		NSWC PC	0.000	0.000		0.300	OCT-07	0.000	OCT-08	0.000	0.300	0.000
MIW Team Trainer S/W	WX	NSWC PC	0.000	0.000		0.000		3.415		0.000	3.415	0.000
ASW - At-Sea T&E	WX	NUWC Newport RI	0.000	0.000		0.000		5.300		0.000	5.300	0.000
Common - HELO Support	WX	NAVAIR Pax River	0.000	0.000		0.000		5.400		0.000	5.400	0.000
MIW - ILS	WX	NSWC PC	0.000	3.347	OCT-06	1.857	OCT-07	0.000		0.000	5.204	0.000
MIW - HSI	WX	Various	0.000	0.000		0.000		0.000		0.000	0.000	0.000
MIW - T&E	WX	NSWC PC	0.000	0.168	OCT-06	1.119	OCT-07	1.665	OCT-08	0.000	2.952	0.000
MIW - At-Sea T&E	TBD	TBD	0.000	0.000		0.000		9.000	OCT-08	0.000	9.000	0.000
ASW Mission Module Development	Various	Various	70.799	0.000		0.000		0.000		0.000	70.799	0.000
ASW - Sys Eng H/W	WX	NUWC Newport RI	0.000	8.279	OCT-06	5.877	OCT-07	1.131	OCT-08	2.988	18.275	0.000
ASW - Sys Eng S/W	WX	SSC SD	0.000	9.749	OCT-06	3.350	OCT-07	0.000	OCT-08	0.000	13.099	0.000
ASW - Envir & Safety	WX	NUWC Newport RI	0.000	0.790	OCT-06	0.750	OCT-07	1.000	OCT-08	0.000	2.540	0.000
ASW - Integration	WX	NUWC Newport RI	0.000	7.241	OCT-06	3.996	OCT-07	1.300	OCT-08	1.383	13.920	0.000
ASW - ILS	WX	NUWC Newport RI	0.000	0.489	OCT-06	1.100	OCT-07	1.000	OCT-08	0.063	2.652	0.000
ASW - HSI	WX	NUWC Newport RI	0.000	0.750	OCT-06	0.310	OCT-07	0.000	OCT-08	0.000	1.060	0.000
ASW - T&E	WX	NUWC Newport RI	0.000	1.200	OCT-06	1.100	OCT-07	0.000	OCT-08	0.000	2.300	0.000
ASW - Program Management	WX	NUWC Newport RI	0.000	4.948	OCT-06	2.702	OCT-07	0.000	OCT-08	0.063	7.713	0.000
SUW Mission Module Development	WX	Various	34.223	0.000		0.000		0.000		0.000	34.223	0.000
SUW - Sys Eng H/W	WX	NSWC Dah VA	0.000	34.017	NOV-06	20.091	OCT-07	32.000	OCT-08	0.000	86.108	0.000
SUW - Sys Eng S/W	WX	NSWC DAH	0.000	1.670	NOV-06	0.088	OCT-07	6.000	OCT-08	0.000	7.758	0.000
SUW - Envir & Safety	WX	Various	0.000	0.832	NOV-06	0.614	OCT-07	3.000	OCT-08	0.000	4.446	0.000
SUW - Integration	WX	NSWC Dah VA	0.000	1.181	NOV-06	2.163	OCT-07	5.000	OCT-08	0.000	8.344	0.000
SUW - ILS	WX	NSWC Phd	0.000	2.550	NOV-06	2.700	OCT-07	4.105	OCT-08	0.000	9.355	0.000
SUW - H S I	WX	NSWC Dah VA	0.000	0.300	NOV-06	0.218	OCT-07	0.895	OCT-08		1.413	0.000
SUW - T&E	WX	NSWC Dah VA & Phd	0.000	0.260	NOV-06	0.586	OCT-07	3.000	OCT-08	0.000	3.846	0.000
SUW - Program Management	WX	NSWC Dah VA	0.000	0.817	NOV-06	1.820	OCT-07	2.300	OCT-08	0.000	4.937	0.000
Common Mission Module Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Common - FIRESCOUT (Integration & TCS S/W)	Various	Various	0.688	6.257	OCT-06	4.900	OCT-07	5.000	OCT-08	0.000	16.845	0.000
Subtotal Product Development			**173.111**	**141.633**		**93.034**		140.128		**10.897**	558.803	**0.000**

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**					PROJECT NUMBER AND NAME **3129/LCS Mission Package Development**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Remarks:												
MIW - BPAUV	CPAF	Bluefin, MA & NSWC PC	2.400	2.200	DEC-06	0.000		0.000		0.000	4.600	0.000
ASW - UDS		NUWC Newport RI	0.000	8.500	OCT-06	0.765	OCT-07	0.000	OCT-08	0.363	9.628	0.000
ASW - USV		NUWC Newport RI	9.310	0.000		0.750	OCT-07	0.000	OCT-08	0.188	10.248	0.000
ASW - UTAS/MSMOBS		NUWC Newport RI	0.000	0.000		0.000		0.000	OCT-08	0.188	0.188	0.000
ASW - COMMS		SSC San Diego CA	0.000	0.000		0.000		0.000	OCT-08	0.800	0.800	0.000
ASW - RMV MF Bi-STATIC		NUWC Newport RI	0.000	0.000		0.000		0.000	OCT-08	2.475	2.475	0.000
ASW - SUPPORT MODULES		NUWC Newport RI	0.000	0.000		0.000		0.000	OCT-08	0.020	0.020	0.000
ASW - COMMS (MULTI-MISSION RADIO)		SSC San Diego CA	0.000	0.000		0.000		0.000	OCT-08	0.000	0.000	0.000
SUW - Supportive H/W	WX	NSWC Dah VA	0.000	6.279	DEC-06	0.092	OCT-07	0.000	OCT-08	0.000	6.371	0.000
SUW - NLOS-LS	FFP	Raytheon, AZ	0.000	0.000		0.000		0.000	NOV-08	0.000	0.000	0.000
SUW - NLOS-LS Module		NSWC Dah VA	0.000	0.000		2.000	OCT-07	3.200	NOV-08	2.100	7.300	0.000
SUW - 30 MM Gun (2 Guns per Module)	FFP	General Dynamics Land Systems	0.000	5.400	DEC-06	3.500	NOV-07	0.000	NOV-08	0.000	8.900	0.000
SUW - Med Cal Gun Module		NSWC Dah VA	4.200	0.000		0.000		0.000		0.000	4.200	0.000
SUW - NLOS-LS Missiles for T&E	FFP	Raytheon, AZ	0.000	0.000		2.428	OCT-07	0.000		0.000	2.428	0.000
Common - Portable Seaframe L&R	WX	NUWC Newport RI	0.000	0.000		0.000		1.800	NOV-08	0.000	1.800	0.000
Common - Weapon Zone Enclosure	WX	NSWC Dah VA	0.000	0.000		0.000		0.900	NOV-08	0.000	0.900	0.000
Common - Testing Spares	WX	NSWC PC	0.000	0.000		0.000		2.700	NOV-08		2.700	0.000
SUW - 30 MM Gun MP 2 (2)	FFP	General Dynamics Land Systems	0.000	0.000		0.000		5.300	NOV-08	0.000	5.300	0.000
SUW - 30 MM Gun MP 3 (1)	FFP	General Dynamics Land Systems	0.000	0.000		0.000		2.650	NOV-08	2.650	5.300	0.000
Common - Portable Seaframe Simulator	WX	NSWC PC	0.000	0.000		0.000		8.543	NOV-08	0.000	8.543	0.000
Subtotal Equipment and Hardware			**15.910**	**22.379**		**9.535**		25.093		**8.784**	81.701	**0.000**
Remarks:												
Common - Program Management Support	Various	Various	1.893	1.900	OCT-06	1.947	OCT-07	2.155	OCT-08	0.000	7.895	0.000
Common - Travel Support	PD	NAVSEA	0.070	0.075	OCT-06	0.080	OCT-07	0.080	OCT-08	0.000	0.305	0.000
Common - ILS, C4I and Aviation Rep Support	Various	Various	2.490	2.400	OCT-06	2.275	OCT-07	3.043	OCT-08	0.000	10.208	0.000

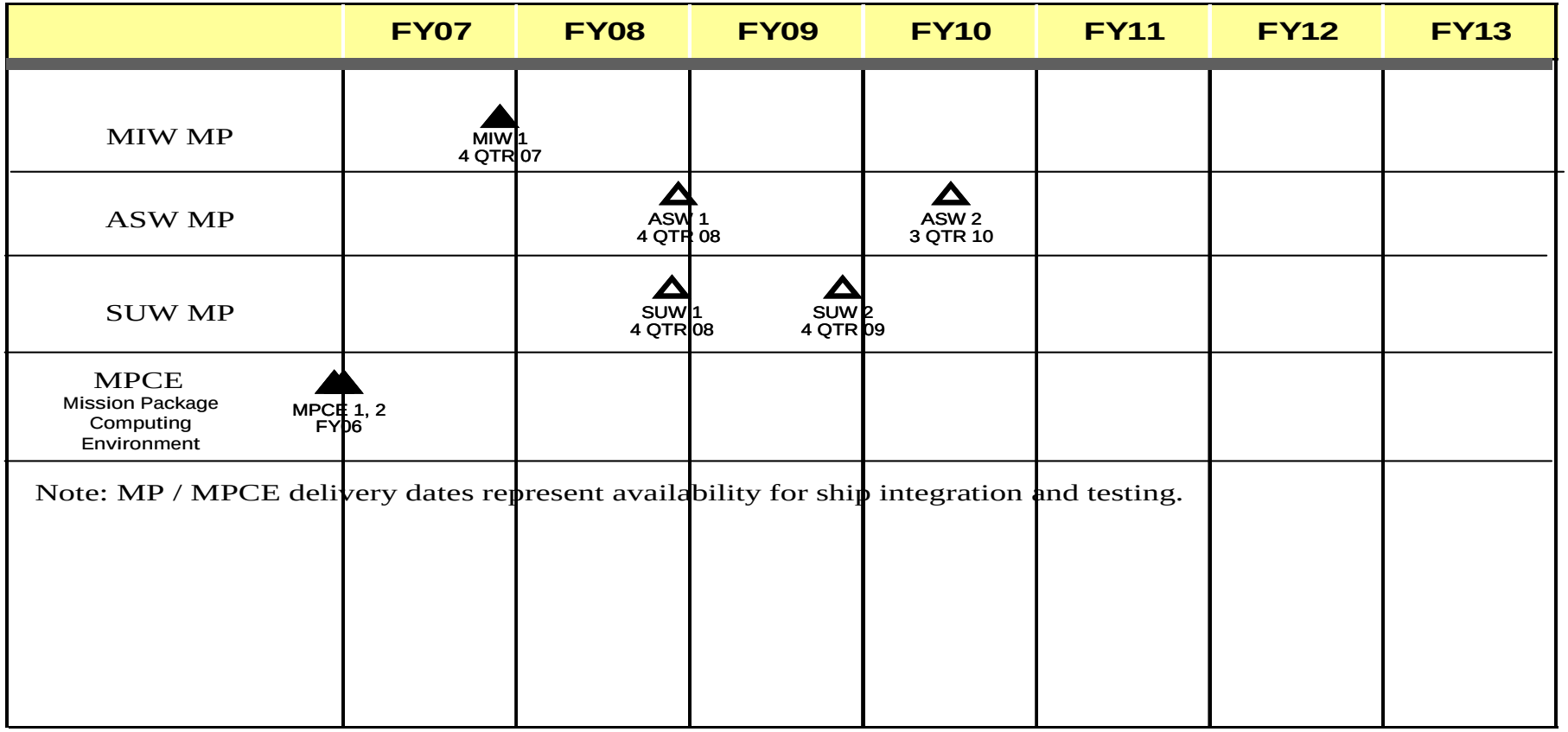
CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**					PROJECT NUMBER AND NAME **3129/LCS Mission Package Development**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Subtotal Management			**4.453**	**4.375**		**4.302**		**5.278**		**0.000**	**18.408**	**0.000**
Remarks:												
Total Cost			**193.474**	**168.387**		**106.871**		**170.499**		**19.681**	**658.912**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**	PROJECT NUMBER AND NAME **3129/LCS Mission Package Development**

PMS 420 LCS Mission Modules

PMS 420 MP Schedule

Mission Package / MPCE Deliveries



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CLASSIFICATION:	UNCLASSIFIED					
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**			PROJECT NUMBER AND NAME **3129/LCS Mission Package Development**		

Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
MIW MP 1 Deliveries	SEP 07						
ASW MP 1 Deliveries		SEP 08					
ASW MP 2 Deliveries				APR 10			
SUW MP 1 Deliveries		AUG 08					
SUW MP 2 Deliveries			AUG 09				
MPCE 3 Deliveries	JUL 07						

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**				PROJECT NUMBER AND NAME **4018/Littoral Combat Ship Construction**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	430.672	36.312	46.042	52.000	0.000	0.000	0.000
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Littoral Combat Ship (LCS) will be a fast, agile, and networked surface combatant with capabilities optimized to defeat asymmetric threats, and assure naval and joint force access into contested littoral regions. The threats challenging our naval forces in the littorals include mines, attacks by small surface craft, and quiet diesel submarines armed with a variety of anti-ship weapons. Such threats have great potential to be effectively employed by many less capable countries and non-state actors to prevent access, and use, of littoral areas by U.S. forces.

The LCS will use open-systems-architecture design, modular weapons, and sensor systems, and a variety of manned and unmanned vehicles to expand the battlespace and project offensive power into the littoral. LCS will operate with focused-mission packages that deploy manned and unmanned vehicles to execute a variety of missions, including littoral anti-submarine warfare (ASW), anti-surface warfare (SUW) and mine countermeasures (MIW). LCS will also possess inherent capabilities, regardless of mission package installed, including intelligence, surveillance, reconnaissance (ISR), homeland defense, Maritime Interdiction/Interception Operations (MIO), anti-terrorism/force protection (AT/FP), air self-defense, joint littoral mobility, and Special Operating Forces (SOF) and logistic support for movement of personnel and supplies.

This relatively small, high-speed surface combatant will compliment the U.S. Navy's AEGIS Fleet, DDG 1000, and CG(X) by operating in environments where it is less desirable to employ larger, multi-mission ships. It will have the capability to deploy independently to overseas littoral regions, remain on station for extended periods of time either with a battle group or through a forward-basing arrangement and will be capable of underway replenishment. It will operate with Carrier Strike Groups, Surface Action Groups, in groups of other similar ships, or independently for diplomatic and presence missions. Additionally, it will have the capability to operate cooperatively with the U.S. Coast Guard and Allies.

The RDT&E portion of the LCS Program is comprised of design and development efforts required to deliver the Flight 0 Class Ships, including modular MIW, ASW, and SUW mission packages, construction of the first two Flight 0 Class Ships that will deliver in 2008 and the incorporation of lessons learned from the design, construction, and testing of the first two ships. Also includes the introduction of improved waterjets on both designs and a waterjet tunnel extension on the LM LCS design which will comprise the Flight 0+ baseline.

The LCS Program achieved Milestone A and Program Initiation in May 2004, and is scheduled for a Milestone A update in FY08.

The LCS construction phase includes the construction of two LCS Fight 0 Class Ships, one of each of two designs, by two different industry teams, and includes Government Furnished Equipment (GFE) for ships systems, Final System Design (FSD) and Mission Systems and Ship Integration Team (MSSIT), and Outfitting and Post Delivery.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**	PROJECT NUMBER AND NAME **4018/Littoral Combat Ship Construction**

	LCS 1 ($M)	LCS 2 ($M)
Basic Construction	471	440
Change Orders	15	20
Other	33	40
GFE	12	7
Total End Cost	531	507
FSD/MSSIT	25	54
OF/PD	75	75
Total	631	636

Notes:

LCS 1 and LCS 2 Total Costs reflect a shortfall which will be addressed via a future reprogramming request.
FY 2008 funding ($80.5M) shown under project 9999/Congressional Adds is for LCS 1 and LCS 2.

FSD/MSSIT - Final System Design / Mission Systems and Ship Integration Team
OF/PD - Outfitting / Post Delivery

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**	PROJECT NUMBER AND NAME **4018/Littoral Combat Ship Construction**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Construction	401.672	0.000	0.000
RDT&E Articles Quantity	0	0	0

Provides for the construction, production, test and trials of LCS 1 and LCS 2 ships, including execution of Change Orders and procurement of Government Furnished Equipment (GFE), as well as Final System Design (FSD) and Mission Systems and Ship Integration Team (MSSIT) efforts.

FY2007/FY2008: Continued detail design and construction of LCS 1 (Lockheed Martin design) and LCS 2 (General Dynamics-Bath Iron Works design). Completed procurement of GFE for both LCS 1 and LCS 2. Support and execute the ship pre-delivery test and trials (stage 1-7) and related certification efforts.

	FY 2007	FY 2008	FY 2009
Outfitting and Post Delivery	29.000	36.312	46.042
RDT&E Articles Quantity	0	0	0

Provides for the integration and testing of the sea frame and separately acquired mission packages, implementation of instrumentation packages and validation of structural, seakeeping, hydrodynamic performance, emergent support during the execution of PDT&T, post-shakedown availability (PSA) to incorporate Engineering Change Proposals that allow for correction of trial card deficiencies, and mission critical upgrades, as required.

FY 2007: Initiated procurement of LCS 1 and LCS 2 spare and repair parts for shipboard equipment, shipboard equipage and tools, Force Protection Equipment, consumables, HAZMAT and other materials, and medical space items, including medical supplies. Completed validation of COSAL allowances for LCS 1. Completed development of an Interim Support Plan (ISP) for shipboard maintenance. Initiated procurement of shipboard maintenance equipment. Initiated procurement of instrumentation and data acquisition system (DAS) long-lead material. Initiated planning and coordination of post-delivery test and trials, including test plans and schedules for signature trials, HM&E assessments, and certification events.

FY 2008: Complete procurement of LCS 1 and LCS 2 spare and repair parts for shipboard equipment, shipboard equipage and tools, consumables, HAZMAT and other materials, and medical space items, including medical supplies. Complete procurement of shipboard maintenance equipment. Initiate instrumentation installation and integration. Complete detailed test plans and conduct Test Readiness Reviews (TRR). Perform engineering, planning and procurement of long lead material for the Industrial Post Delivery Availabilities (IPDA), scheduled immediately after ship delivery.

FY 2009: Initiate operation of installed instrumentation equipment, collection of data and the analysis of critical ship performance parameters. Conduct testing of mission packages, sea frame, and the integrated product. Conduct Combat Systems Ship Qualification Trials (CSSQT) testing of Seaframes and mission packages. Perform emergent repairs during PDTT as required. Perform engineering, planning, work package development and procurement of long lead material for the Post-Shakedown Availabilities (PSA) for both LCS 1 and LCS 2. Conduct IPDA's for LCS 1 and 2 to correct trial card deficiencies and incorporate critical safety and mission critical ECP's that must be completed prior to

Sail Away.

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
BLI 1600 (OPN)	78.741	0.000	131.241	234.673	242.184	252.298	227.441	CONT	CONT
BLI 2127 (SCN)	93.000	337.106	920.000	1,379.503	1,379.555	1,839.850	2,760.162	CONT	CONT
BLI 4221 (WPN)			2.786	24.552	47.353	45.261	10.701	CONT	CONT
BLI 0443 (APN)	37.419	37.432	55.337	73.347	75.560	96.345	102.779	CONT	CONT
BLI 1B5B/15BRO (OMN)	3.349	28.499	34.791	47.246	30.028	30.389	30.283	CONT	CONT
BLI 1B4B/14B50 (OMN)		8.400	11.959	0.472	0.484	0.519	0.544	CONT	CONT

D. ACQUISITION STRATEGY:

The LCS Program takes an evolutionary approach to acquisition that emphasizes completion of two initial Seaframe designs, the LCS Flight 0 Class ships, by two industry teams. The incorporation of lessons learned from the design, construction, and testing of the first two ships, as well as introduction of improved waterjets on both designs and a waterjet tunnel extension on the LM LCS design will comprise the Flight 0+ baseline to be awarded in FY08 and FY09. The LCS Program Acquisition Strategy, uses a limited competition approach for existing industry teams to compete for the construction of Flight 0+ Class Ships in FY08 through FY09.
The LCS Program will concurrently initiate Class Design Services contracts to both industry design teams for development of a Navy Design Package.

The LCS Program achieved Milestone A and Program Initiation in May 2004, and is scheduled for a Milestone A update in FY08.

E. MAJOR PERFORMERS:

Major Contractors:
General Dynamics - Bath Iron Works, Bath, ME
Austal USA, Mobile, AL
Lockheed Maritime Systems and Sensors, Moorestown, NJ
Marinette Marine Corporation, Marinette, WI

Government Field Activities:
NSWC Dahlgren, Dahlgren, VA
NSWC Carderock, Philadelphia, PA
Space and Naval Warfare Command (SPAWAR), Charleston, SC

NSWC/Port Hueneme, Port Hueneme, CA

Universities:

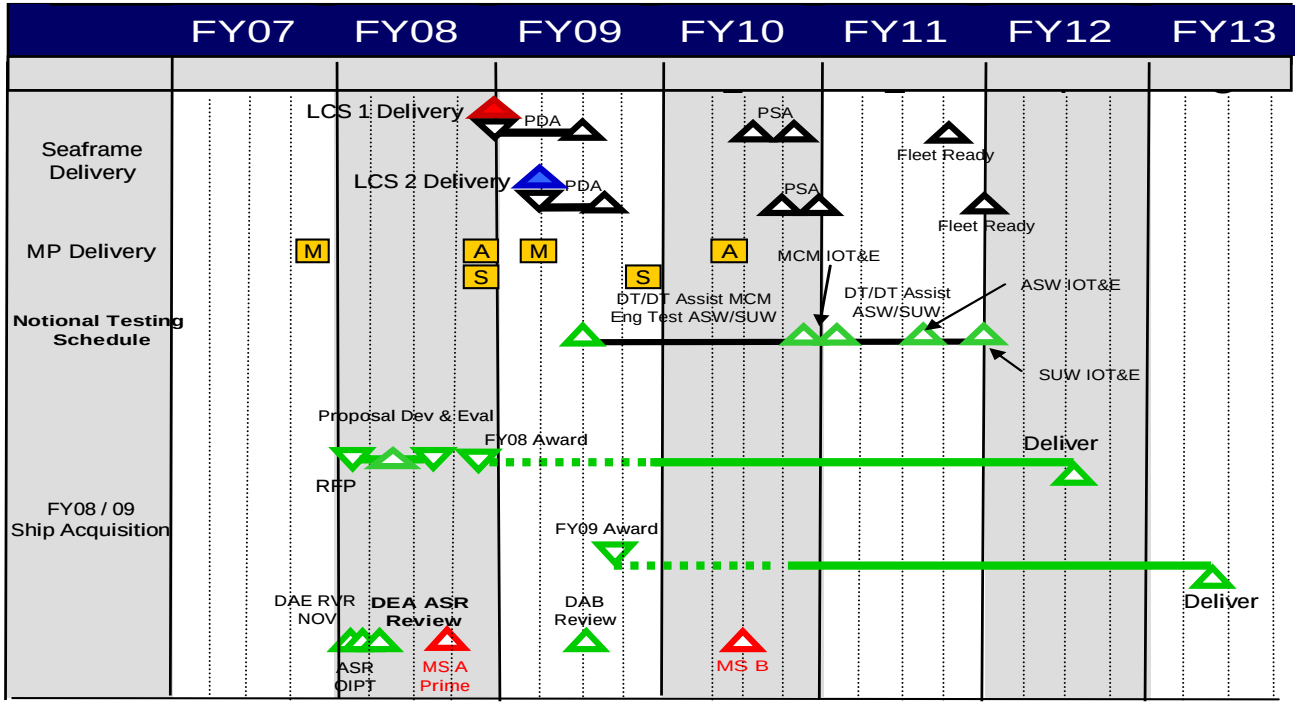
Johns Hopkins University Applied Physics Lab, Laurel, MD

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**					PROJECT NUMBER AND NAME **4018/Littoral Combat Ship Construction**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
LCS Ship 1 Construction	Comp	Lockheed Martin	259.088	138.933	VAR	0.000		0.000		0.000	398.021	0.000
LCS Ship 1 Change Orders	Comp	Lockheed Martin	0.000	15.000	VAR	0.000		0.000		0.000	15.000	0.000
LCS Ship 1 GFE	Comp	Lockheed Martin	8.772	3.228	OCT-06	0.000		0.000		0.000	12.000	0.000
LCS Ship 2 Construction	Comp	General Dynamics	188.913	183.127	VAR	0.000		0.000		0.000	372.040	0.000
LCS Ship 2 Change Orders	Comp	General Dynamics	0.000	20.000	VAR	0.000		0.000		0.000	20.000	0.000
LCS Ship 2 GFE	Comp	General Dynamics	6.275	0.725	OCT-06	0.000		0.000		0.000	7.000	0.000
LCS Ship 1 FSD/MSSIT	Comp	Lockheed Martin	24.200	0.800	6-Oct	0.000		0.000		0.000	25.000	0.000
LCS Ship 2 FSD/MSSIT	Comp	General Dynamics	46.782	7.218	VAR	0.000		0.000		0.000	54.000	0.000
Subtotal Product Development			**534.030**	**369.031**		**0.000**		**0.000**		**0.000**	**903.061**	**0.000**
Remarks:												
Other Program Costs	Various	Various	0.000	32.641	VAR	0.000		0.000		0.000	32.641	0.000
Subtotal Support Costs			**0.000**	**32.641**		**0.000**		**0.000**		**0.000**	**32.641**	**0.000**
Remarks:												
Subtotal Test and Evaluation			**0.000**	**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	**0.000**
Remarks:												
Subtotal Management Services			**0.000**	**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	**0.000**
Remarks:												
Initial Outfitting / ISP	Various	Various	1.585	20.111	VAR	7.200	VAR	8.042	VAR	0.000	CONT	0.000
Testing	WX	NSWC (Various)	0.763	3.889		10.000	VAR	0.000	VAR	0.000	CONT	0.000
Post Delivery ECP's	Comp	LM/GD	0.000	5.000		14.312	VAR	23.000	VAR	0.000	CONT	0.000
PSA/PSA Planning	WX	Supship (Various)	0.000	0.000		4.800	VAR	15.000	VAR	0.000	CONT	0.000
Subtotal Outfitting / Post Delivery			**2.348**	**29.000**		**36.312**		**46.042**		**0.000**	**CONT**	**0.000**

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**					PROJECT NUMBER AND NAME **4018/Littoral Combat Ship Construction**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Remarks:												
Total Cost			**536.378**	**430.872**		**36.312**		**46.042**		**0.000**	**CONT**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**	PROJECT NUMBER AND NAME **4018/Littoral Combat Ship Construction**

Notional Acquisition Schedule



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CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**			PROJECT NUMBER AND NAME **4018/Littoral Combat Ship Construction**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Detail Design and Construction - Flight 0	1Q-4Q	1Q-4Q	1Q-2Q				
Milestone B				2Q			
LCS 1 Delivery (Flight 0)		4Q					
LCS 2 Launch (Flight 0)		2Q					
LCS 2 Delivery (Flight 0)			1Q				
Post Shakedown Availability (PSA) LCS 1 & 2			4Q	1Q			
PSA Sea Trials				1Q			

CLASSIFICATION:	UNCLASSIFIED		
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION			DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**	PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**	

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
TBD/NEW PAYLOADS AND SENSORS UNMANNED SURFACE VEHICLE SYSTEM	0.000	1.590	0.000
RDT&E Articles Quantity	0	0	0

Funding to design, produce and test modular USV subsystems and autonomy on existing USVs. Modularity will reduce cost and schedule to integrated new payloads while improved autonomy will enable future concept of operation for USVs.

	FY 2007	FY 2008	FY 2009
TBD/Remote Multi-Mission Vehicle Anti-Submarine Warfare (ASW)	0.000	2.385	0.000
RDT&E Articles Quantity	0	0	0

Funding to support a feasibility demo of a single tow capability for Medium Frequency Bi-Static capability.

	FY 2007	FY 2008	FY 2009
Fully Fund LCS 1 and 2	0.000	80.485	0.000
RDT&E Articles Quantity	0	0	0

Funding for construction of LCS 1 and LCS 2

	FY 2007	FY 2008	FY 2009
9997N/LCS Mission Module Enhanced Tactical Response	4.201	0.000	0.000
RDT&E Articles Quantity	0	0	0

Funding to extend depth of program of record derivation and select non program of record risk mitigation efforts to: Field a Continuous Active Sonar (CAS) capable integrated ASW USV threat redetection, localization and engagement capability; Develop a common USV sensor launch & recovery system; Establish the LCS ASW Operations Support Center to provide end-user responsive pier side operator training refresh, reachback mission planning and prosecution support; Adapt netted distributed sensor grid communication protocols and data sharing methods for off board sensor systems real time situational awareness; Enable Mission Module USV increased bandwidth communications connectivity, and advanced autonomous data fusion and contact management

	FY 2007	FY 2008	FY 2009
TBD/ASW CONTACT MANAGEMENT MISSION PLANNING IMPROVEMENT	0.000	2.782	0.000
RDT&E Articles Quantity	0	0	0

Funding to provide a robust ASW fused-data mission planning and in-situation execution decision aid capability for a multi-platform, network-based system-of-systems. This would allow for a capability to assimilate, evaluate, fuse, and provide situational awareness with rapid re-planning capability to Fleet Commanders and tactical operators

	FY 2007	FY 2008	FY 2009
TBD/LCS MISSION PACKAGE ENTERPRISE	0.000	3.975	0.000
RDT&E Articles Quantity	0	0	0

This funding initiative will extend the process across the Enterprise and conduct coordinated build-test-build spiral testing for LCS Mission Packages and embarked offboard

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603581N/LITTORAL COMBAT SHIP (LCS)**	PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**

platforms. The focus will be on proactively executing technology innovation transitions, assessing operational effectiveness improvements and managing the risks involved through regularly scheduled at sea evaluations.

	FY 2007	FY 2008	FY 2009
9821N/C Remote Operation of Active Sonar Technology	0.996	0.000	0.000
RDT&E Articles Quantity	0	0	0

Funding is for efforts to optimize active Sonar operating depth and source transmission to achieve the best acoustic coverage for the mission area and target scenario, based on the available source transmission and receiver processing characteristics in support of the ASW Mission Package.

	FY 2007	FY 2008	FY 2009
9822N/C Unmanned Surface Vehicle Concepts & Technology	2.150	0.000	0.000
RDT&E Articles Quantity	0	0	0

Initiated common USV program transition, concept development, and integration for LCS. This concept focused on a critical need of the Navy as it seeks to develop and deploy rapidly reconfigurable, multi-mission unmanned surface vehicles (USVs) of modular design . This effort provided:

Systems engineering and modeling and simulation (M&S) tools to support USV system module development and budget decisions

Assessment of operational performance versus cost, programmed capabilities, engineering concepts/designs

Risk analyses of operational concepts, and combination of USV systems and Sensor technology.

	FY 2007	FY 2008	FY 2009
9996N/LCS ASW Mission Area Commonality	2.247	0.000	0.000
RDT&E Articles Quantity	0	0	0

Conduct coordinated "build-test-build" testing for LCS surface combatants and embarked off-board platforms, demonstrate an accelerated path towards enhanced joint net-centric operational ASW effectiveness.

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	R-1 ITEM NOMENCLATURE **0603582N/COMBAT SYSTEM INTEGRATION**						
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	58.418	53.872	54.401	40.257	39.520	39.275	38.811
0164 / COMBAT SYSTEM INTEGRATION	57.447	52.282	54.401	40.257	39.520	39.275	38.811
9999 / CONGRESSIONAL ADDS	0.971	1.590	0.000	0.000	0.000	0.000	0.000

A. MISSION DESCRIPTION:

Project 0164: Combat System Integration:

COMNAVSEASYSCOM (SEA 05W) is assigned central responsibility for interoperability, directing the development of policy and architecture for Strike Force warfare systems engineering and implementation of a common warfare systems engineering process. Furthermore, SEA 05W provides top level direction and execution for certification and assessments which support capability and quality for ships and submarines. SEA 05W has developed processes and tools including the establishment of a force-level warfare systems engineering process, stewardship of the introduction of C5I modernization and improvement into the Fleet Response Plan (FRP), Command & Control, Communications, Computers, & Combat Systems Installation Master Plan (C5IMP) process, configuration management and certification processes, and force-level interoperability assessments using the Distributed Engineering Plant (DEP) land-based testing tool. This project funds the core elements required to conduct Warfare Systems Integration and Interoperability Testing (WSI2T) in accordance with the Naval Warfare Systems Certification Policy (NWSCP), Joint NAVSEA, NAVAIR, and SPAWAR SYSCOM Instruction.

This project funds Strike Force (SF) requirements engineering and analysis. This includes SF configuration management through the Fleet Response Plan (FRP), shore based testing and Warfare System Integration and Interoperability Testing (WSI2T) certification of operational computer systems in a test environment similar to their ultimate shipboard operational environment, and Interoperability Assessments which are a prerequisite for operational certification of the ships in Strike Force configurations prior to deployment. Force Certification of deploying ships in Strike Force configurations is accomplished through the utilization of the Navy's Distributed Engineering Plant (DEP), which provides operational configurations for all Naval combat systems located at multiple (15) Navy & Industry 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 C5I configuration items prior to shipboard delivery for operational use in surface combatant platforms and battle group units. It is a Fleet Forces Command requirement that all Strike Forces undergo Interoperability Certification testing in the DEP prior to deployment. Further, the DEP provides the mechanism to support the Navy's participation in the Joint testing environments (JDEP/JMETC) as well as the coalition forces through the Combined Forces Battle Laboratories (CFBL) network to allow for assessments of both Joint and Coalition interoperability.

As the Navy embarks on Navy Open Architecture (OA), Common Network Interface (CNI) has been selected for upgrade on the LHA, LHD, and LSD ship classes. The program's development included a land based demonstration performed in April 2005 and an at-sea demonstration performed in February 2007. Production will commence in late FY07 with installations spirals planned in FY08 for both LHA and LHD class ships. Future software modifications will begin in FY07 and continue through the FYDP. CNI is an open

interface system that modernizes legacy amphibious ships that support the Expeditionary Strike Group (ESG). CNI uses Commercial Off The Shelf (COTS) hardware and common interoperable software compliant with the Navy's OA standards to integrate the data from ship's sensors, external links, and FORCEnet sources into an operational picture for the war fighter. CNI provides rapid operational capability upgrades via a Rapid Capability Insertion Process (RCIP) using primarily software upgrades. CNI allows for the implementation of the Integrated Architecture Behavior Model (IABM), FORCEnet and Network centric connectivity by providing the necessary fleet support activities which include: systems engineering support, software support, and integrated logistics support (ILS) to ensure proper coordination and connectivity of hardware and software components for accurate operation.

9999/Congressional Adds: These FY08 funds resource two distinct projects, Visualization & Service-Oriented Architecture for Strike Force Interoperability and Automated Test and Retest, that provide end-to-end support for the management and execution of a Department of Defense effort to monitor, manage and enforce interoperability of Command, Control, Computers, Communications and Intelligence (C4I) and Combat Systems Command, Control, Computers Communications and Intelligence (C5I) systems installed aboard US Navy vessels and those installed or in use at shore stations and joint and coalition units operating with those vessels.

9A02N Visualization & Service-Oriented Architecture for Strike Force Interoperability:
Funds provide end-to-end support for the management and execution of a Department of Defense effort to monitor, manage and enforce interoperability of Command, Control, Computers, Communications and Intelligence (C4I) and Combat Systems Command, Control, Computers Communications and Intelligence (C5I) systems installed aboard US Navy vessels and those installed or in use at shore stations and joint and coalition units operating with those vessels.

CLASSIFICATION:	UNCLASSIFIED

EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION (CONTINUATION)

DATE
February 2008

APPROPRIATION/BUDGET ACTIVITY
RDTEN/BA 4

R-1 ITEM NOMENCLATURE
0603582N/COMBAT SYSTEM INTEGRATION

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY2008 PRES Controls)	61.797	53.427	53.435
Current President's Budget (FY 2009 PRES Controls)	58.418	53.872	54.401
Total Adjustments	-3.379	0.445	0.757
Navigation System Certification (NAVCERT) in Support o NW	0.000	0.000	1.500
SEWIP Increase II AccelerationP Increase	0.000	0.000	-0.204
Defense Security Services	0.000	0.000	-3.060
PDM II INCREASE TO BRACV	0.000	0.000	2.676
Small Bus. Innov. Research	-1.582	0.000	0.000
Fed Tech. Transfer Tax	-0.050	0.000	0.000
Navy Working Capital Fund (NWCF) Rate	0.000	0.000	0.209
Sec. 8097: Contractor Efficiencies	0.000	-0.086	0.000
Sec. 8104: Revised Economic Assumptions	0.000	-0.254	0.000
Sec. 8025: FFRDC Reduction	0.000	-0.004	0.000
Navy Working Capital Fund (NWCF) Rate	0.000	0.000	-0.155
Execution Realignments by Fund Holder (BTR FACT)	-2,640	0.000	0.000
Cancelled Accounts Liabilities	-0.078	0.000	0.000
Exec Realign SB Issue	0.000	-0.801	0.000
9999N Automated Test Re-Test	0.000	1.600	0.000
Sec. 8097: Contractor Efficiencies	0.000	-0.002	0.000
Sec. 8104: Revised Economic Assumptions	0.000	-0.008	0.000
9999N OA/MFOP	1.295	0.000	0.000
Sec. 8106 Revised Economic Assumptions	0.005	0.000	0.000
Open Architecture/Maintenance Free Operating Period -OA/MFO	-1.300	0.000	0.000
9A02N Visualization & Service-Oriented ArchcFor SF	0.996	0.000	0.000
Small Bus. Innov. Research	-0.025	0.000	0.000

Schedule: See R4/R4A Schedule.

Technical: Funds encompass a sustainable Navigation Certification effort in support of VSYSCOM instruction and certification of platform/strike force interoperability in accordance with CFFC direction meeting 75% of deploying force requirements.

C. OTHER PROGRAM FUNDING SUMMARY:

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)

PE 0604307N (AEGIS Combat Systems Engineering)

PE 0604755N (Ship Self Defense - EMD)

PE 0604518N (Combat Information Center Conversion)

PE 0603879N (Single Integrated Air Picture (SIAP) System Engineering (SE)

Related Procurement:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
OPN 296000 (ICSTF/DEP): Integrated Combat System Test Facilities/Distributed Engineering Plant)	$4.3	$4.5	$4.6	$4.7	$4.9	$5.0	$5.1		

D. ACQUISITION STRATEGY:

RDTEN funding under this line supports independent certification of the integration of major capability upgrades acquired by Program Executive Offices (PEOs) into host Navy Platforms and Strike Forces. The RDTEN engineering and certification activities at field sites does not involve direct procurement of equipment or engineering services, and hence no acquisition strategy is required. The major capability upgrades evaluated under this program fall under their associated PEOs' acquisition strategies.

E. MAJOR PERFORMERS:

Naval Surface Warfare Center - Distributed Engineering Plant (DEP), Strike Force Interoperability Requirements (SFIR) and Platform/Strike Force Certification efforts.

General Dynamics - Advanced Information Systems (GD-AIS) Digital Systems Resources, Inc. (DSR), Fair Lakes, VA- Prime contractor for Common Network Interface (CNI).

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603582N/COMBAT SYSTEM INTEGRATION**				PROJECT NUMBER AND NAME **0164/COMBAT SYSTEM INTEGRATION**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	57.447	52.282	54.401	40.257	39.520	39.275	38.811
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Project 0164: Combat System Integration:

COMNAVSEASYSCOM (SEA 05W) is assigned central responsibility for interoperability, directing the development of policy and architecture for Strike Force warfare systems engineering and implementation of a common warfare systems engineering process. Furthermore, SEA 05W provides top level direction and execution for certification and assessments which support capability and quality for ships and submarines. SEA 05W has developed processes and tools including the establishment of a force-level warfare systems engineering process, stewardship of the introduction of C5I modernization and improvement into the Fleet Response Plan (FRP), Command & Control, Communications, Computers, & Combat Systems Installation Master Plan (C5IMP) process, configuration management and certification processes, and force-level interoperability assessments using the Distributed Engineering Plant (DEP) land-based testing tool. This project funds the core elements required to conduct Warfare Systems Integration and Interoperability Testing (WSI2T) in accordance with the Naval Warfare Systems Certification Policy (NWSCP), Joint NAVSEA, NAVAIR, and SPAWAR SYSCOM Instruction.

This project funds Strike Force (SF) requirements engineering and analysis. This includes SF configuration management through the Fleet Response Plan (FRP), shore based testing and Warfare System Integration and Interoperability Testing (WSI2T) certification of operational computer systems in a test environment similar to their ultimate shipboard operational environment, and Interoperability Assessments which are a prerequisite for operational certification of the ships in Strike Force configurations prior to deployment. Force Certification of deploying ships in Strike Force configurations is accomplished through the utilization of the Navy's Distributed Engineering Plant (DEP), which provides operational configurations for all Naval combat systems located at multiple (15) Navy & Industry 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 C5I configuration items prior to shipboard delivery for operational use in surface combatant platforms and battle group units. It is a Fleet Forces Command requirement that all Strike Forces undergo Interoperability Certification testing in the DEP prior to deployment. Further, the DEP provides the mechanism to support the Navy's participation in the Joint testing environments (JDEP/JMETC) as well as the coalition forces through the Combined Forces Battle Laboratories (CFBL) network to allow for assessments of both Joint and Coalition interoperability.

As the Navy embarks on Navy Open Architecture (OA), Common Network Interface (CNI) has been selected for upgrade on the LHA, LHD, and LSD ship classes. The program's development included a land based demonstration performed in April 2005 and an at-sea demonstration performed in February 2007. Production will commence in late FY07 with installations spirals planned in FY08 for both LHA and LHD class ships. Future software modifications will begin in FY07 and continue through the FYDP. CNI is an open interface system that modernizes legacy amphibious ships that support the Expeditionary Strike Group (ESG). CNI uses Commercial Off The Shelf (COTS) hardware and common interoperable software compliant with the Navy's OA standards to integrate the data from ship's sensors, external links, and FORCEnet sources into an operational picture for

the war fighter. CNI provides rapid operational capability upgrades via a Rapid Capability Insertion Process (RCIP) using primarily software upgrades. CNI allows for the implementation of the Integrated Architecture Behavior Model (IABM), FORCEnet and Network centric connectivity by providing the necessary fleet support activities which include: systems engineering support, software support, and integrated logistics support (ILS) to ensure proper coordination and connectivity of hardware and software components for accurate operation.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603582N/COMBAT SYSTEM INTEGRATION**	PROJECT NUMBER AND NAME **0164/COMBAT SYSTEM INTEGRATION**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
SF Requirements Engineering and Analysis	2.890	2.900	3.000
RDT&E Articles Quantity	0	0	0

In FY07 the program developed multi-mission strike scenarios and evaluated interoperability performance. Development of these standards are essential to the evaluation of emerging combat system capabilities, such as Open Architecture, CVN 77, CVN 21, and LCS. In FY 08 and FY 09, the program will implement the above mentioned multi-mission scenarios and interoperability test requirements, evaluate interoperability performance, and advise the Fleet of critical interoperability capabilities and limitations. Implementation of these standards are essential to evaluate emerging combat system capabilities, such as Open Architecture baselines in CG/DDG modernization, LCS, CVN 77, DDG 1000, and CVN 21. In addition to the above, funding is also dedicated to develop and implement interoperability fixes to combat systems, and to validate and certify completed fixes at the platform and Strike 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. There is no funding programmed for future interoperability fix packages per ASN (RDA) direction.

	FY 2007	FY 2008	FY 2009
Platform/Strike Force Certification	10.047	15.082	15.500
RDT&E Articles Quantity	0	0	0

Conduct Systems Engineering Events (SEE) for root-cause determination of key interoperability problems and support development of new force-level warfare system capabilities. Conduct Interoperability Development (IO DEV) and Interoperability Certification events (IO CERT) in support of the Naval Warfare System Certification Plan (NWSCP). In FY07, one IO DEV was conducted for CVN 68OA , two IO Cert.'s for CVN 76/69 and LHD 7 and three SEE's in support of CNI and SGS programs. In FY08, three SEE's are planned to support root cause determination of current fleet interoperability issues, CVN 78 and Common Network Interface Flight 0+ development. Two IO DEV's are scheduled for Cruiser Modernization and SSDS platforms and two IO Cert.'s are planned in support of AWS 7.1R and CVN 68OA. In FY 09 anticipate the same level of effort for IO Dev and IO Cert testing while expanding the number of SEE events from three to five in order to continue support for CVN 78 interoperability assessment, fleet issue resolution, CNI, Shipboard Gridlock System and other associated programs under development. FY10 and beyond, continue to support interoperability assessment and interoperability systems engineering.

	FY 2007	FY 2008	FY 2009
FRP	5.110	7.500	8.001
RDT&E Articles Quantity	0	0	0

In FY07 plans are to continue implementing the Fleet Response Plan (FRP) by providing support from the Strike Force Interoperability Teams which include On-Site-Reps, Project Engineers, Fleet Liaisons, Strike Force Interoperability Officers and support the FRP milestones relating to Command Control Communication Computer and Combat Systems Modernization Process (C5IMP). In FY08 and beyond, 25 + Strike Groups are being evaluated in some phase of the Fleet Response Plan (FRP). Continue development and distribution of Strike Group Capabilities and Limitations documentation for each Strike Force identified in the FRP process deployment cycle. This will include support to meet Emergency Surge, Surge, and Normal Deployment, and include limited CSCS training events with updated material from documented findings/results of underway and I/O Certification test events. Over 27 Capabilities and Limitations documents will be delivered, and over 12,000 configuration change requests will be processed.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603582N/COMBAT SYSTEM INTEGRATION**	PROJECT NUMBER AND NAME **0164/COMBAT SYSTEM INTEGRATION**

	FY 2007	FY 2008	FY 2009
Combat Systems Cert ISO Platform Certification	9.024	4.800	5.500
RDT&E Articles Quantity	0	0	0

In FY07 plans include Warfare System Integration and Interoperability Testing (WSI2T) of Ship Self Defense System (SSDS) MK-2 Mods 1-2, Advance Combat Direction System (ACDS) BLOCK 0 & 1, combat direction systems, and associated elements for CVN/LHD/LHA/LPD ship classes and Test Bed Validation. In FY08-FY13, continue planning for out-year testing to include the above and CVN 77, LCS, LPD 17, CVN 21, Open Architecture combat systems as well as integration of new combat system capabilities and Next Generation C2P.

	FY 2007	FY 2008	FY 2009
Navigation System Certification (NAVCERT)	0.000	0.000	1.500
RDT&E Articles Quantity	0	0	0

NAVSEA inst. 9420.4, dated May 02, requires periodic (every five years) navigation system certifications (NAVCERTs) to verify navigation system performance and accuracy. Scope includes TOMAHAWK, Standard Missile, Ballistic Missile and Theater Ballistic Missile alignment and re-certification, and Aircraft Inertial Alignment System (AIAS). Navigation Certification is a pre-requisition for full warfare systems certification of deploying platforms is VSYSCOM Naval Warfare Systems Certification Policy NAVSEA Inst. 9410.1. Fleet Message CNSF 211506Z, dated Nov 05, highlights the need to validate safety of navigation as critical to assurance of operational readiness. The NAVCERT ensures ships have systems that can safely perform navigation, weapons firing and aircraft launch and recovery. In FY09-FY13, there is a minimum number (27, 27, 28, 25, 35 respectively) of ships requiring NAVCERTs based on a five-year periodicity re-cert requirement. In FY 09 specifically, there are eight cruiser-destroyer (CRUDES), five amphibs, ten fast frigates (FFGs), three aircraft carriers, and one auxiliary (AUX).

	FY 2007	FY 2008	FY 2009
DEP Engineering and Operations	5.392	7.500	7.400
RDT&E Articles Quantity	0	0	0

Performs systems engineering, and operations functions to ensure DEP infrastructure supports testing of combat system baselines. Conduct systems engineering to identify simulation/stimulation requirements necessary to achieve required fidelity for DEP testing at Navy laboratory sites through verification, validation and accreditation. Evaluates network requirements for distributed test events, work with other Service R&D laboratories to identify system and test requirements supporting evaluation of joint system interoperability and the development of open system architecture baselines. Funds critical technical activity in force interoperability necessary to support all user communities of this important land-based test capability. i.e. acquisition; fleet; and industry. In FY07-FY09 projected nodes include SSC Charleston in support of OA testing and CVN 21 Joint and Coalition events will be supported through FY07 and beyond.

	FY 2007	FY 2008	FY 2009
JDEP	4.784	0.000	0.000
RDT&E Articles Quantity	0	0	0

Funds Navy participation in Joint Distributed Engineering Plant (JDEP) and related land-based test events and systems engineering activities. The Defense Planning Guidance (DPG) updated for FY 2002-2007 states that the JDEP program was established as a DoD-wide effort to link existing service and joint combat system engineering and test sites.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603582N/COMBAT SYSTEM INTEGRATION**	PROJECT NUMBER AND NAME **0164/COMBAT SYSTEM INTEGRATION**

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. FY07 events include JCHE Phase 4, Joint player participation in core Navy DEP certification event, and Joint OA experiments. No funding is available in FY 08 and beyond.

	FY 2007	FY 2008	FY 2009
CNI/OA Transformation Roadmap	20.200	14.500	13.500
RDT&E Articles Quantity	0	0	0

FY07 Plan: Continue systems engineering support, software support, and integrated logistics support (ILS) to ensure proper coordination and connectivity of hardware and software components for accurate operation.

FY08 Plan: Continue systems engineering support, software support, and integrated logistics support (ILS) to ensure proper coordination and connectivity of hardware and software components for accurate operation.

FY09 Plan: Continue systems engineering support, software support, and integrated logistics support (ILS) to ensure proper coordination and connectivity of hardware and software components for accurate operation.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS												DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603582N/COMBAT SYSTEM INTEGRATION**					PROJECT NUMBER AND NAME **0164/COMBAT SYSTEM INTEGRATION**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
SF Requirements Engineering & Analysis	WX/RX/PD	Various NSWCs	0.757	1.100	OCT-06	1.100	OCT-07	1.100	OCT-08	TBD	4.002	0.000
SF Requirements Engineering & Analysis	WX/RX/PD	Various Non-NSWCs	1.432	1.790	OCT-06	0.660	OCT-07	0.660	OCT-08	TBD	3.354	0.000
FRP	WX/RX/PD	Various NSWCs	5.441	4.960	OCT-06	6.010	OCT-07	6.734	OCT-08	TBD	22.269	0.000
FRP	WX/RX/PD	Various Non-NSWCs	0.000	0.150	OCT-06	0.188	OCT-07	0.187	OCT-08	TBD	0.515	0.000
Combat Systems Cert iso Platform Cert	WX/RX/PD	Various NSWCs	6.784	4.271	OCT-06	2.300	OCT-07	2.450	OCT-08	TBD	15.805	0.000
Combat Systems Cert iso Platform	WX/RX/PD	Various Non-NSWCs	1.666	0.217	OCT-06	0.000	N/A	0.000	N/A	TBD	1.883	0.000
Platform/Strike Force Cert	WX/RX/PD	Various NSWCs	10.200	4.350	OCT-06	6.300	OCT-07	6.350	OCT-08	TBD	27.154	0.000
Platform/Strike Force Cert	WX/RX/PD	Various Non-NSWCs	0.000	5.697	OCT-06	8.500	OCT-07	8.650	OCT-08	TBD	23.011	0.000
Navigation System Certification	WX/RX/PD	Various NSWCs	0.000	0.000	N/A	0.000	N/A	1.500	OCT-08	TBD	1.500	0.000
DEP Engineering and Operations	WX/RX/PD	Various NSWCs	6.141	2.030	OCT-06	2.660	OCT-07	2.660	OCT-08	TBD	13.491	0.000
DEP Engineering and Operations	WX/RX/PD	Various Non-NSWCs	0.000	3.362	OCT-06	4.644	OCT-07	4.730	OCT-08	TBD	12.982	0.000
JDEP	WX/RX/PD	Various NSWCs	3.295	2.766	OCT-06	0.000	N/A	0.000	N/A	TBD	6.237	0.000
JDEP	WX/RX/PD	Various Non-NSWCs	1.305	2.018	OCT-06	0.000	N/A	0.000	N/A	TBD	3.323	0.000
CNI/Design Agent	CPAF	General Dynamics	18.276	11.000	APR-07	10.300	OCT-07	9.300	OCT-08	TBD	48.876	0.000
CNI/Software Engineering	WX/RX/PD	NSWC Dahlgren	1.775	2.608	DEC-07	2.000	OCT-07	2.000	OCT-08	TBD	8.383	0.000
CNI/Test and Evaluation	WX/RX/PD	CDSA	1.022	1.100	DEC-07	0.800	OCT-07	1.000	OCT-08	TBD	3.922	0.000
CNI/Systems Engineering	WX/RX/PD	NSWC PHD	0.000	1.645	JAN-07	0.500	OCT-07	0.500	OCT-08	TBD	2.645	0.000
CNI/Miscellaneous	WX/RX/PD	VARIOUS	2.082	3.847	APR-07	0.900	APR-08	0.700	APR-09	TBD	6.456	0.000
OA Test and Retest	WX	Various NSWCs	8.500	0.000	N/A	0.000	N/A	0.000	N/A	CONT	8.500	0.000
Contract Engineering Support	VARIOUS	VARIOUS	2.571	2.838	NOV-06	3.750	NOV-07	4.210	NOV-08	TBD	16.031	0.000
Contract Program Mgt Support	VARIOUS	VARIOUS	0.643	1.398	NOV-06	1.370	NOV-07	1.370	NOV-08	TBD	4.781	0.000
Travel	PD	NAVSEA TRAVEL	0.250	0.300	SEP-07	0.300	SEP-08	0.300	SEP-09	TBD	1.150	0.000
Interoperability Fixes	WX/RX/PD	Various NSWCs	1.500	0.000	N/A	0.000	N/A	0.000	N/A	CONT	1.500	0.000
Subtotal Product Development			**73.640**	**57.447**		**52.282**		**54.401**		**CONT**	**CONT**	**0.000**

Remarks: NAVSEA implemented standard document issuance to streamline and reduce the number of documents executed which was approved by FMB and OMB. Forms explained below:

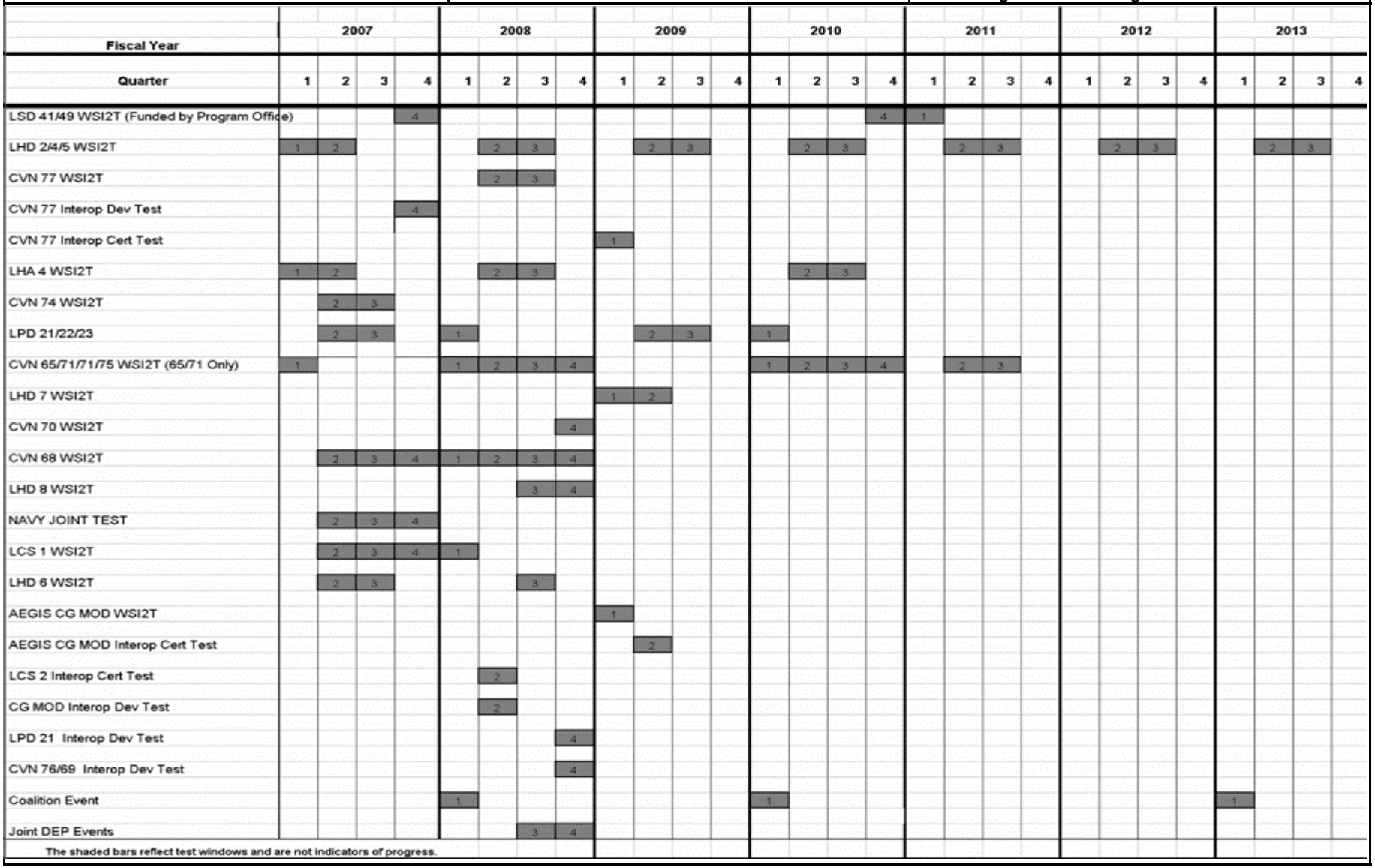
WX: WR & RCP Combination (Form 2276A)
RX: RCP
PD: Program Directive

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603582N/COMBAT SYSTEM INTEGRATION**	PROJECT NUMBER AND NAME **0164/COMBAT SYSTEM INTEGRATION**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
Quarter	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
AWS 7.1C Interop Dev Test (Unfunded)						2																						
AWS 7.1C Interop Cert Test (Unfunded)										2																		
DDG (M) Interop Dev/Cert Test					1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
DD(X) (TBD)													TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
CVN 21 (TBD)													TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
LCS 2 WSI2T					1																							
LPD 17/18/19/20 WSI2T	1	2	3		1				1								1											
CVN 68 Interop Dev Test			3											2	3		1	2										
CVN 68 Interop Cert Test							3																					
CVN 73 WSI2T		2																										
CVN 76/69 Interop Cert Test				4																								
CVN 69 WSI2T		2	3	4																								
SEE -01		2			1					2			1					2			1					2		
SEE -02			3			2					3			2					3			2					3	
SEE -03				4				4				4			3					4			3					4
LHA 1/5 WSI2T							3	4																				
LHA 6 WSI2T (LHA R)																				4	1							
FFG Level 13 WSI2T			3				3				3				3				3				3				3	
CVN 76 WSI2T	1	2	3							2	3																	

The shaded bars reflect test windows and are not indicators of progress.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603582N/COMBAT SYSTEM INTEGRATION**	PROJECT NUMBER AND NAME **0164/R4 Page 2 Combat Integration**



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603582N/COMBAT SYSTEM INTEGRATION**			PROJECT NUMBER AND NAME **0164/COMBAT SYSTEM INTEGRATION**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
AWS 7.1C Interop Dev Test (Unfunded)		2Q					
AWS 7.1C Interop Cert Test (Unfunded)			2Q				
DDG (M) Interop Dev/Cert Test		1Q, 2Q, 3Q, 4Q	1Q, 2Q, 3Q, 4Q	1Q, 2Q, 3Q, 4Q	1Q, 2Q, 3Q, 4Q	1Q, 2Q, 3Q, 4Q	Q, 2Q, 3Q, 4Q
DD(X)				TBD	TBD	TBD	TBD
CVN 21				TBD	TBD	TBD	TBD
LCS 2 WSI2T		1Q					
LPD 17/18/19/20 WSI2T	1Q, 2Q, 3Q	1Q	1Q		1Q		
CVN 68 Interop Dev Test	3Q			2Q, 3Q	1Q, 2Q		
CVN 68 Interop Cert Test		3Q					
CVN 73 WSI2T	2Q						
CVN 76/69 Interop Cert Test	4Q						
CVN 69 WSI2T	2Q, 3Q, 4Q						
SEE - 01	2Q	1Q	2Q	1Q	2Q	1Q	2Q
SEE - 02	3Q	2Q	3Q	2Q	3Q	2Q	3Q
SEE - 03	4Q	4Q	4Q	3Q	4Q	3Q	4Q
LHA 1/5 WSI2T		3Q, 4Q					
LHA 6 WSI2T (LHA R)					4Q	1Q	
FFG Level 13 WSI2T	3Q	3Q	3Q	3Q	3Q	3Q	3Q
CVN 76 WSI2T	1Q, 2Q, 3Q		2Q, 3Q				

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603582N/COMBAT SYSTEM INTEGRATION**			PROJECT NUMBER AND NAME **0164/R4 Page 2 Combat Integration**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
LSD 41/49 WSI2T (Funded by Program Office)	4Q			4Q	1Q		
LHD 2/4/5 WSI2T	1Q,2Q	2Q,3Q	2Q,3Q	2Q,3Q	2Q,3Q	2Q,3Q	2Q,3Q
CVN 77 WSI2T		2Q,3Q					
CVN 77 Interop Dev Test	4Q						
CVN 77 Interop Cert Test			1Q				
LHA 4 WSIT2	1Q,2Q	2Q,3Q		2Q,3Q			
CVN 74 WSI2T	2Q,3Q						
LPD 21/22/23	2Q,3Q	1Q	2Q,3Q	1Q			
CVN 65/71/72/75 WSI2T	1Q	1Q,2Q,3Q,4Q		1Q,2Q,3Q,4Q	2Q,3Q		
LHD 7 WSI2T			1Q,2Q				
CVN 70 WSI2T		4Q					
CVN 68 WSI2T	2Q,3Q,4Q	1Q,2Q,3Q,4Q					
LHD 8 WSI2T		3Q,4Q					
NAVY JOINT TEST	2Q,3Q,4Q						
LCS 1 WSI2T	2Q,3Q,4Q	1Q					
LHD 6 WSI2T	2Q,3Q	3Q					
AEGIS CG MOD WSI2T			1Q				
AEGIS CG MOD Interop Cert Test			2Q				
LCS 2 Interop Cert Test		2Q					
CG MOD Interop Dev Test		2Q					
LPD 21 Interop Dev Test		4Q					
CVN 76/69 Interop Dev Test		4Q					
Coalition Event		1Q		1Q			1Q
Joint DEP Events		3Q,4Q					

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603582N/COMBAT SYSTEM INTEGRATION**	PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Visualization & Service-Oriented Architecture for Strike Force Interop	0.971	0.000	0.000
RDT&E Articles Quantity	0	0	0

These funds were provided by Congressional Plus Up.

Project 9A02N. Funds provide end-to-end support for the management and execution of a Department of Defense effort to monitor, manage and enforce interoperability of Command, Control, Computers, Communications and Intelligence (C4I) and Combat Systems Command, Control, Computers Communications and Intelligence (C5I) systems installed aboard US Navy vessels and those installed or in use at shore stations and joint and coalition units operating with those vessels. It includes business process modeling, program management systems support, requirements analysis, architectural design, systems engineering support, web application development within existing web applications, visualization tool development, configuration management, testing and results analysis.

	FY 2007	FY 2008	FY 2009
Open Architecture Automates Test and Re-Test Capability	0.000	1.590	0.000
RDT&E Articles Quantity	0	0	0

Automated Test and Re-Test Capability: Funds added to program to support software engineering upgrades to enable rapid test and re-test of open architecture software modules and associated improvements. During FY07 methodology was further developed with the intent to transition to program in FY10. Being in FY07, funding is being utilized to define and develop methodology for automating the test of Combat Systems. The maturing of this effort intends to transition the programming of Automated Testing and Re-Testing (ATRT) capability by FY10.

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION							DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**			R-1 ITEM NOMENCLATURE **0603609N/CONVENTIONAL MUNITIONS**				
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	18.726	8.760	8.124	8.372	7.666	10.393	10.947
0363 / Insensitive Munitions Adv. Development	2.595	2.916	2.502	2.900	3.241	3.303	3.366
1821 / Conventional Fuzed Warfare Package	7.585	4.276	4.728	4.957	4.277	4.552	4.829
2299 / Non-Nuclear Expendable Ordnance	7.636	1.568	0.894	0.515	0.148	2.538	2.752
9999 / Congressional Adds	0.910	0.000	0.000	0.000	0.000	0.000	0.000

A. MISSION DESCRIPTION:

Insensitive Munitions Advanced Development (IMDA) (Project 0363): Most Navy munitions react violently when exposed to unplanned stimuli such as fire, shock and bullet or fragment 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. IMAD 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 and platform survivability and satisfying performance and readiness requirements.

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.

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.

CLASSIFICATION:	UNCLASSIFIED

EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION (CONTINUATION)

DATE
February 2008

APPROPRIATION/BUDGET ACTIVITY
RDTEN/BA 4

R-1 ITEM NOMENCLATURE
0603609N/CONVENTIONAL MUNITIONS

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
2008 PRESIDENT'S BUDGET	23.297	8.941	9.642
2009 PRESIDENT'S BUDGET SUBMISSION	18.726	8.760	8.124
TOTAL ADJUSTMENTS	-4.571	-0.181	-1.518
SUMMARY OF ADJUSTMENTS			
EXECUTION REALIGNMENT	-3.952	-0.124	
CANCELLED ACCOUNTS	-0.027		
SBIR	-0.592		
NAVY WORKING CAPITAL FUND	0.000		-0.003
PR 09 PDM II Increase to BRACV			-1.500
REVISED ECONOMICS ASSUMPTIONS		-0.043	-0.015
CONTRACTOR EFFICIENCIES		-0.014	
SUBTOTAL	-4.571	-0.181	-1.518
SCHEDULE: NOT APPLICABLE			
TECHNICAL: NOT APPLICABLE			

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603609N/CONVENTIONAL MUNITIONS**				PROJECT NUMBER AND NAME **0363/Insensitive Munitions Adv. Development**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	2.595	2.916	2.502	2.900	3.241	3.303	3.366
RDT&E Articles Qty	0	0	0	0	0	0	0

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 (IM) 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 IM deficiencies. Energetic materials producibility is demonstrated to assure national capability to produce and load munitions systems. The program leverages are being closely coordinated with other Military Departments, North Atlantic Treaty organization (NATO) and allied countries to eliminate redundant efforts and maximize efficiency. A joint service IM requirement has been developed and through the IM Strategic Planning process, all PEO's are implementing IM in their priority munitions. Insensitive munitions are identified as a DoD critical technology requirement and considered as part of a weapon design. The IMAD program matures the technology developed by a variety of Science and Technology (S&T) sources for program management integration into weapons systems to meet the IM technical deficiencies documented in the PEO IM Strategic Plans. IMAD provides the link between S&T programs and the PMs by optimizing IM technologies to meet Navy requirements. IMAD offers risk mitigation for the PMs in terms of IM technical knowledge, expertise and manpower with the State of the Art expertise across IM products. Each technology area is divided into subtasks addressing specific munition and munition class IM deficiencies.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603609N/CONVENTIONAL MUNITIONS**	PROJECT NUMBER AND NAME **0363/Insensitive Munitions Adv. Development**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.995	1.021	0.987
RDT&E Articles Quantity	0	0	0

Validate and assess weapon systems POA&M's for IM compliance. Compile and analyze weapon system, energetic material and generic technology IM test data.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.422	0.495	0.407
RDT&E Articles Quantity	0	0	0

Demonstrate high explosives that show improved IM characteristics while maintaining or improving operational performance. Evaluate pressed and cast metal accelerating explosives. Complete qualification of high performance booster explosive for multiple weapons systems. Begin qualification of best candidate metal accelerating explosive.
Accomplishments: Demonstrated high explosives that show improved IM characteristics while maintaining or improving operational performance. Evaluation of pressed metal accelerating explosives.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.596	0.600	0.504
RDT&E Articles Quantity	0	0	0

Evaluate and Demonstrate IM gun propulsion systems which provide improved or comparable performance to in-service systems and have improved IM characteristics.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.432	0.500	0.404
RDT&E Articles Quantity	0	0	0

Evaluate and demonstrate IM propellants and propulsion systems which provide improved or comparable performance to in-service systems and better IM characteristics. Combine candidate IM propellants and case concepts to demonstrate compliance with IM 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 IM propellants and propulsion systems which provide improved or comparable performance to in-service systems and better IM characteristics. Combined candidate IM propellants and case concepts to demonstrate compliance with IM and performance requirements.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.150	0.300	0.200
RDT&E Articles Quantity	0	0	0

Evaluate ordnance and container concepts. Model applications that reduce and enhance IM warhead design.
Assess the operation utility of current and projected IM improvements to determine current state of IM and prioritize future funding for IM technology.
Accomplishments: Assessed operational utility of IM improvements and demonstrated feasibility of IM optimization of weapons storage.

C. OTHER PROGRAM FUNDING SUMMARY:
NOT APPLICABLE

D. ACQUISITION STRATEGY:

The Insensitive Munitions Advanced Development Program (IMAD) is assigned as a Non-ACAT program and therefore does not have program milestones like the ACAT I to IV programs. IMAD develops and evaluates IM technologies for use in Navy weapon systems and is not part of a particular weapon acquisition program.

E. MAJOR PERFORMERS:
NAWC WPN DIV/China Lake - Propulsion Development and Evaluation
NOSSA/Indian Head - Program Management
NSWC Dahlgren - Ordnance and container concept development
NSWC, Indian Head - High Explosive Development and Evaluation
-Gun Propulsion Development and Evaluation

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS											DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603609N/CONVENTIONAL MUNITIONS**					PROJECT NUMBER AND NAME **0363/Insensitive Munitions Adv. Development**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
PROPULSION DEV. AND EVAL.	WX	NAWC WPN DIV/CHINA LAKE	87.226	0.609	NOV-06	0.695	NOV-07	0.652	NOV-08	0.000	89.283	0.000
		NAWC WPN DIV/CHINA LAKE	10.250	0.000		0.000		0.000		0.000	10.250	0.000
EXPLOSIVES DEV. AND EVAL.	WX	NSWC/INDIAN HEAD DIV.	70.822	0.800	NOV-06	0.797	NOV-07	0.759	NOV-08	0.000	73.332	0.000
ORDNANCE DEV. AND EVAL.	WX	NSWC/DAHLGREN	19.797	0.389	NOV-06	0.400	NOV-07	0.287	NOV-08	0.000	20.974	0.000
PYROTECHNIC DEV. AND EVAL.	WX	NSWC/CRANE DIV.	6.570	0.000		0.000		0.000		0.000	6.570	0.000
GUN PROPULSION AND EVAL.	WX	NSWC/INDIAN HEAD DIV.	0.356	0.297		0.350	NOV-07	0.238	NOV-08	0.000	1.343	0.000
Subtotal Product Development			**195.021**	**2.095**		**2.295**		**2.341**		**0.000**	**201.752**	**0.000**
Remarks:												
Subtotal Support Costs			**0.000**	**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	**0.000**
Remarks:												
Subtotal Test and Evaluation			**0.000**	**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	**0.000**
Remarks:												
Program Management Support	WX	NSWC/INDIAN HEAD	29.926	0.000		0.000		0.000		0.000	29.926	0.000
Program Management Support	WX	NOSSA	3.282	0.500	NOV-06	0.674	NOV-07	0.566	NOV-08	0.000	5.123	0.000
Travel	WX	NOSSA	0.382	0.000		0.000		0.000		0.000	0.382	0.000
Subtotal Management Services			**33.590**	**0.500**		**0.674**		**0.667**		**0.000**	**35.431**	**0.000**
Remarks:												
Total Cost			**228.611**	**2.595**		**2.916**		**2.502**		**0.000**	**236.624**	**0.000**

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603609N/CONVENTIONAL MUNITIONS**				PROJECT NUMBER AND NAME **1821/Conventional Fuzed Warfare Package**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	7.585	4.276	4.728	4.957	4.277	4.552	4.829
RDT&E Articles Qty	0	0	0	0	0	0	0

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 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603609N/CONVENTIONAL MUNITIONS**	PROJECT NUMBER AND NAME **1821/Conventional Fuzed Warfare Package**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	7.585	4.276	4.728
RDT&E Articles Quantity	0	0	0

Advanced Fuze Technology Development:

FY07/FY08/FY09 - Implement advanced fuze technologies to System Development and Demonstration.

C. OTHER PROGRAM FUNDING SUMMARY:
Not applicable.

D. ACQUISITION STRATEGY:
Raytheon Missile Systems is designing and implementing Fuze enhancements for current missiles like the SM-2 and for future platforms like the SM-6. This evolution in fuzing technology is required to pace current threats to the US Navy.

E. 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

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603609N/CONVENTIONAL MUNITIONS**					PROJECT NUMBER AND NAME **1821/Conventional Fuzed Warfare Package**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
DESIGN AND ANALYSIS	WR/WX	NSWC/DAHLGREN	32.009	0.000		0.000		0.000		0.000	32.009	0.000
	WR/WX	NAWC CHINALAKE	66.638	0.000		0.000		0.000		0.000	66.638	0.000
	PR/CPAF	RAYTHEON	51.176	7.419	NOV-06	4.110	NOV-07	4.562	DEC-08	CONT	CONT	0.000
	PR	JHU/APL	3.978	0.000		0.000		0.000		0.000	3.978	0.000
	RC	ONR	0.067	0.000		0.000		0.000		0.000	0.067	0.000
	MP	MIT/LL	0.400	0.000		0.000		0.000		0.000	0.400	0.000
	WR	SPAWAR	0.520	0.000		0.000		0.000		0.000	0.520	0.000
	WR/WX	NSWC/PORT HUENEME	3.020	0.000		0.000		0.000		0.000	3.020	0.000
	WR/WX	NSWC/INDIAN HEAD	0.800	0.000		0.000		0.000		0.000	0.800	0.000
HARDWARE FABRICATION	WR	NSWC/DAHLGREN	6.257	0.000		0.000		0.000		0.000	6.257	0.000
	WR	CHINALAKE	8.683	0.000		0.000		0.000		0.000	8.683	0.000
	PR/CPAF	RAYTHEON	50.065	0.000		0.000		0.000		0.000	50.065	0.000
Subtotal Product Development			**223.613**	**7.419**		**4.110**		**4.562**		**CONT**	**CONT**	**0.000**
Remarks:												
Subtotal Support Costs			**0.000**	**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	**0.000**
Remarks:												
DEVELOPMENTAL TEST & EVALUATION	WR	NSWC DAHLGREN	12.987	0.000		0.000		0.000		0.000	12.987	0.000
	WR	NAWC CHINA LAKE	15.582	0.000		0.000		0.000		0.000	15.582	0.000
	WR	NSWC PORT HUENEME	0.762	0.000		0.000		0.000		0.000	0.762	0.000
Subtotal Test and Evaluation			**29.331**	**0.000**		**0.000**		**0.000**		**0.000**	**29.331**	**0.000**
Remarks:												
PROGRAM MANAGEMENT SUPPORT	WR	NSWC DAHLGREN	2.074	0.000		0.000		0.000		0.000	2.074	0.000
	WR	NAWC CHINA LAKE	3.360	0.000		0.000		0.000		0.000	3.360	0.000
	C/FPI	VARIOUS	6.947	0.166	NOV-06	0.166	NOV-07	0.166	NOV-08	CONT	CONT	0.000
	RC	NSWC/INDIAN HEAD	0.160	0.000		0.000		0.000		0.000	0.160	0.000
	PD	TRAVEL	0.410	0.000		0.000		0.000		0.000	0.410	0.000

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS											DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603609N/CONVENTIONAL MUNITIONS**					PROJECT NUMBER AND NAME **1821/Conventional Fuzed Warfare Package**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Subtotal Management Services			**12.951**	**0.166**		**0.166**		**0.166**		**CONT**	**CONT**	**0.000**
Remarks:												
Total Cost			**265.895**	**7.585**		**4.276**		**4.728**		**CONT**	**CONT**	**0.000**

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603609N/CONVENTIONAL MUNITIONS**				PROJECT NUMBER AND NAME **2299/Non-Nuclear Expendable Ordnance**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	7.636	1.568	0.894	0.515	0.148	2.538	2.752
RDT&E Articles Qty	0	0	0	0	0	0	0

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 and Next Generation Surface Projectile. 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. The Next Generation Surface projectile has been proposed to be conducted in three phases; 1) modification of an existing projectile design and development of a mid-range propelling charge to provide 21nmi capability, 2) development of next generation projectile with existing fuzing to provide 21nmi capability, and 3) development of terminal guidance capability with the next generation projectile.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603609N/CONVENTIONAL MUNITIONS**	PROJECT NUMBER AND NAME **2299/Non-Nuclear Expendable Ordnance**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	7.636	1.568	0.894
RDT&E Articles Quantity	10	4	4

The Guidance Integrated Fuze (GIF) program is the major constituent of the NNEO budget line. Other NNEO programs include the Next Generation Surface Projectile.

1. FY2007 PLANS:

GIF: Continue development of GIF design to Technology Readiness Level (TRL) level 6. Conduct Guided Demonstration Testing to prove-out design. Conduct receiver development testing.

2. FY2008-FY2009 PLANS:

GIF: Continue development of miniature Global Positioning System (GPS) Selective Availability Anti-Spoofing Module (SAASM) Receiver to TRL level 6. Support Precision Guidance Kit (PGK) Milestone B2 (MSB2) with GIF TRL 6 and Receiver TRL 6 designs. Conduct additional Receiver Development Tests to move toward a TRL7 Receiver..

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603609N/CONVENTIONAL MUNITIONS**	PROJECT NUMBER AND NAME **2299/Non-Nuclear Expendable Ordnance**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

C. OTHER PROGRAM FUNDING SUMMARY:

D. ACQUISITION STRATEGY:

-Continue development of Guidance Integrated Fuze to Technology Readiness Level 6. Continue Development of GPS SAASM Receiver to Technology Readiness Level of 6. The GIF program is working in collaboration with the US Army's Precision Guidance Kit (PGK) Program. The GIF Fuze and GPS Receiver are being actively followed by the PGK program as potential PGK increment 2 requirement solution for entry into SD&D at MS B in1st Quarter FY09.

E. MAJOR PERFORMERS:

Guidance integrated Fuzing - Contractor - Mayflower Communications, Boston, Massachusetts

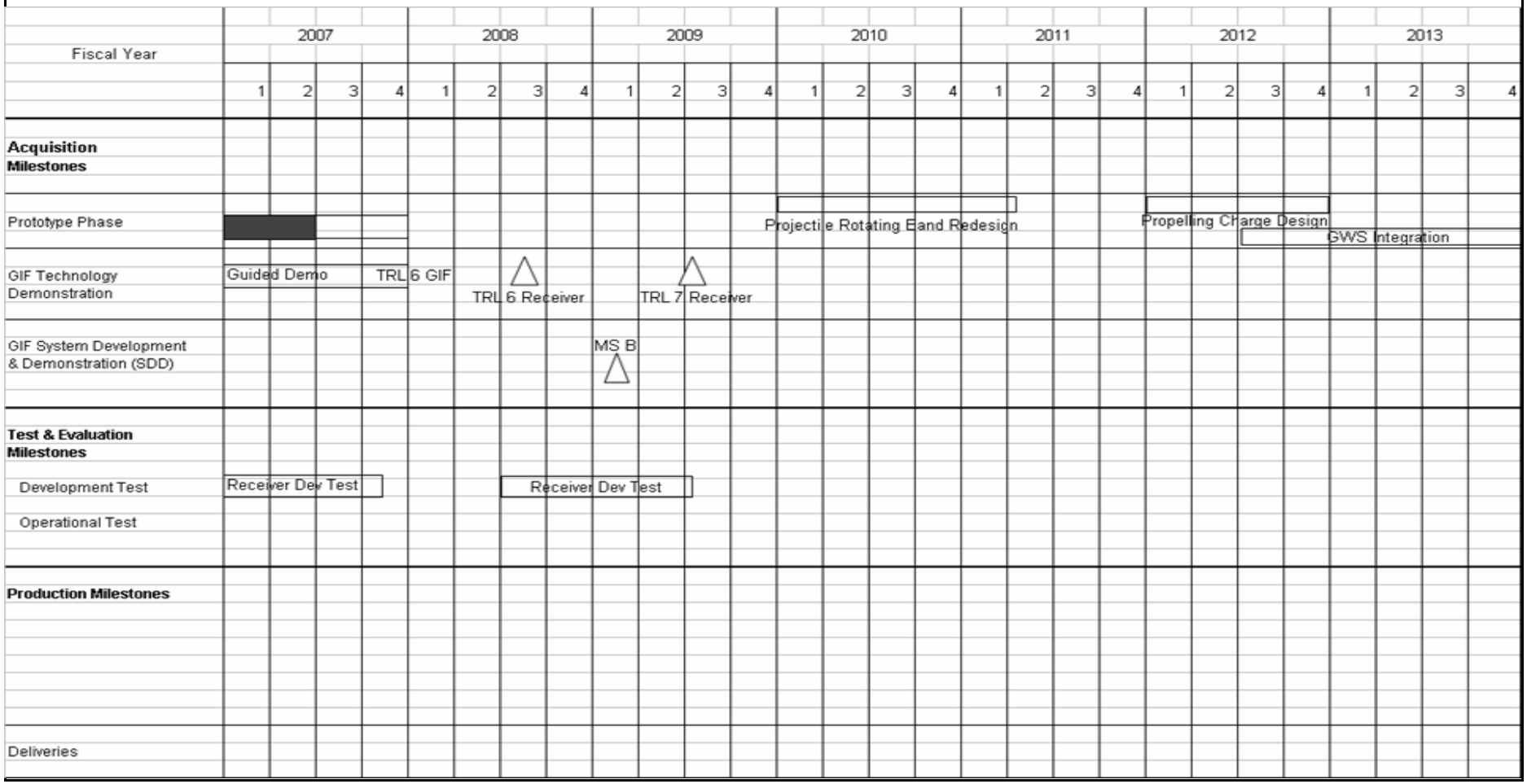
Gov't - Naval Surface Warfare Center, Dahlgren Division, Dahlgren, Virginia

Army Research, Development & Engineering Center (ARDEC), Picatinney Arsenal, Picatinney, NJ

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE August 2007			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603609N/CONVENTIONAL MUNITIONS**					PROJECT NUMBER AND NAME **2299/Non-Nuclear Expendable Ordnance**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Primary Hardware Development	WR	NSWC Dahlgren - MFF	1.933	0.000		0.000		0.000		0.000	1.933	0.000
	WR	NSWC Dahlgren - GIF	2.342	0.000		0.450	OCT-07	0.594	OCT-08	0.000	3.721	0.000
	WR	NSWC Dahlgren - NGSP	0.324	0.000		0.000		0.000		0.000	0.324	0.000
	C/CPFF	Alliant - MFF	1.054	0.000		0.000		0.000		0.000	1.054	0.000
	SS/CPFF	MOTOROLA - MFF	0.336	0.000		0.000		0.000		0.000	0.336	0.000
	WR	NSWC Indian Head - ERPC	1.039	0.000		0.000		0.000		0.000	1.039	0.000
	CPFF	Mayflower Communications - GIF	15.039	0.750	JAN-08	0.500	DEC-07	0.000		0.000	16.289	0.000
	CPFF	CAES - GIF	8.362	1.261	JAN-08	0.000		0.000		0.000	9.623	0.000
	CPFF	Toyon - GIF	1.600	0.250	JAN-08	0.000		0.000		0.000	1.850	0.000
	CPFF	TBD - GIF	10.100	0.000		0.000		0.000		0.000	10.100	0.000
Systems Engineering	WR	NSWC Dahlgren - NGSP	0.000	0.000		0.000		0.000		0.000	0.000	0.000
Subtotal Product Development			**42.129**	**2.261**		**0.950**		**0.594**		**0.000**	**46.269**	**0.000**
Remarks:												
Development Support	WR	NSWC Dahlgren - GIF	4.771	1.275	OCT-06	0.000		0.000		0.000	6.046	0.000
	WR	DOE Sandia - GIF	2.000	0.459	OCT-06	0.000		0.000		0.000	2.459	0.000
Software Development	WR	NSWC Dahlgren - GIF	0.575	0.300	OCT-06	0.100	OCT-07	0.000		0.000	0.975	0.000
Training Development	WR	NSWC Dahlgren - GIF	0.125	0.000		0.000		0.000		0.000	0.125	0.000
	WR	NSWC Dahlgren - NGSP	0.000	0.000		0.000		0.000		0.000	0.000	0.000
	MIPR	ARDEC - GIF	0.350	0.000		0.000		0.000		0.000	0.350	0.000
Integrated Logistics Support	WR	NSWC Dahlgren - GIF	0.175	0.000		0.000		0.000		0.000	0.175	0.000
	MIPR	ARDEC - GIF	0.480	0.000		0.000		0.000		0.000	0.480	0.000
Configuration Management	WR	NSWC Dahlgren - GIF	1.150	0.150	OCT-06	0.000		0.000		0.000	1.300	0.000
Contract Support	WR	NSWC Dahlgren - GIF	0.750	0.150	OCT-06	0.000		0.000		0.000	0.900	0.000
Subtotal Support Costs			**10.376**	**2.334**		**0.100**		**0.000**		**0.000**	**12.810**	**0.000**
Remarks:												
Developmental Test & Evaluation	WR	NSWC Dahlgren - GIF	6.296	1.521	OCT-06	0.262	OCT-07	0.300	OCT-08	0.000	8.938	0.000
	WR	NSWC Dahlgren - MFF	0.472	0.000		0.000		0.000		0.000	0.472	0.000

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603609N/CONVENTIONAL MUNITIONS**					PROJECT NUMBER AND NAME **2299/Non-Nuclear Expendable Ordnance**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
	WR	NSWC Dahlgren - NGSP	0.000	0.000		0.000		0.000		0.000	0.000	0.000
	WR	NSWC China Lake - MFF	0.200	0.000		0.000		0.000		0.000	0.200	0.000
	WR	US Army Redstone - GIF	2.450	0.300	OCT-06	0.000		0.000		0.000	2.750	0.000
	WR	ARL - GIF	1.500	0.000		0.000		0.000		0.000	1.500	0.000
Operational Test & Evaluation	WR	COMOPTEVFOR - MFF	0.428	0.000		0.000		0.000		0.000	0.428	0.000
	WR	COMOPTEVFOR - GIF	0.330	0.000		0.000		0.000		0.000	0.330	0.000
	WR	NSWC Dahlgren - MFF	0.178	0.000		0.000		0.000		0.000	0.178	0.000
	MIPR	ARDEC - GIF	0.950	0.000		0.000		0.000		0.000	0.950	0.000
Test Assets	C/CPFF	ALLIANT - MFF	0.361	0.000		0.000		0.000		0.000	0.361	0.000
	WR	NSWC Indian Head - GIF	0.400	0.000		0.000		0.000		0.000	0.400	0.000
Subtotal Test and Evaluation			**13.565**	**1.821**		**0.262**		**0.300**		**0.000**	**16.507**	**0.000**
Remarks:												
Contractor Engineering Support	FP	EDO - MFF	0.032	0.000		0.000		0.000		0.000	0.032	0.000
	C/CPFF	ALLIANT - MFF	0.113	0.000		0.000		0.000		0.000	0.113	0.000
	FP	Various	0.915	0.000		0.000		0.000		0.000	0.915	0.000
Government Engineering Support	WR	NSWC Dahlgren - GIF	7.808	0.660	OCT-06	0.106	OCT-07	0.000		0.000	8.574	0.000
	WR	NSWC Dahlgren - MFF	0.398	0.000		0.000		0.000		0.000	0.398	0.000
	MIPR	ARDEC/ARL - GIF	0.400	0.200	OCT-06	0.000		0.000		0.000	0.600	0.000
Program Management Support	WR	NSWC Dahlgren - GIF	1.403	0.360	OCT-06	0.150	OCT-07	0.000		0.000	2.063	0.000
	MIPR	ARDEC - GIF	0.200	0.000		0.000		0.000		0.000	0.200	0.000
Travel	WR	NSWC Dahlgren - MFF	0.020	0.000		0.000		0.000		0.000	0.020	0.000
Subtotal Management Services			**11.289**	**1.220**		**0.256**		**0.000**		**0.000**	**12.915**	**0.000**
Remarks:												
Total Cost			**77.359**	**7.636**		**1.568**		**0.894**		**0.000**	**88.501**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603609N/CONVENTIONAL MUNITIONS**	PROJECT NUMBER AND NAME **2299/Non-Nuclear Expendable Ordnance**



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603609N/CONVENTIONAL MUNITIONS**			PROJECT NUMBER AND NAME **2299/Non-Nuclear Expendable Ordnance**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Prototype Phase	4Q07						
TRL 6 GIF TO SUPPORT PGK INC 2 MSB	4Q07						
TRL6 GPS RECEIVER TO SUPPORT PGK INC 2 MSB		3Q08					
MILESTONES B (PGK)			1Q09				
TRL7 GPS RECEIVER TO SUPPORT PGK			3Q09				
PROJECTILE ROTATING BAND REDESIGN					2Q11		
PROJECTILE CHARGE DESIGN						4Q12	
GWS INTEGRATION							4Q13
Receiver Dev Test TRL 6 Receiver	4Q07						
Receiver Dev Test TRL 7 Receiver			3Q09				

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603609N/CONVENTIONAL MUNITIONS**	PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.910	0.000	0.000
RDT&E Articles Quantity	0	0	0

Insensitive Munitions Advanced Development (0363C)

Non-Discarding Sabot Ammunition (NDS) is the next generation of small arms advanced technology. It significantly reduces barrel wear for ground and aviation weapon systems. this results in a major reduction in life cycle costs. Further, NDS provides users with lighter, faster ammunition with improved terminal performance against all targets and lengthens the battlefield in favor of our troops by firing to extended ranges.

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: FEBRUARY 2008
APPROPRIATION/BUDGET ACTIVITY: **RDT&E,N/BA-4 Advanced Component Dev. and Prototype**	R-1 ITEM NOMENCLATURE 0603611M Marine Corps Assault Vehicles

COST ($in Millions)		FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
TOTAL Program Element (PE)		**314.935**	**247.207**	**316.052**	**236.874**	**199.284**	**139.130**	**88.000**
B0020 EXPEDITIONARY FIGHTING VEHICLE (EFV)		309.205	247.207	316.052	236.874	199.284	139.130	88.000
C9999 Congressional Adds		5.730	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles			**7**					

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

This PE supports the demonstration and validation of Marine Corps Assault Vehicles for utilization in Marine Air Group Task Force (MAGTF) amphibious operations.

This program is funded under DEMONSTRATION & VALIDATION because it develops and integrates essential Command, Control, Communications, Computers and Intelligence (C4I) functions for the 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 (EMW) capstone.

B. PROGRAM CHANGE SUMMARY

	FY2007	FY2008	FY2009
(U) FY 2008 President's Budget:	**347.820**	**288.220**	**316.052**
(U) Adjustments from the President's Budget:			
(U) Congressional Program Reductions		-35.000	
(U) Congressional Rescissions	-24.000		
(U) Congressional Undistributed Reductions/Rescissions		-1.690	
(U) Congressional Increases			
(U) FY09 Program Review			
(U) Reprogrammings			
(U) SBIR/STTR Transfer	-8.885	-4.323	
(U) FY 2009 President's Budget:	**314.935**	**247.207**	**316.052**

CHANGE SUMMARY EXPLANATION:

(U) Funding: See Above.

(U) Schedule: N/A

(U) Technical: N/A

EXHIBIT R-2a, RDT&E Project Justification								DATE: FEBRUARY 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-4 Advanced Component Dev. and Prototypes	**PROGRAM ELEMENT NUMBER AND NAM** 0603611M Marine Corps Assault Vehicles				**PROJECT NUMBER AND NAME:** B0020 Advanced Amphibious Assault Vehicle (AAAV)				
COST ($ in Millions)	**FY 2007**	**FY 2008**	**FY 2009**	**FY 2010**	**FY 2011**	**FY 2012**	**FY 2013**	**Cost to Complete**	**Total Program**
TOTAL Program Element (PE)	**314.935**	**247.207**	**316.052**	**236.874**	**199.284**	**139.130**	**88.000**	**Cont**	**Cont**
B0020 EXPEDITIONARY FIGHTING VEHICLE (EFV)	309.205	247.207	316.052	236.874	199.284	139.130	88.000	Cont	Cont
9A05N AN/UXC-10 Digital Facsimile Upgrade for EFV	2.816								
9A06N Intelligent Machining of Advanced Defense Material	2.914								
RDT&E Article Quantities		**7**							

(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. 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 a 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 War Fighters. 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 within the Expeditionary Maneuver Warfare capstone. Acquisition of the EFV is critical to the Marine Corps. The total EFV requirement is for 573 weapon systems.

The program received approval to enter the System Development and Demonstration (SDD) Phase 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 initial SDD Phase (2001 through 2008) will include validation of manufacturing and production processes, fabrication and testing of SDD vehicles, and finalizing and implementing the Life Cycle Management for EFV. A follow-on SDD Phase begining in FY 2008 will include continued design, development, and reliability upgrades; increased RAM testing; modification of exisitng SDD prototypes; and manufacture and testing of up to seven additional SDD prototype vehicles.

(U) B. ACCOMPLISHMENTS/PLANNED PROGRAM:

COST ($ in Millions)	**FY2007**	**FY2008**	**FY2009**
Accomplishment/Effort Subtotal Cost	257.869	181.535	253.867
RDT&E Articles Qty		**7**	

(U) Design development, developmental testing, operational testing, and survivability program.

FY07: Continue engineering and logistics efforts to support design, development, testing, manufacturing planning, and design enhancements of the EFV(P) and EFV(C) designs. Continue the EFV survivability program. Continue Developmental Testing (DT) and Reliability/Availability/Maintainability (RAM) testing and support. Review and analyze results from initial operational assessment period; design, integration and testing of MS-C OA identified modifications. Continue development of Integrated Electronic Technical Manuals (IETMs). Commenced Design For Reliability following the systems engineering process. Design and development of reliability enhancements, subsystem design modifications, and perform modification of existing vehicles integrating reliability design changes. Procure test spares. Perform Highly Accelerated Life Testing (HALT) on vehicle components.
AN/UXC -10 Digital Facsimile Upgrade for EFV and Intelligent Machining of Advance Defense Material efforts.

FY08: Continue engineering and logistics efforts to support design development, manufacturing planning, and design enhancements of the EFV(P) and EFV(C) designs. Continue the EFV survivability program. Continue developmental and reliability test support, and design, integration and testing of MS-C OA identified modifications. Continue development of Integrated Electronic Technical Manuals (IETMs). Continue Developmental Testing (DT) and Reliability/Availability/Maintainability (RAM) testing. Complete Design For Reliability following the systems engineering process. Continue design and development of follow-on reliability enhancements, subsystem design modifications, and modification of existing vehicles integrating reliability design changes. Procure test spares. Begin manufacture of new SDD prototypes. Continue modification of existing SDD vehicles.

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2008
APPROPRIATION/BUDGET ACTIVITY	**PROGRAM ELEMENT NUMBER AND NAM**	**PROJECT NUMBER AND NAME:**	
RDT&E, N /BA-4 Advanced Component Dev. and Prototypes	0603611M Marine Corps Assault Vehicles	B0020 Advanced Amphibious Assault Vehicle (AAAV)	

FY09: Continue engineering and logistics efforts to support design development, manufacturing planning, and design enhancements of the EFV(P) and EFV(C) designs. Continue the EFV survivability program. Continue developmental and reliability test support, and design, integration and testing of MS-C OA identified modifications. Continue development of Integrated Electronic Technical Manuals (IETMs). Continue Developmental Testing (DT) and Reliability/Availability/Maintainability (RAM) testing. Continue design and development of follow-on reliability enhancements, subsystem design modifications, and modification of existing vehicles integrating reliability design changes. Procure test spares. Continue design, development and manufacture of new SDD prototypes. Continue modification of existing SDD vehicles.

COST ($ in Millions)	**FY2007**	**FY2008**	**FY2009**
Accomplishment/Effort Subtotal Cost	13.787	15.462	16.907
RDT&E Articles Qty			

(U) Perform developmental testing, operational testing, and RAM-D testing.

FY07: Continue to perform developmental/operational testing and RAM-D testing, conduct Cold Weather OA.

FY08: Continue to perform developmental/operational testing and RAM-D testing.

FY09: Continue to perform developmental/operational testing and RAM-D testing.

COST ($ in Millions)	**FY2007**	**FY2008**	**FY2009**
Accomplishment/Effort Subtotal Cost	3.634	7.106	7.490
RDT&E Articles Qty			

(U) Provide program support for Training Development, Technical Publications and IETMS.

FY07: EFV training courseware, technical publications and IETMS.

FY08: Continue to provide program support for training systems development and technical publications and IETMS; development of training systems courseware.

FY09: Continue to provide program support for training systems development and technical publications and IETMS; development of training systems courseware.

COST ($ in Millions)	**FY2007**	**FY2008**	**FY2009**
Accomplishment/Effort Subtotal Cost	15.696	21.046	16.234
RDT&E Articles Qty			

FY07 - FY09: Continue to provide contractor technical, engineering and management support for program planning, analysis and execution.

COST ($ in Millions)	**FY2007**	**FY2008**	**FY2009**
Accomplishment/Effort Subtotal Cost	23.949	22.058	21.554
RDT&E Articles Qty			

FY07: Continue to provide In-House technical engineering and integrated logistics support for program planning, analysis and execution. Procure ammunition in support of the EFV test program. Perform in-house software design, development, and analysis efforts.

FY08/09: Continue to provide In-House technical engineering and integrated logistics support for program planning, analysis and execution. Procure ammunition in support of the EFV test program. Perform in-house software design, development, and analysis efforts.

	FY2007	**FY2008**	**FY2009**
(U) Total $	314.935	247.207	316.052

EXHIBIT R-2a, RDT&E Project Justification		DATE: FEBRUARY 2008
APPROPRIATION/BUDGET ACTIVITY	**PROGRAM ELEMENT NUMBER AND NAM**	**PROJECT NUMBER AND NAME:**
RDT&E, N /BA-4 Advanced Component Dev. and Prototypes	0603611M Marine Corps Assault Vehicles	B0020 Advanced Amphibious Assault Vehicle (AAAV)

(U) PROJECT CHANGE SUMMARY:	**FY 2007**	**FY 2008**	**FY 2009**
(U) FY 2008 President's Budget:	**347.820**	**288.220**	**316.052**
(U) Sec. 8104 Revised Economic Assumptions	0.000	-1.203	0.000
(U) Congressional Adjustment	0.000	-35.000	0.000
(U) Congressional Recission	-24.000	0.000	0.000
(U) SBIR Tax	-8.885	-4.323	0.000
(U) Sec. 8097 Contractor Efficiencies	0.000	-0.406	0.000
(U) Sec. 8025 FFRDC Reduction	0.000	-0.081	0.000
(U) Service Repricing Adjustment	0.000	0.000	-3.000
(U) Change Proposal Rejection	0.000	0.000	3.000
(U) FY 2009 President's Budget:	**314.935**	**247.207**	**316.052**

CHANGE SUMMARY EXPLANATION:

(U) Funding: FY07 reflects a reduction for Small Business Innovative Research (SBIR), and a Congressional Recission.

FY08 reflects reductions for revised economic assumptions, FFRDC, contractor efficiencies, SBIR, and a $35M congressional adjustment due to a program delay.

(U) Schedule: A one-year schedule slip as a result of program restructuring to increase vehicle reliability resulted in the delay of program milestones as indicated below. The detailed program schedule is provided in Exhibit R-4.

	FY08 President's Budget	**FY09 President's Budget**
SDD-2 Contract Award	2Q, FY07	2Q, FY08
CDR	3Q, FY06	4Q, FY08
Milestone C Decision	2Q FY10	4Q, FY11
LRIP Lot 1 Contract Award	2Q FY10	1Q, FY12
IOT&E	4Q FY12-2Q FY13	3Q, FY14 - 2Q, FY15
Operational Assesment	3-4Q, FY09	2-3Q, FY11
DT II and RAM-D	thru 3Q, FY10	thru 4Q, FY09
DT/Regression Growth Testing (RGT)	-	3Q, FY10 - 1Q, FY14
FUSL	-	4Q, FY13 - 1Q, FY15
LRIP Lot 1 Deliveries	4Q, FY11 - 3Q, FY12	3Q, FY13 - 2Q, FY14
Ready for Training	2Q, FY13	1Q, FY15
Full Rate Production Decision	1Q FY14	4Q, FY15
IOC	1Q FY14	4Q, FY15

(U) Technical: Not Applicable

EXHIBIT R-2a, RDT&E Project Justification		DATE: FEBRUARY 2008
APPROPRIATION/BUDGET ACTIVITY	**PROGRAM ELEMENT NUMBER AND NAM**	**PROJECT NUMBER AND NAME:**
RDT&E, N /BA-4 Advanced Component Dev. and Prototypes	0603611M Marine Corps Assault Vehicles	B0020 Advanced Amphibious Assault Vehicle (AAAV)

(U) C. OTHER PROGRAM FUNDING SUMMARY: Line Item No. & Name	**FY2007**	**FY2008**	**FY 2009**	**FY 2010**	**FY 2011**	**FY 2012**	**FY 2013**	**To Compl**	**FY07-To Comp**
(U) PANMC, BLI #147500, EFV	0.000	0.000	0.000	0.000	0.000	7.334	17.857	Con't	Con't
(U) PMC BA2, BLI #202200, EFV	0.000	0.000	0.000	0.000	35.036	466.523	575.568	10,623.794	11,700.921
(U) PMC BA7 (Spares), BLI 700000, EFV	0.000	0.000	0.000	0.000	0.000	17.943	22.129	484.612	524.684
(U) PMC, EFV Totals	**0.000**	**0.000**	**0.000**	**0.000**	**35.036**	**484.466**	**597.697**	**11,108.406**	**12,225.605**
(U) MILCON P-041	2.320	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.320
(U) MILCON P-042	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(U) MILCON P-101	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(U) MILCON P-373	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(U) MILCON, EFV Totals	**2.320**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**2.320**

(U) Related RDT&E:
(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, AVTB.

(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), and control vehicle unit cost. Three fully functional PDRR prototypes were developed and have undergone extensive developmental testing to further vehicle maturity. During the initial SDD phase of the program, nine prototype vehicles were manufactured and tested extensively in developmental and operational tests. A tenth vehicle was manufactured for use during Full Up System Level Lethality testing. A follow-on SDD phase commencing in FY08 will include the incoporation of major reliability modifications into existing prototypes and the manufacture and testing of seven new SDD prototypes. Low Rate Initial Production is scheduled to begin in FY12 . Initial Operational Capability (IOC) and Full Operational Capability (FOC) will occur in FY15 and FY25, 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 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. GDLS operating through its division General Dynamics Amphibious System will be responsible for designing and producing the vehicle and providing support for testing from 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. A new competitive contract is anticipated to begin in FY09.

(U) E. MAJOR PERFORMERS:
General Dynamics, Woodbridge, VA. Validation of manufacturing and production processes, fabrication and testing of SDD vehicles, and finalizing and implementing Life Cycle Management. Initial SDD contract awarded Feb 01.

Exhibit R-3 Cost Analysis												DATE: FEBRUARY 2008
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 Advanced Amphibious Assault Vehicle (AAAV)
Cost Categories	**Contract Method & Type**	**Performing Activity & Location**	**Total PY s Cost**	**FY 07 Cost**	**FY 07 Award Date**	**FY 08 Cost**	**FY 08 Award Date**	**FY 09 Cost**	**FY 09 Award Date**	**Cost to Complete**	**Total Cost**	**Target Value of Contract**
Product Development												
PDRR Contract	CPAF	GDLS - Woodbridge, VA	399.703	0.000		0.000		0.000				
System Design and Development	CPAF	GDLS - Woodbridge, VA	1,047.218	247.799	1-3Q	150.685	1Q-2Q	0.000				
System Design and Development	TBD	GDLS - Woodbridge, VA	0.000	0.000		27.100	2Q	253.146	1Q-2Q	Continuing	Continuing	
Regenerative Filtration	CPAF	Army, Edgewod Chem/Bio Ctr	3.327	0.000		0.000		0.000				
Survivability Contract	Classified	NSMA, Arlington, VA	22.602	4.340	1Q	3.750	2Q	0.721	2Q	Continuing	Continuing	
Display Technology	CPFF	ISR Corp	1.640	0.000		0.000		0.000				
Intelligent Machining of Advanced Defense Materials	TBD	TBD	0.000	2.914	4Q	0.000		0.000				
Digital Facsimile Upgrade	TBD	TBD	0.000	2.816	4Q	0.000		0.000				
Sub Total Product Development			**1,474.490**	**257.869**		**181.535**		**253.867**				
Remarks:												
Cost Categories	**Contract Method & Type**	**Performing Activity & Location**	**Total PY s Cost**	**FY 07 Cost**	**FY 07 Award Date**	**FY 08 Cost**	**FY 08 Award Date**	**FY 09 Cost**	**FY 09 Award Date**	**Cost to Complete**	**Total Cost**	**Target Value of Contract**
Program Support												
Integrated Logistics Support	Various	Various	1.348	9.269	2Q	8.015	2Q	6.986	2Q	Continuing	Continuing	
Training Devices/Simulators	CPAF	GDLS	46.098	3.299	1Q	4.900	2Q	5.360	2Q	Continuing	Continuing	
Tech Data & Pubs Development	Various	Various	0.355	0.335	2Q	0.320	2Q	0.360	2Q	Continuing	Continuing	
Support Equipment Development	Various	Various	0.000	0.000		1.886	2Q	1.770	2Q			
Subtotal Program Support			**47.801**	**12.903**		**15.121**		**14.476**				
Remarks:												
Cost Categories	**Contract Method & Type**	**Performing Activity & Location**	**Total PY s Cost**	**FY 07 Cost**	**FY 07 Award Date**	**FY 08 Cost**	**FY 08 Award Date**	**FY 09 Cost**	**FY 09 Award Date**	**Cost to Complete**	**Total Cost**	**Target Value of Contract**
Test & Evaluation												
Developmental, Operational and Live Fire Test & Evaluation	Various	Various Locations	71.984	13.787	2Q	15.462	1Q-2Q	16.907	1Q-2Q	Continuing	Continuing	
Sub Total Test & Evaluation			**71.984**	**13.787**		**15.462**		**16.907**				
Remarks:												
Cost Categories	**Contract Method & Type**	**Performing Activity & Location**	**Total PY s Cost**	**FY 07 Cost**	**FY 07 Award Date**	**FY 08 Cost**	**FY 08 Award Date**	**FY 09 Cost**	**FY 09 Award Date**	**Cost to Complete**	**Total Cost**	**Target Value of Contract**
Contract Advisory & Asst Svc (A&AS)												
Engineering and Technical Services	RCP / MIPR	Various	16.701	8.756	2Q	8.816	2Q	5.774	2Q	Continuing	Continuing	
Management Support Services	RCP / MIPR	Various	37.492	6.940	2Q	9.487	1Q	8.992	1Q	Continuing	Continuing	
Studies and Analyses	N/A	N/A	0.000	0.000		2.743		1.468				
Sub Total A&AS			**54.193**	**15.696**		**21.046**		**16.234**				
Remarks:												
Management Support												
In-House Technical Support	Various	Various	91.285	12.170	1Q-3Q	12.607	1Q-3Q	12.704	1Q-3Q	Continuing	Continuing	
Program Management Support	Various	Various	21.466	1.403	2Q	0.261	2Q	0.644	2Q	Continuing	Continuing	
Travel		Various	2.010	1.107	1-4Q	1.175	1-4Q	1.220	1-4Q	Continuing	Continuing	
Sub Total Management Support			**114.761**	**14.680**		**14.043**		**14.568**				
Remarks:												
Total Cost			**1,763.229**	**314.935**		**247.207**		**316.052**		**0.000**		**0.000**

R-1 SHOPPING LIST - ITEM NO. 52

EFV (AAAV) PROGRAM SCHEDULE

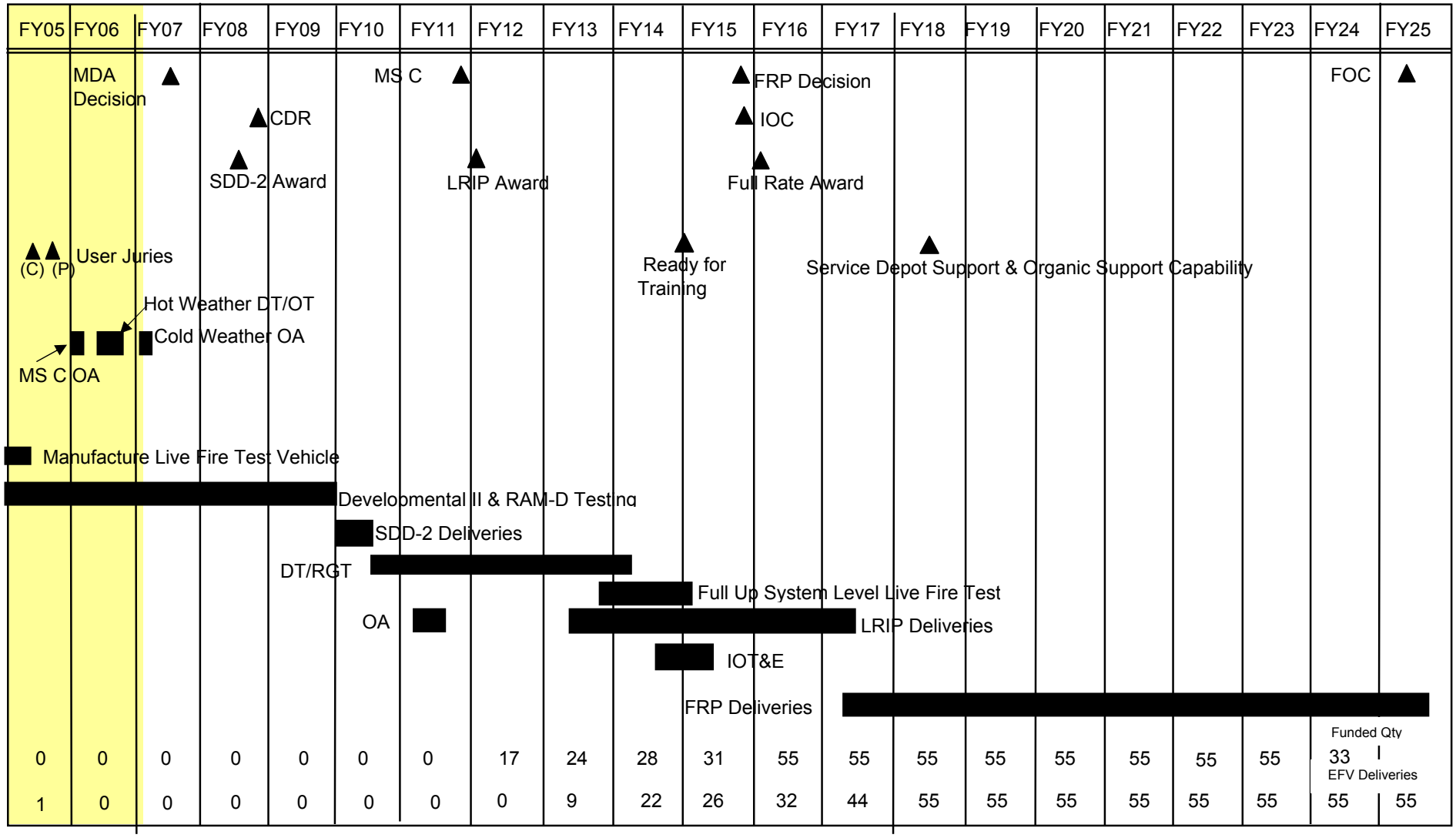


Exhibit R-4/4a Schedule Profile/Detail								DATE: FEBRUARY 2008			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Advanced Component Development and Prototypes**		PROGRAM ELEMENT NUMBER AND NAME **0603611M Marine Corps Assault Vehicles**					PROJECT NUMBER AND NAME **B0020 Advanced Amphibious Assault Vehicle (AAAV)**				
	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
SCHEDULE DETAIL											
MS C					4Q						
FRP Decision									4Q		
IOC									4Q		
Operational Assessments	1Q				2-3Q						
Developmental II & RAM-D Testing	1-4Q	1-4Q	1-4Q								
CDR		4Q									
SDD-2 Contract Award		2Q									
LRIP Contract Award						1Q					
Full Up System Level Live Fire Test							4Q	1-4Q	1Q		
LRIP Deliveries Lot 1							3-4Q	1-2Q			
IOT&E								3-4Q	1-2Q		
Ready for Training									1Q		
LRIP Deliveries Lot II								3-4Q	1-2Q		
Full Rate Contract Award										1Q	

EXHIBIT R-2, RDT&E Budget Item Justification				DATE: **February 2008**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Demonstration/Validation**	PROGRAM ELEMENT (PE) NAME AND NO. **0603612M USMC Mine Countermeasures Systems-Adv Dev**							
COST ($ in Millions)		FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost		**5.256**	**0.648**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
C2106 Advanced Mine Detector		**5.256**	**0.648**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Quantity of RDT&E Articles								

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

This Program Element (PE) includes funds for Marine Corps advanced development of mine/countermine programs to include items for mine detection, mine clearing, lane proofing and lane marking.

B. PROGRAM CHANGE SUMMARY

	FY2007	FY2008	FY2009
(U) FY 2008 PRESIDENT'S BUDGET:	**3.763**	**0.657**	**0.000**
(U) Adjustments from the President's Budget:			
(U) Congressional Program Reductions			
(U) Congressional Rescissions			
(U) Congressional Increases			
(U) Congressional Undistributed Reductions/Rescissions		-0.004	
(U) Reprogrammings	1.581		
(U) PR09 Program Review			
(U) SBIR/STTR Transfer	-0.088	-0.005	
(U) FY 2009 PRESIDENT'S BUDGET:	**5.256**	**0.648**	**0.000**

CHANGE SUMMARY EXPLANATION:

(U) Funding: See Above.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Advanced Component Dev & Prototypes (ADCP&P)**	PROGRAM ELEMENT NUMBER AND NAME **0603612M Marine Corps Mine/Countermeasures Systems**	PROJECT NUMBER AND NAME **C2106 Advanced Mine Detector**

COST ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY2010	FY2011	FY2012	FY2013
Project Cost	**3.177**	**5.256**	**0.648**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
RDT&E Articles Qty								

(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 fo 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) B. ACCOMPLISHMENTS/PLANNED PROGRAM:

COST ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost	**0.490**	**0.500**	**0.000**	**0.000**
RDT&E Articles Qty				

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 2006	FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost	**1.671**	**2.716**	**0.000**	**0.000**
RDT&E Articles Qty				

AMD: Conduct initial developmental testing and follow-up developmental testing and operational testing in various soil types and environmental conditions of the AMD prototype to determine system capabilities.

COST ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost	**0.585**	**1.547**	**0.648**	**0.000**
RDT&E Articles Qty				

AMD: Update programmatic documentation and technical drawings. Development of technical manuals and training packages.

COST ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost	**0.431**	**0.493**	**0.000**	**0.000**
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.

(U) Total $	**3.177**	**5.256**	**0.648**	**0.000**

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-4 Advanced Component Dev & Prototypes (ADCP&P)	**0603612M Marine Corps Mine/Countermeasures Systems**	**C2106 Advanced Mine Detector**

(U) PROJECT CHANGE SUMMARY:	**FY 2006**	**FY 2007**	**FY 2008**	**FY 2009**
(U) FY 2008 President's Budget:	**3.177**	**3.763**	**0.657**	**0.000**
(U) Adjustments from the President's Budget:				
(U) Congressional Program Reductions				
(U) Congressional Rescissions				
(U) Congressional Increases				
(U) Congressional Undistributed Reductions/Rescissions			-0.004	
(U) Reprogrammings		1.581		
(U) PR09 Program Review				
(U) SBIR/STTR Transfer		-0.088	-0.005	
(U) Minor Affordability Adjustments				
(U) FY 2009 President's Budget:	**3.177**	**5.256**	**0.648**	**0.000**

CHANGE SUMMARY EXPLANATION:

(U) Funding: See Above.
(U) Schedule:
(U) Technical:

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
PMC BLI 652000 Advanced Mine Detector	6.186	0.494	5.736	1.673	0.757	0.766	0.000	0.000	Cont	Cont
									Cont	Cont
									Cont	Cont

(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 Advanced Mine Detector (AMD) development during concept and technology development. 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 Initial Operational Test and Evaluation in preparation for full rate production. The production phase will employ a fixed price production contract.

(U) E. MAJOR PERFORMERS:

FY06 - Anniston Army Depot, Anniston Alabama/ Aberdeen Test Center, Aberdeen, MD, Test Activity/MCAS, Yuma Arizona
FY07 - Aberdeen Test Center, Aberdeen, MD, Test Activity

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Demonstration/Validation**	PROGRAM ELEMENT (PE) NAME AND NO. **0603635M Marine Corps Ground Combat/Support Systems**

COST ($ in Millions)		FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost		**26.784**	**56.725**	**59.049**	**68.407**	**75.159**	**75.456**	**76.202**
C1964 Anti-Armor Weapon System		**6.943**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
C2614 SMAW Follow-On		**0.495**	**3.260**	**15.052**	**11.797**	**0.523**	**0.518**	**0.522**
C3209 Joint Light Tactical Vehicle		**5.000**	**41.740**	**43.997**	**56.610**	**74.636**	**74.938**	**75.680**
C9999 Congressional Adds		**14.346**	**11.725**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
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.

1. Received $5M in FY07 GWOT.
2. Received $0 in FY08 from the 2008 Consolidated Appropriation.
3. FY08 funding totals do not include $35.825M previously requested for current FY08 GWOT requirements.

B. PROGRAM CHANGE SUMMARY

	FY2007	FY2008	FY2009
(U) FY 2008 President's Budget:	**12.904**	**80.403**	**52.191**
(U) Adjustments from the President's Budget:			
(U) Congressional Program Reductions		-35.000	
(U) Congressional Rescissions			
(U) Congressional Increases	5.000	11.8	
(U) FY09 Program Review			6.500
(U) Reprogrammings	9.200		0
(U) SBIR/STTR Transfer	-0.320	-0.114	
(U) Minor Affordability Adjustment		-0.364	0.358
(U) FY 2009 President's Budget:	**26.784**	**56.725**	**59.049**

CHANGE SUMMARY EXPLANATION:

(U) Funding: See Above.

(U) Schedule: N/A

(U) Technical: N/A

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Demonstration/Validation**	PROGRAM ELEMENT NUMBER AND NAME **0603635M Marine Corps Ground Combat/Support Systems**					PROJECT NUMBER AND NAME **C2614 FOLLOW-ON TO SMAW**		
COST ($ in Millions)		FY 2007	FY 2008	FY 2009	FY2010	FY2011	FY2012	FY2013
Project Cost		**0.495**	**3.260**	**15.052**	**11.797**	**0.523**	**0.518**	**0.522**
RDT&E Articles Qty								

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

The material solution to the Follow-on to SMAW (FOTS) requirement is the SMAW II system. The SMAW II system consists of new SMAW launcher to replace the current Mk153 Mod 0 SMAW launcher compatible with all SMAW ammunition variants in the Marine Corps inventory and a Fire-From-Enclosure (FFE) SMAW round. During FY08-10, the effort to competitively select and qualify the SMAW II system will be completed. Full Rate Production will commence in FY11.

(U) B. ACCOMPLISHMENTS/PLANNED PROGRAM:

COST ($ in Millions)		FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost		0.000	1.982	10.488
RDT&E Articles Qty				

Contractor conducted systems integration and qualification

COST ($ in Millions)		FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost		0.355	0.806	3.105
RDT&E Articles Qty				

Provide engineer and technical support.

COST ($ in Millions)		FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost		0.140	0.265	1.071
RDT&E Articles Qty				

Provide government program management / in-house support.

COST ($ in Millions)		FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost		0.000	0.207	0.388
RDT&E Articles Qty				

Provided operational test support planning and document preparation.

(U) Total $		**0.495**	**3.260**	**15.052**

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-4 Demonstration/Validation	**0603635M Marine Corps Ground Combat/Support Systems**	**C2614 FOLLOW-ON TO SMAW**

(U) PROJECT CHANGE SUMMARY:	FY 2007	FY 2008	FY 2009
(U) FY 2008 President's Budget:	0.501	3.327	8.194
(U) Adjustments from the President's Budget:			
(U) Congressional Program Reductions			
(U) Congressional Rescissions			
(U) Congressional Increases			
(U) Reprogrammings			6.500
(U) SBIR/STTR Transfer	-0.006	-0.046	
(U) Minor Affordability Adjustments		-0.021	0.358
(U) FY 2009 President's Budget:	0.495	3.260	15.052

CHANGE SUMMARY EXPLANATION:

(U) Funding: PR-09 reprogramming to allow development and qualification activities for complete SMAW II system rather than new launcher only.
(U) Schedule:
(U) Technical:

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
PMC BLI 301600 Follow-on to SMAW	0.000	0.000	0.000	28.984	54.776	24.428	21.667

(U) Related RDT&E: Not Applicable.

(U) D. ACQUISITION STRATEGY:

FY08-09 acquisition strategy will be to competitely select and qualify a new launcher system to replace the current Mk153 Mod 0 SMAW launcher.

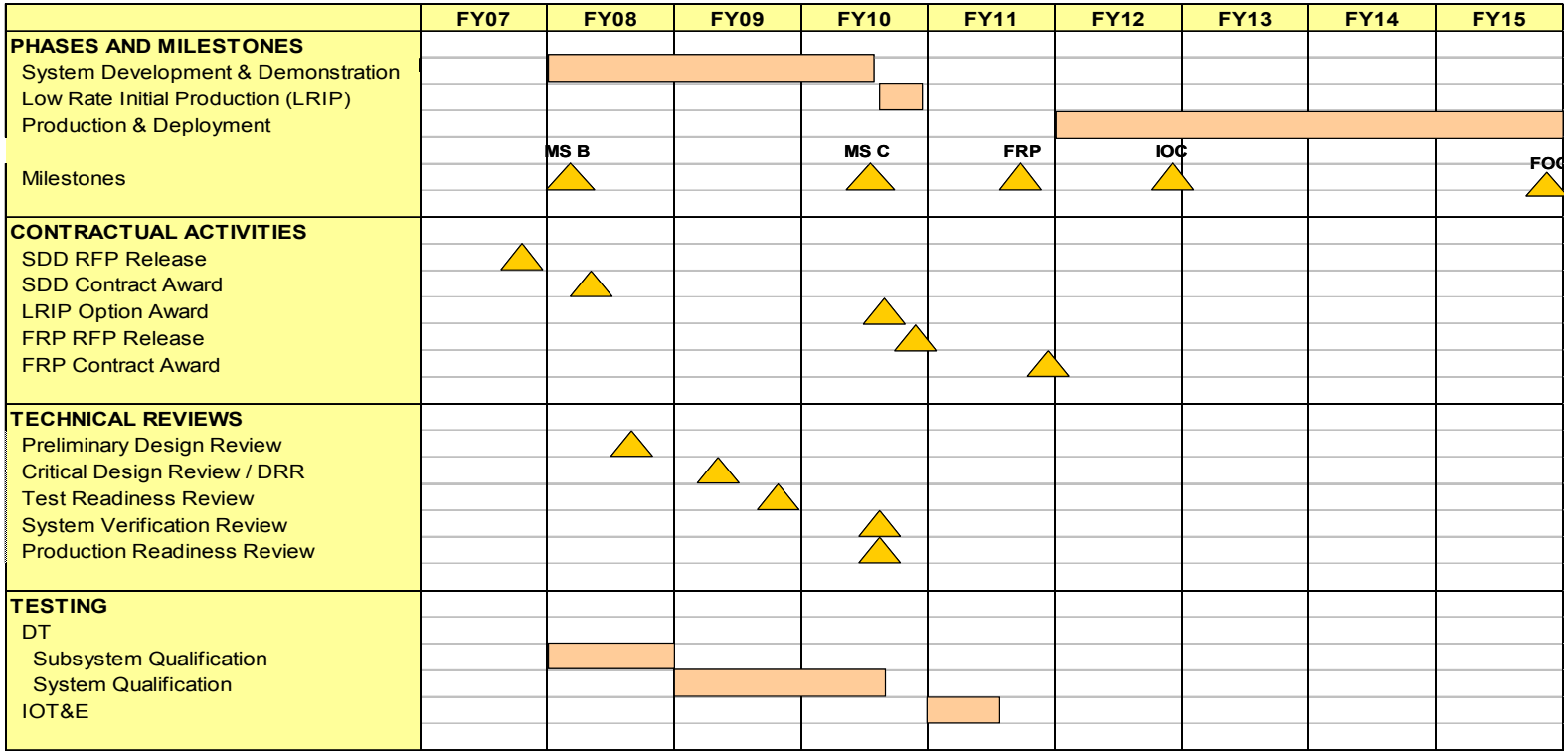
FY10-12 will address post operational testing issues and further conduct evaluation of fire-from-enclosure (FFE) technologies for FY13 integration and qualification into a new rocket.

(U) E. MAJOR PERFORMERS:

FY08-09
Talley Defense Systems, Mesa, Az
Raytheon Network Centric Systems, McKinney, TX
General Dynamics Armement and Technical Products, Burlington, VT
NSWC, Dahlgren Division, VA

Exhibit R-3 Cost Analysis					DATE: February 2008							
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Demonstration/Validation**			PROGRAM ELEMENT **0603635M Marine Corps Ground Combat/Support Arms Systems**			PROJECT NUMBER AND NAME **C2614 FOLLOW-ON TO SMAW**						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Compl	Total Cost	Target Value of Contract
Systems Integration	C/CPFF	TBD				1.982	12/07	10.488	10/08	Cont	Cont	
										Cont	Cont	
										Cont	Cont	
Subtotal Product Dev			**0.000**	**0.000**		**1.982**		**10.488**		**Cont**	**Cont**	
Remarks:												
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Compl	Total Cost	Target Value of Contract
Program Mgmt and Eng Support	WR	MCSC, Quantico, VA	0.068	0.140	10/06	0.265	10/07	1.071	10/08	Cont	Cont	
Engineering and Technical Spt	WR	NSWC, Dahlgren, VA	0.445	0.355	10/06	0.806	10/07	3.105	10/08	Cont	Cont	
										Cont	Cont	
										Cont	Cont	
Subtotal Support			**0.513**	**0.495**		**1.071**		**4.176**		**Cont**	**Cont**	
Remarks:												
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Compl	Total Cost	Target Value of Contract
Operational Testing and Support	WR	MCOTEA, Quantico, VA	0.078	0.000		0.207	10/07	0.388	10/08	Cont	Cont	
										Cont	Cont	
										Cont	Cont	
Subtotal T&E			**0.078**	**0.000**		**0.207**		**0.388**		**Cont**	**Cont**	
Remarks:												
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Compl	Total Cost	Target Value of Contract
Subtotal Management			**0.000**	**0.000**		**0.000**		**0.000**		**Cont**	**Cont**	
Remarks:												
Total Cost			**0.591**	**0.495**		**3.260**		**15.052**		**Cont**	**Cont**	

Exhibit R-4-4a Project Schedule/Detail		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Demonstration/Validation**	PROGRAM ELEMENT **0603635M Marine Corps Ground Combat/Support Arms Systems**	PROJECT NUMBER AND NAME **C2614 FOLLOW-ON TO SMAW**



Program Funding Summary (APPN, BLI #, NOMEN)	**FY 2007**	**FY 2008**	**FY 2009**	**FY 2010**	**FY 2011**	**FY 2012**	**FY 2013**
(U) RDT&E,N, C2614, Follow-on to SMAW	0.495	3.260	15.052	11.797	0.523	0.518	0.522
(U) PMC, BLI 301600, Follow-on to SMAW	0.000	0.000	0.000	28.894	54.776	24.428	21.667

Exhibit R-4-4a Project Schedule/Detail			DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Demonstration/Validation**	PROGRAM ELEMENT **0603635M Marine Corps Ground Combat/Support Arms Systems**	PROJECT NUMBER AND NAME **C2614 FOLLOW-ON TO SMAW**	

	FY 2008	Fy 2009	FY2010	FY 2011	FY 2012	FY2013	FY2014	FY2015
Milestone B	1st Qtr							
Milestone C			3rd Qtr					
Full Rate Production Decision				3rd Qtr				
IOC					4th Qtr			
FOC								4th Qtr

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-04**	PROGRAM ELEMENT NUMBER AND NAME **0603635M**					PROJECT NUMBER AND NAME **C3209 Joint Light Tactical Vehicle**		
COST ($ in Millions)		FY 2007	FY 2008	FY 2009	FY2010	FY2011	FY2012	FY2013
Project Cost		**5.000**	**41.740**	**43.997**	**56.610**	**74.636**	**74.938**	**75.680**
RDT&E Articles Qty			**7**			**15**	**15**	**21**

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

The Joint Light Tactical Vehicle (JLTV) is a Joint Army/Marine Corps program, which consists of a family of vehicles capable of performing multiple mission roles that will be designed to provide protected, sustained, networked mobility for personnel and payloads across the full range of military operations (traditional to irregular). The initial production of JLTVs will provide a high level of scalable protection, improved sustainment, and net-ready maneuver platforms, that are strategically and operationally transportable, and tactically mobile across all terrain.

(U) B. ACCOMPLISHMENTS/PLANNED PROGRAM:

COST ($ in Millions)	FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost	**0.000**	**13.800**	**0.000**
RDT&E Articles Qty*		**7**	
Prototype Articles			
COST ($ in Millions)	FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost	**5.000**	**27.940**	**43.997**
System Testing/Engineering			
(U) Total $	**5.000**	**41.740**	**43.997**

(U) PROJECT CHANGE SUMMARY:	**FY 2007**	**FY 2008**	**FY 2009**
(U) FY 2008 President's Budget:	**5.000**	**77.076**	**43.997**
(U) Adjustments from the President's Budget:			
(U) Congressional Program Reductions		-35.000	
(U) Congressional Rescissions			
(U) Congressional Increases			
(U) Reprogrammings			
(U) SBIR/STTR Transfer		-0.068	
(U) Minor Affordability Adjustments		-0.268	
(U) FY 2009 President's Budget:	**5.000**	**41.740**	**43.997**

(U) Funding: Funding has been realigned to reflect TD phase approval.

(U) Schedule: Schedule has been realigned to reflect TD phase approval.

(U) Technical:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-04**	PROGRAM ELEMENT NUMBER AND NAME **0603635M**	PROJECT NUMBER AND NAME **C3209 Joint Light Tactical Vehicle**

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
PMC BLI 509500 JLTV	0.000	0.000	0.000	0.000	0.000	25.000	106.276
(U) Related RDT&E:							
RDT&E C2930 Pre Phase A Activities	3.627	0.000	0.000	0.000	0.000	0.000	0.000

(U) D. ACQUISITION STRATEGY:

In Dec 2007, USD(AT&L) granted approval for JLTV to enter into the Technology Development (TD) phase. The Army is designated as the lead service for this Joint, Pre-Major Defense Acquisition Program. The USMC, as part of the JLTV Program Office, will work with the Army to conduct concept and technology refinement activities to reduce overall program risk and transition technologies for integration into the JLTV. In FY08, the Program Office will release a Request for Proposal for full and open competition of the TD phase. Multiple contracts will be awarded based on affordability. Vendors awarded contracts will develop prototype vehicles to demonstrate the Family of Vehicles (FoV) approach, key payload categories, commonality of components, technology maturity, integration and manufacturing capability, and achievability of requirements. Informed, knowledge-based decisions on acquiring the JLTV capability will require flexibility and agility in the acquisition strategy. Decisions such as maintaining multiple contractor teams through Systems Demonstration and Development and beginning early production of some or all variants will be considered.

Prior to Milestone C, the program will down select to (1) contractor. This contractor will then go into operational testing and Low Rate Initial Production (LRIP). MS C/LRIP decision will be in FY 13; Full Rate Production decision will be in FY15; Initial Operational Capability (USMC) is planned for FY15.

(U) E. MAJOR PERFORMERS:

TBD

Notes: *Test articles represent the USMC contribution to the Joint Program. Total Joint planned test articles for the TD phase is 14.

Exhibit R-3 Cost Analysis					DATE: February 2008							
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-04**		PROGRAM ELEMENT **0603635M**				PROJECT NUMBER AND NAME **C3209 Joint Light Tactical Vehicle**						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Compl	Total Cost	Target Value of Contract
JLTV Prototype Design, Development, and Fabrication	TBD	TBD				36.716	Jun-08	36.761	Jan-09	Cont	Cont	TBD
JLTV CTV Variant Demonstrator Design and Evaluation	CPFF	NATC		1.569	Various					Cont	Cont	TBD
JLTV Systems Engineering	MIPR	Various		0.955	Various	0.750	Various	0.760	Various	Cont	Cont	TBD
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
Subtotal Product Dev			**0.000**	**2.524**		**37.466**		**37.521**		**Cont**	**Cont**	

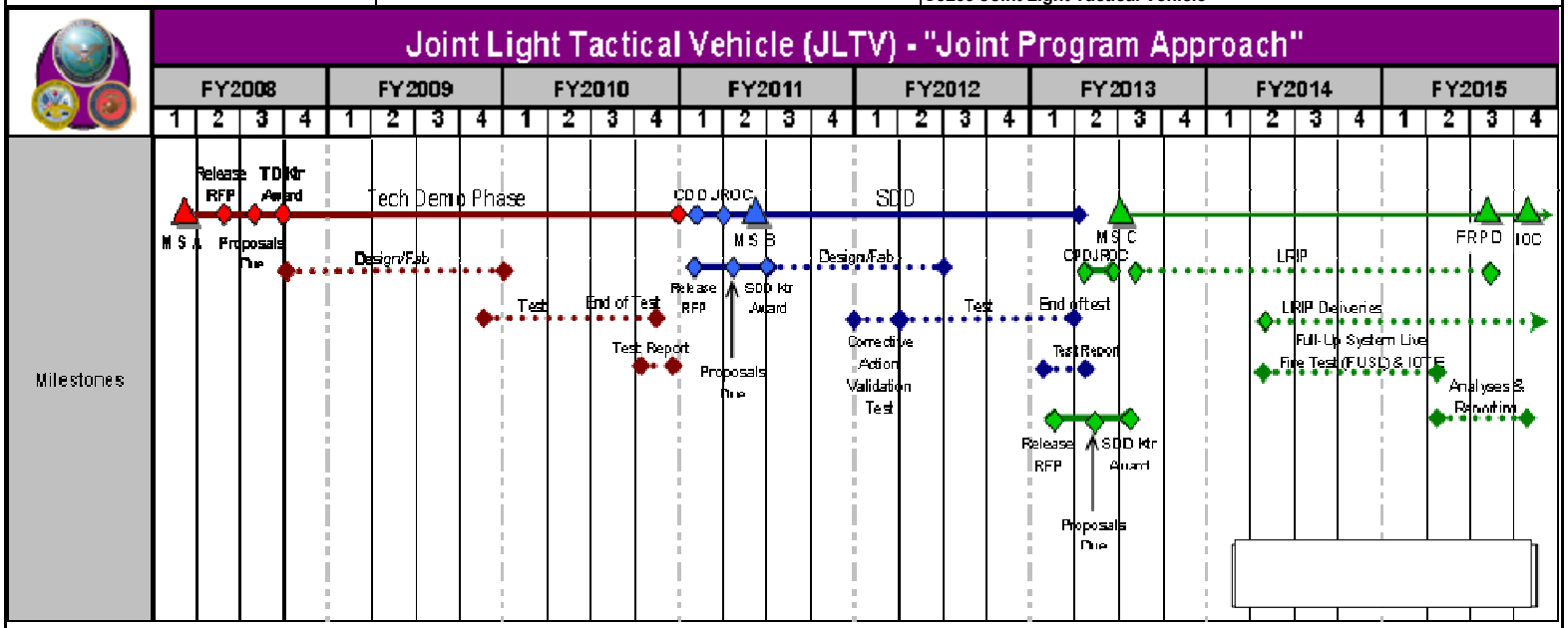
Remarks:

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Compl	Total Cost	Target Value of Contract
JLTV Integrated Logistics Support	Various	Various		0.773	Various	0.796		1.325	Various	Cont	Cont	
JLTV Requirements/Concept of Operations Analysis	MIPR	Various		0.730	Various	0.515	Various	0.531	Various	Cont	Cont	
JLTV C4I Support	MIPR	Mitre		0.262	11/07	0.265		0.270	10/08	Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
Subtotal Support			**0.000**	**1.765**		**1.576**		**2.126**		**Cont**	**Cont**	

Remarks:

Exhibit R-3 Cost Analysis					DATE: February 2008							
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-04**			PROGRAM ELEMENT **0603635M**			PROJECT NUMBER AND NAME **C3209 Joint Light Tactical Vehicle**						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Compl	Total Cost	Target Value of Contract
JLTV Test Planning and Govt T&E costs	Various	Various				0.498	Various	2.069	Various	Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
										Cont	Cont	
Subtotal T&E			**0.000**	**0.000**		**0.498**		**2.069**		**Cont**	**Cont**	
Remarks:												
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Compl	Total Cost	Target Value of Contract
JLTV Program Management Support	FFP	SAIC, Dumfries VA		0.326	06/07	2.084	12/07	2.156	12/08	Cont	Cont	
JLTV Program Management Support	Various	Various		0.377	Various							
JLTV Travel	N/A	MCSC, Quantico, VA		0.008	10/06	0.116	10/07	0.125	10/08	Cont	Cont	
Subtotal Management			**0.000**	**0.712**		**2.200**		**2.281**		**Cont**	**Cont**	
Remarks:												
Total Cost			**0.000**	**5.000**		**41.740**		**43.997**		**Cont**	**Cont**	

Exhibit R-4-4a Project Schedule/Detail		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-04**	PROGRAM ELEMENT **0603635M**	PROJECT NUMBER AND NAME **C3209 Joint Light Tactical Vehicle**



Program Funding Summary (APPN, BLI #, NOMEN)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
(U) RDT&E,N	5.000	41.740	43.997	56.610	74.636	74.938	75.680
(U) PMC BLI 5095			0.624			25.000	106.276

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Joint Initial Capabilities Document		1Q						
Evaluation of Alternatives		2Q						
Capabilities Development Document					4Q			
MS B						2Q		
SD&D (Increment I, Phase I)						1Q		
DT/OA (Increment I, Phase I)							1Q	
MS C/LRIP Award (Increment I, Phase I)								3Q
IOT&E/LFT&E							Beyond FYDP	→
FRP Decision							Beyond FYDP	→
IOC							Beyond FYDP	→
FOC							Beyond FYDP	→

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Demonstration/Validation**	PROGRAM ELEMENT NUMBER AND NAME **0603635M Marine Corps Ground Combat/Support Systems**						PROJECT NUMBER AND NAME **C9999 CONGRESSIONAL ADDS**
COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY2010	FY2011	FY2012	FY2013
Project Cost	**14.346**	**11.725**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
RDT&E Articles Qty							

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

(U) B. ACCOMPLISHMENTS/PLANNED PROGRAM:

COST ($ in Millions)	FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost	**1.311**	**4.972**	**0.000**
RDT&E Articles Qty			

Anti-Sniper Infrared Target System (ASITS) C9873-FY07, C9999 -FY08: Development, exploitation and enhancement of capabilities of Anti-Sniper Infrared Targeting System (ASITS).

COST ($ in Millions)	FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost	**11.093**	**0.000**	**0.000**
RDT&E Articles Qty			

Marine Expeditionary Rifle Squad C9874: Continued research and development for System Integration Capability and to develop prototype working integration issues with the development of combat gear.

Accomplishment/Effort Subtotal Cost	**0.000**	**3.978**	**0.000**
RDT&E Articles Qty			

Urban Operations Environmental Lab - conduct analyses, develop newly emerging non-lethal technologies, and explore novel technological solutions, in support of the development and utilization of non-lethal and nontraditional technologies for military operations particularly in urban and littoral environments by small, highly mobile units.

COST ($ in Millions)	FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost	**0.971**	**0.000**	**0.000**
RDT&E Articles Qty			

MSIMP-CH Marine Sensor Int C9A07: The objective of the effort is to develop the new concept/technology based on the Marine Corps Systems Command SBIR contract with Eureka Aerospace for "through-the-wall" imaging capabilities. Successful implementation will provide the capability for high-resolution 3-D visualization of the objects, including people, weapons and other materiel, on the other side of the wall using extremely broadband microwave technology. The requirement is to be able to see who and what is inside a building prior to Marines entering. The system will also be able to spot booby traps and exit routes for the enemy. The system will also help to validate that the Marines are attacking the correct building.

COST ($ in Millions)	FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost	**0.000**	**2.775**	**0.000**
RDT&E Articles Qty			

Intelligent Machining of Advanced Defense Materials - Provides for the software/hardware development and integration of advanced machining processes applicable to various defense weapons platforms.

COST ($ in Millions)	FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost	**0.971**	**0.000**	**0.000**
RDT&E Articles Qty			

MOLDABLE FABRIC ARMOR C9A08: This Congressional Add funds moldable fabric armor which is a lightweight, easily transportable and versatile armor supplement.

(U) Total $	**14.346**	**11.725**	**0.000**

(U) PROJECT CHANGE SUMMARY:	FY 2007	FY 2008	FY 2009
(U) FY 2009 OSD Budget:	**5.146**	**0.000**	**0.000**
(U) Adjustments from the President's Budget:			
(U) Congressional Program Reductions			
(U) Congressional Rescissions			
(U) Congressional Increases		**11.800**	
(U) Reprogrammings	**9.339**		
(U) SBIR/STTR Transfer	**-0.139**		
(U) Minor Affordability Adjustments		**-0.075**	
(U) FY 2009 President's Budget:	**14.346**	**11.725**	**0.000**

CHANGE SUMMARY EXPLANATION:

(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:
(U) Related RDT&E: Not Applicable.
(U) D. ACQUISITION STRATEGY:
(U) E. MAJOR PERFORMERS:

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION							DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**			R-1 ITEM NOMENCLATURE **0603654N/JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT**				
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	30.616	81.608	115.086	91.026	75.377	77.763	76.659
0377 / JT Service Expl Ord Disp System	21.346	14.629	11.681	13.353	12.778	11.553	11.836
1317 / EOD Diving System	2.684	2.718	2.757	3.287	3.497	2.926	2.988
3177 / Joint Counter Radio-Controlled IED Elec Warfare	0.468	60.116	97.048	69.370	54.761	57.445	58.447
4023 / VSM MCM/Force Protection UUV	6.118	4.145	3.600	5.016	4.341	5.839	3.388

A. MISSION DESCRIPTION:

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 and Improvised Explosive Devices 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. This program also provides force protection of all military services against Radio Controlled Improvised Explosive Devices (RCIED) to prevent initiation. The Navy has been designated as DOD Executive Agent and Single Manager for Military Ground-BasedCounter Radio-Controlled Improvised Explosive Electronic Warfare (CREW) Technology by DOD Directive 5101.14 of 11 June 2007, requiring RDT&E to develop capabilities that meet joint requirements.

FY2008 funding totals do not include $14.0M previously requested for current FY2008 GWOT requirements.

B. PROGRAM CHANGE SUMMARY:

Previous President's Budget	24.315	83.361	114.986
Current President's Budget	30.616	81.608	115.086
Total Adjustments	6.301	-1.753	0.100
Summary of Adjustments:			
Reprogramming	6.500		
SBIR Adjustments	-0.199		
Economic Assumptions			0.100
Congressional Undistributed Reductions		-0.548	
Miscellaneous Adjustments		-1.205	
Subtotal	6.301	-1.753	0.100

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603654N/JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT**				PROJECT NUMBER AND NAME **0377/JT Service Expl Ord Disp System**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	21.346	14.629	11.681	13.353	12.778	11.553	11.836
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Provides Explosive Ordnance Disposal 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).

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603654N/JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOI**	PROJECT NUMBER AND NAME **0377/JT Service Expl Ord Disp System**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	7.663	7.712	7.181
RDT&E Articles Quantity	0	0	0

FY07 Completed the Analysis of Alternatives (AOA) for the EOD Future Radiographic System.
FY08 Initiate the EOD Future Radiographic System formal acquisition project.
FY09 Conduct Full Rate Production Decision Review for JEOD DSS, initiating production.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	4.422	2.567	2.300
RDT&E Articles Quantity	0	0	0

FY07 Completed assessment of capability of laser technology to achieve low-order reactions.
FY08 Conduct studies relative to system integration onto vehicles, and assessed capability of laser technology to neutralize IEDs.
FY09 Initiate the Joint Laser Ordnance Neutralization System (JLONS) formal acquisition project with Milestone B.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.578	1.800	1.200
RDT&E Articles Quantity	0	0	0

FY07 Completed development of the simulator for the family of EOD Robot systems.
FY08 Conduct integration of various EOD tools and sensors onto the MK 1 MOD 0 and MK 2 MOD 0 EOD Robot systems.
FY09 Complete development of improved command and control for EOD Robotic systems.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	2.183	2.550	1.000
RDT&E Articles Quantity	0	0	0

FY07 Achieved a Limited Production Decision on the TCM, AN/PLT-6460.
FY08 Achieve Full Rate Production on the TCM, AN/PLT-6460.
FY09 Conduct continuous improvement subprojects for the fielded TCM systems.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	6.500	0.000	0.000
RDT&E Articles Quantity	0	0	0

FY07 Conducted an assessment of Unmanned Air Vehicle Systems for use by Joint Service EOD forces to satisfy an urgent operational requirement.
FY08 N/A
FY09 N/A

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603654N/JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOI**	PROJECT NUMBER AND NAME **0377/JT Service Expl Ord Disp System**

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name

(Funds listed in Section D. are for Cost Code VN075 - EOD Equipment/Systems)

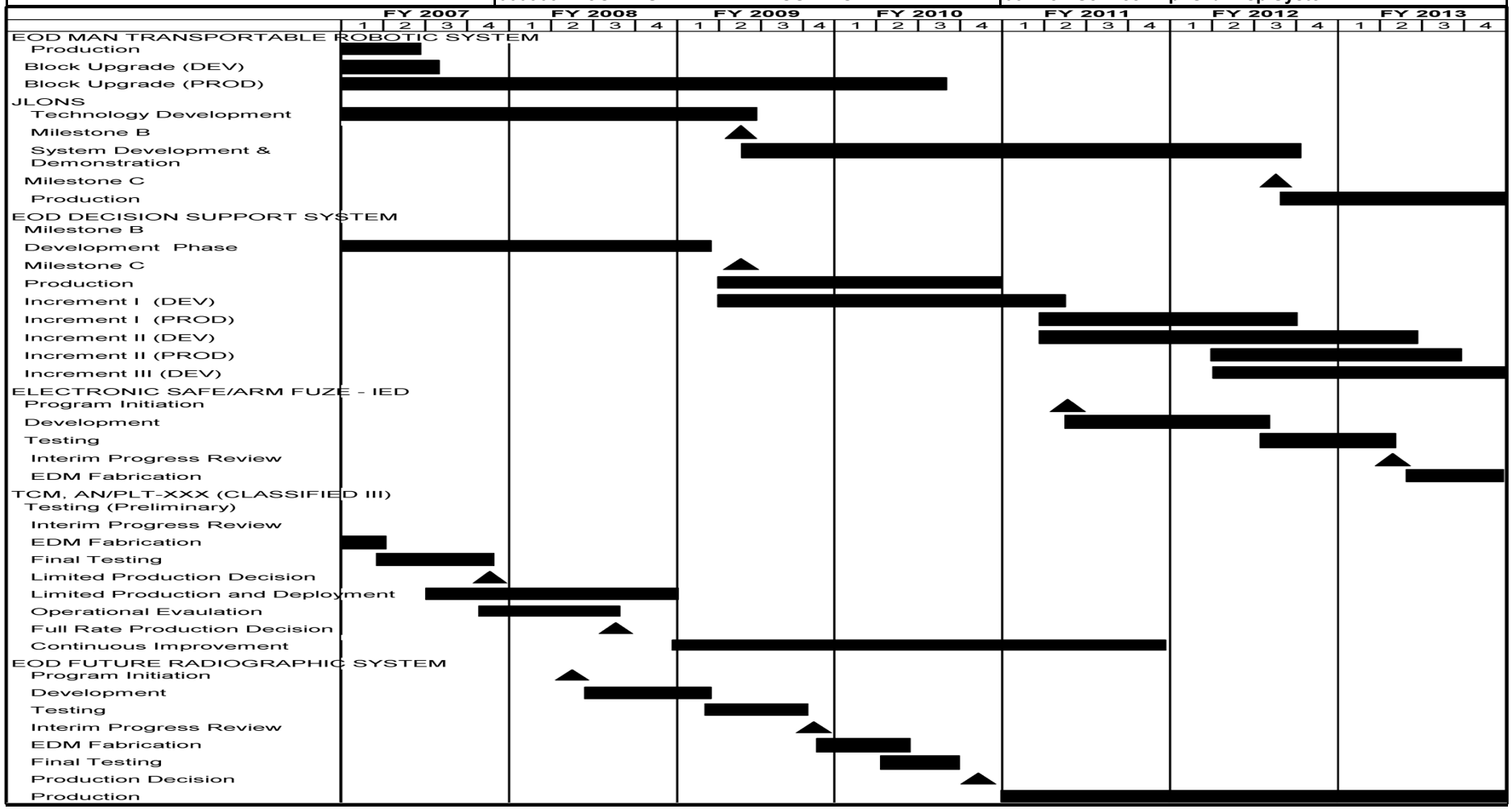
Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
OPN 5509	13.185	6.209	10.105	9.663	5.200	5.200	2.000		

D. 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.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603654N/JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT**					PROJECT NUMBER AND NAME **0377/JT Service Expl Ord Disp System**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WX	EODTD, IH, MD	95.127	10.925	OCT-06	6.500	OCT-07	4.642	OCT-08	CONT	CONT	0.000
Software Development	WX	EODTD, IH, MD	11.279	4.455	OCT-06	1.736	OCT-07	1.200	OCT-08	CONT	CONT	0.000
ILS	WX	EODTD, IH, MD	39.920	0.750	OCT-06	1.250	OCT-07	1.000	OCT-08	CONT	CONT	0.000
Subtotal Product Development			**146.326**	**16.130**		**9.486**		**6.842**		**CONT**	**CONT**	**0.000**
Remarks:												
Program Management Support	C/CPFF	EDO, Alexandria, VA	3.460	0.000		0.000		0.000			3.460	0.000
Program Management Support	C/CPFF	EDO, Alexandria, VA	1.245	0.600	OCT-06	0.650	OCT-07	0.500	OCT-08	CONT	CONT	0.000
Subtotal Support Costs			**4.705**	**0.600**		**0.650**		**0.500**		**CONT**	**CONT**	**0.000**
Remarks:												
Developmental Test & Evaluation	WX	EODTD, IH, MD	63.347	1.400	OCT-06	1.500	OCT-07	1.800	OCT-08	CONT	CONT	0.000
Operational Test & Evaluation	WX	EODTD, IH, MD	8.245	0.538	OCT-06	0.550	OCT-07	0.200	OCT-08	CONT	CONT	0.000
Subtotal Test and Evaluation			**71.592**	**1.938**		**2.050**		**2.000**		**CONT**	**CONT**	**0.000**
Remarks:												
Program Management Support	WX	EODTD, IH, MD	5.871	0.625	OCT-06	0.650	OCT-07	0.650	OCT-08	CONT	CONT	0.000
Miscellaneous	Various	Various	9.000	2.053	OCT-06	1.793	OCT-07	1.689	OCT-08	CONT	CONT	0.000
Subtotal Management Services			**14.871**	**2.678**		**2.443**		**2.339**		**CONT**	**CONT**	**0.000**
Remarks:												
Total Cost			**237.494**	**21.346**		**14.629**		**11.681**		**CONT**	**CONT**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603654N/JOINT SERVICE EXPLOSIVE ORDNANCE DEVE**	PROJECT NUMBER AND NAME **0377/JT Service Expl Ord Disp System**



CLASSIFICATION:	UNCLASSIFIED					
EXHIBIT R-4a, SCHEDULE DETAIL					DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603654N/JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPME**			PROJECT NUMBER AND NAME **0377/JT Service Expl Ord Disp System**		
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
EOD MAN TRANSPORTABLE ROBOTIC SYSTEM							
Production	1Q-2Q						
Block Upgrade (DEV)	1Q-3Q						
Block Upgrade (PROD)	1Q-4Q	1Q-4Q	1Q-4Q	1Q-3Q			
JLONS							
Technology Development	1Q-4Q	1Q-4Q	1Q-2Q				
Milestone B			2Q				
System Development & Demonstration			2Q-4Q	1Q-4Q	1Q-4Q	1Q-3Q	
Milestone C						3Q	
Production						3Q-4Q	1Q-4Q
EOD DECISION SUPPORT SYSTEM							
Development Phase	1Q-4Q	1Q-4Q	1Q				
Milestone C			2Q				
Production			2Q-4Q	1Q-4Q			
Increment I (DEV)			2Q-4Q	1Q-4Q	1Q-2Q		
Increment I (PROD)					2Q-4Q	1Q-3Q	
Increment II (DEV)					2Q-4Q	1Q-4Q	1Q-2Q
Increment II (PROD)						2Q-4Q	1Q-3Q
Increment III (DEV)						2Q-4Q	1Q-4Q
ELECTRONIC SAFE/ARM FUZE-IED							
Program Initiation					2Q		
Development					2Q-4Q	1Q-3Q	
Testing						3Q-4Q	1Q-2Q
Interim Progress Review							2Q
EDM Fabrication							2Q-4Q
TCM,AN/PLT-XXX (CLASSIFIED III)							
Testing (Preliminary)							
Interim Progress Review							
EDM Fabrication	1Q-2Q						

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL (CONTINUATION)						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603654N/JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPME**			PROJECT NUMBER AND NAME **0377/JT Service Expl Ord Disp System**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Final Testing	2Q-4Q						
Limited Production Decision	4Q						
Limited Production and Deployment	3Q-4Q	1Q-4Q					
Operational Evaluation	4Q	1Q-3Q					
Full Rate Production Decision		3Q					
Continous Improvement			1Q-4Q	1Q-4Q	1Q-4Q		
EOD FUTURE RADIOGRAPHIC SYSTEM							
Program Initiation		2Q					
Development		2Q-4Q	1Q				
Testing			2Q-3Q				
Interim Progress Review			4Q				
EDM Fabrication			4Q	1Q-2Q			
Final Testing				2Q-3Q			
Production Decision				4Q			
Production					1Q-4Q	1Q-4Q	1Q-4Q

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603654N/JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT**				PROJECT NUMBER AND NAME **1317/EOD Diving System**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	2.684	2.718	2.757	3.287	3.497	2.926	2.988
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Provides for development of diving equipment, communication 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, recover, exploit, and dispose of underwater explosive threats to include sea mines, limpet mines and unexploded ordnance.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603654N/JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOI**	PROJECT NUMBER AND NAME **1317/EOD Diving System**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	2.084	0.905	0.290
RDT&E Articles Quantity	0	0	0

Diver Safety & Life Support Systems: Research and Develop diver safety tools to include more capable life support systems for EOD, NSCT-1, and MDSU operations. Specific tools include but are not limited to Underwater Breathing Apparatus (UBA), specialized dive masks, heads-up displays, and emergency life support systems.

FY07 Plan: Initiated contract award and delivery of initial test items.
FY08 Plan: Complete Navy certification and full rate production decision. Full rate initial production deliveries to start in FY08.
FY09 Plan: Initiate Development of Improvement for Diver Safety related to EOD and UBA.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.350	0.860	2.207
RDT&E Articles Quantity	0	0	0

Advanced Diver Integrated Sensors: Develop Advanced Diver Integrated Sensors equipment to enhance EOD, MDSU and NSCT-1's ability to detect, neutralize and gather intelligence on underwater targets of interest. Requirements include Diver Hull Inspection Navigation System (DHINS) and improves the Underwater Imaging System (UIS).

FY07 Plan: Planned system Integration/testing of DHINS.
FY08 Plan: Initiate functional specification to be completed by FY08 with Fleet Evaluation planned.
FY09 Plan: UIS improvement system integration and testing will continue through FY09 with ECP approval planned for FY2010. DHINS LRIP planned for FY09.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.250	0.953	0.260
RDT&E Articles Quantity	0	0	0

Advanced Firing System: Develops new acquisitions and product improvements to existing systems for below and above water neutralization of underwater threats to support EOD, NSCT-1, and MDSU operations.

FY07 Plan: Modified AFS prototype tests were initiated in FY06 and will be completed by FY07.
FY08 Plan: AFS Spiral 1 Engineering Change Proposal (ECP) approval is scheduled for FY08.
FY09 Plan: Initiate systems integration and testing of spiral 2 is scheduled for completion by the end of FY10.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603654N/JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOI**	PROJECT NUMBER AND NAME **1317/EOD Diving System**

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
OPN 0975	4.583	0.000	2.581	6.192	5.404	5.787	4.462	Continuing	Continuing
PANMC 0340		1.690		1.787		2.202			

D. ACQUISITION STRATEGY:

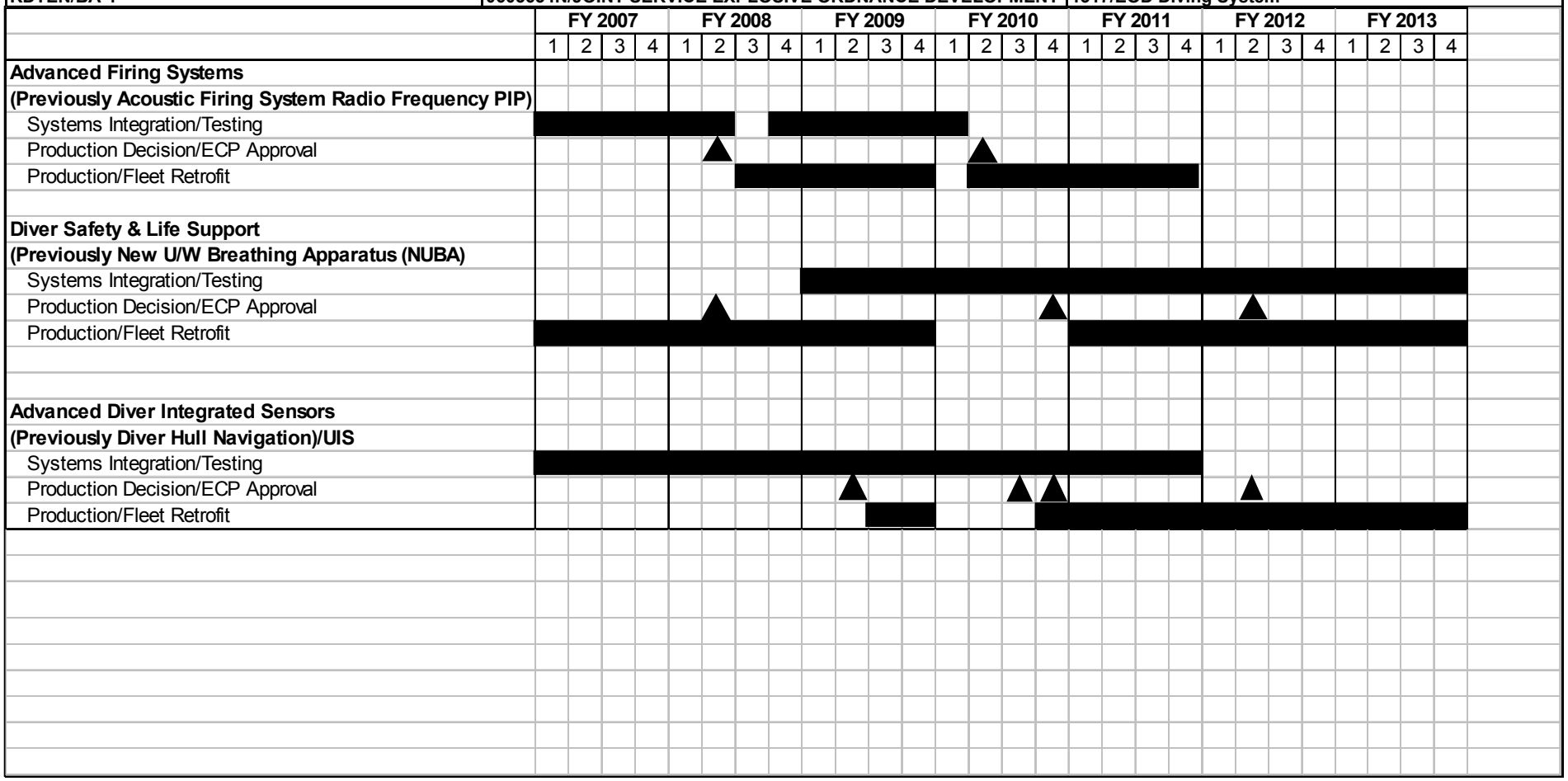
Analysis of Alternatives (AOA) studies are always conducted prior to the initiation of new subprojects. The AOA addresses and emphasizes acquisition strategies of the most cost-effective solution over the subprojects' life-cycle. The acquisition strategies observe the following hierarchy of alternatives: 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.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603654N/JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT**					PROJECT NUMBER AND NAME **1317/EOD Diving System**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WX	EODTD, IH, MD	35.727	0.800	OCT-06	0.800	OCT-07	0.801	OCT-08	CONT	CONT	0.000
Software Development	WX	EODTD, IH, MD	2.192	0.500	OCT-06	0.500	OCT-07	0.500	OCT-08	CONT	CONT	0.000
Systems Engineering	WX	EODTD, IH, MD	8.228	0.000		0.000		0.000		0.000	8.228	0.000
ILS	WX	EODTD, IH, MD	11.916	0.000		0.000		0.000		0.000	11.916	0.000
Systems Engineering	WX	NSWC, PC	0.190	0.190	OCT-06	0.190	OCT-07	0.190	OCT-08	CONT	CONT	0.000
Systems Engineering	WX	SPAWAR	0.400	0.200	OCT-06	0.400	OCT-07	0.400	OCT-08	CONT	CONT	0.000
Subtotal Product Development			**58.653**	**1.690**		**1.890**		**1.891**		**CONT**	**CONT**	**0.000**
Remarks:												
Program Management Support	C/CPFF	EDO, Alex, VA	3.537	0.000		0.000		0.000		0.000	3.537	0.000
Program Management Support	C/CPFF	EDO, Alex, VA	0.973	0.258	OCT-06	0.380	OCT-07	0.390	OCT-08	CONT	CONT	0.000
Integrated Logistics Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Configuration Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Technical Data			0.000	0.000		0.000		0.000		0.000	0.000	0.000
GFE			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Award Fees			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Subtotal Support Costs			**4.510**	**0.258**		**0.380**		**0.390**		**CONT**	**CONT**	**0.000**
Remarks:												
Development Test & Evaluation	WX	EODTD, IH, MD	4.217	0.050	OCT-06	0.006	OCT-07	0.070	OCT-08	CONT	CONT	0.000
Operational Test & Evaluation	WX	EODTD, IH, MD	1.560	0.000		0.000		0.000		0.000	1.560	0.000
Subtotal Test and Evaluation			**5.777**	**0.050**		**0.006**		**0.070**		**CONT**	**CONT**	**0.000**
Remarks:												
Program Management Support	WX	EODTD, IH, MD	7.413	0.360	OCT-06	0.349	OCT-07	0.290	OCT-08	0.000	8.412	0.000
Miscellaneous	WX	VARIOUS	6.231	0.326	OCT-06	0.093	OCT-07	0.116	OCT-08	0.000	6.766	0.000
Subtotal Management Services			**13.644**	**0.686**		**0.442**		**0.406**		**0.000**	**15.178**	**0.000**
Remarks:												

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603654N/JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT**	PROJECT NUMBER AND NAME **1317/EOD Diving System**

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Total Cost			**82.584**	**2.684**		**2.718**		**2.757**		**CONT**	**CONT**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603654N/JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT**	PROJECT NUMBER AND NAME **1317/EOD Diving System**



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603654N/JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPME**			PROJECT NUMBER AND NAME **1317/EOD Diving System**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
ADVANCED FIRING SYSTEMS							
System Integration/Testing	1Q-4Q	1Q-2Q: 4Q	1Q-4Q	1Q			
Production Decision/ECP Approval		2Q		2Q			
Production/Fleet Retrofit		3Q-4Q	1Q-4Q	2Q-4Q	1Q-4Q		
DIVER SAFETY & LIFE SUPPORT							
System Integration/Testing			1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Production Decision/ECP Approval		2Q		4Q		2Q	
Production/Fleet Retrofit	1Q-4Q	1Q-4Q	1Q-4Q		1Q-4Q	1Q-4Q	1Q-4Q
ADVANCED DIVER INTEGRATED SENSORS							
System Integration/Testing	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q		
Production Decision/ECP Approval			2Q	3Q-4Q		2Q	
Production/Fleet Retrofit			3Q-4Q	4Q	1Q-4Q	1Q-4Q	1Q-4Q

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603654N/JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT**				PROJECT NUMBER AND NAME **3177/Joint Counter Radio-Controlled IED Elec War**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	0.468	60.116	97.048	69.370	54.761	57.445	58.447
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Provides for research and development for all military services against Radio-Controlled Improvised Explosive Devices (RCIED) to prevent initiation. The Navy has been designated as DOD Executive Agent and Single Manager for Military Ground-BasedCounter Radio-Controlled Improvised Explosive Electronic Warfare (CREW) Technology by DOD Directive 5101.14 of 11 June 2007, requiring RDT&E to develop capabilities that meet joint requirements. Utilize Joint requirements to provide a system of systems approach for a suite of equipment for mounted, dismounted and fixed site operations. CREW development to make rapid improvements to performance, supportability and affordability.

* JCREW Spirals 3.1 and 3.2 are interim solutions funded by the Joint IED Defeat Organization (OSD)

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603654N/JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOI**	PROJECT NUMBER AND NAME **3177/Joint Counter Radio-Controlled IED Elec Warfare**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.468	60.116	97.048
RDT&E Articles Quantity	0	0	0

- FY07 - Initiated acquisition planning for the development of Joint CREW system of systems (CREW 3.3) for mounted, man portable and fixed site operations for all services.

- FY08 - Acquisition planning and risk reduction for a Joint CREW 3.3 system of systems in preparation of Milestone B decision. Development of CREW Convoy Planning Tool upgrades.

- FY09 - Award contracts for the development of Joint CREW 3.3 system. Continue development of CREW Convoy Planning Tool upgrades.

C. OTHER PROGRAM FUNDING SUMMARY:

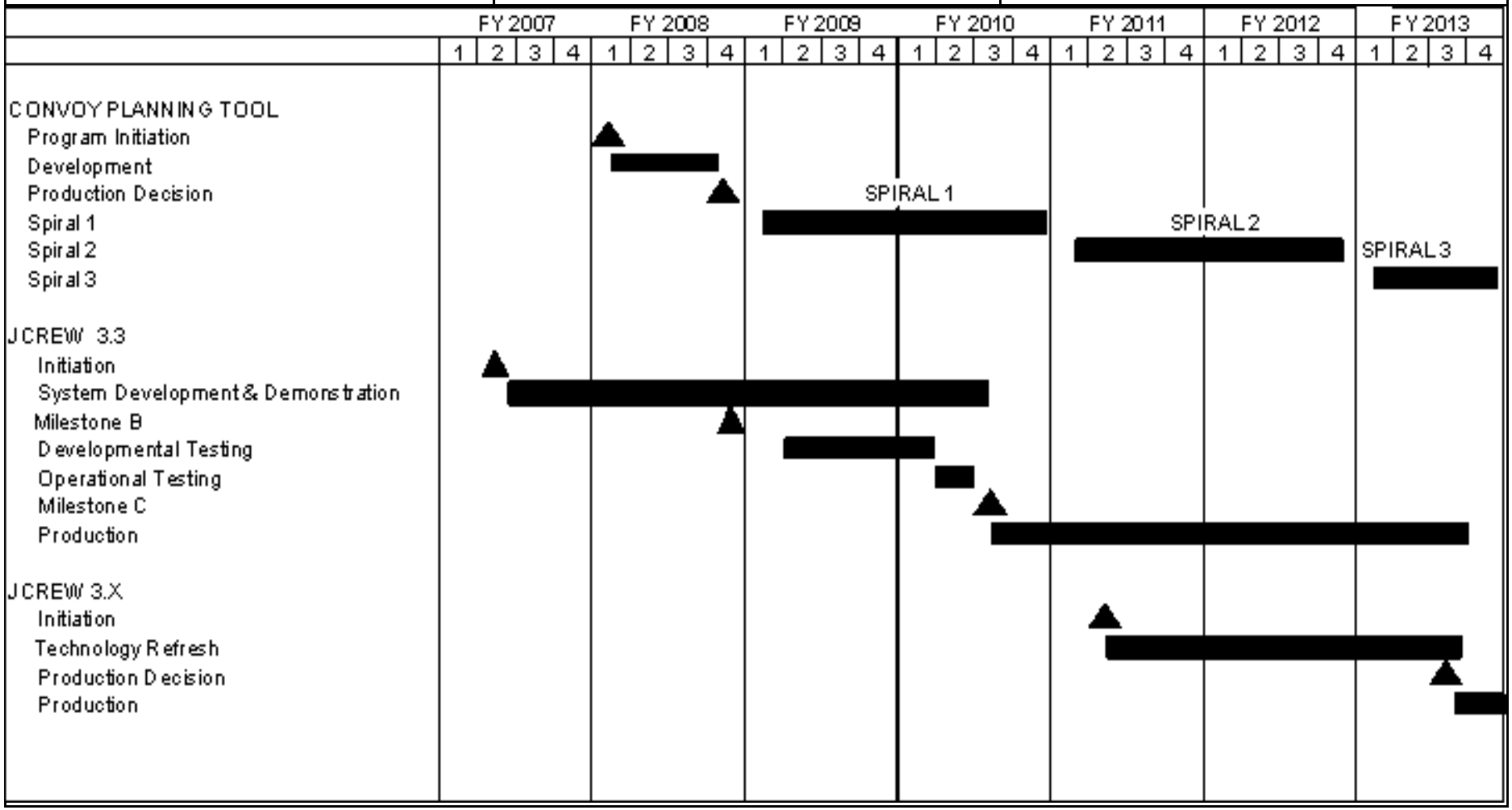
N/A

D. 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 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. Procurements across the services will be combined to gain quantity discounts.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603654N/JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT**					PROJECT NUMBER AND NAME **3177/Joint Counter Radio-Controlled IED Elec Warfare**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development		TBD	0.000	0.000		6.300	OCT-07	29.000	NOV-08	CONT	CONT	0.000
Software Development		Various	0.000	0.250	DEC-06	3.200	OCT-07	3.000	NOV-08	CONT	CONT	0.000
Systems Engineering		Various	0.000	0.000		19.900	OCT-07	8.684	NOV-08	CONT	CONT	0.000
ILS		Various	0.000	0.000		0.300	OCT-07	1.500	NOV-08	CONT	CONT	0.000
System Integration		Various	0.000	0.000		2.200	OCT-07	0.000		0.000	2.200	0.000
Loadset Development			0.000	0.000		2.000	OCT-07	0.000		0.000	2.000	0.000
Subtotal Product Development			**0.000**	**0.250**		**33.900**		**42.184**		**CONT**	**CONT**	**0.000**
Remarks:												
Program Management Support		Various	0.000	0.000		9.524	OCT-07	4.250	OCT-08	CONT	CONT	0.000
Software Support		Various	0.000	0.000		4.900	OCT-07	0.250	OCT-08	CONT	CONT	0.000
Training Development		Various	0.000	0.000		1.500	OCT-07	3.000	OCT-08	CONT	CONT	0.000
Integrated Logistics Support		Various	0.000	0.000		0.800	OCT-07	18.497	OCT-08	CONT	CONT	0.000
Configuration Management		Various	0.000	0.000		1.500	OCT-07	1.750	OCT-08	CONT	CONT	0.000
Technical Data		Various	0.000	0.000		0.000	OCT-07	1.500	OCT-08	CONT	CONT	0.000
Subtotal Support Costs			**0.000**	**0.000**		**18.224**		**29.247**		**CONT**	**CONT**	**0.000**
Remarks:												
Development Test & Evaluation		Various	0.000	0.000		2.200	OCT-07	20.470	OCT-08	CONT	CONT	0.000
Operational Test & Evaluation		Various	0.000	0.000		0.000		0.000		0.000	0.000	0.000
Subtotal Test and Evaluation			**0.000**	**0.000**		**2.200**		**20.470**		**CONT**	**CONT**	**0.000**
Remarks:												
Program Management Support		Various	0.000	0.170	DEC-06	2.800	OCT-07	3.500	OCT-08	CONT	CONT	0.000
Miscellaneous		Various	0.000	0.048	DEC-06	2.992	OCT-07	1.647	OCT-08	CONT	CONT	0.000
Subtotal Management Services			**0.000**	**0.218**		**5.792**		**5.147**		**CONT**	**CONT**	**0.000**
Remarks:												
Total Cost			**0.000**	**0.468**		**60.116**		**97.048**		**CONT**	**CONT**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603654N/JOINT SERVICE EXPLOSIVE ORDNANCE DEVE**	PROJECT NUMBER AND NAME **3177/Joint Counter Radio-Controlled IED Elec Warfare**



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603654N/JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPME**			PROJECT NUMBER AND NAME **3177/Joint Counter Radio-Controlled IED Elec Warfare**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
CONVOY PLANNING TOOL							
Program Initiation		1Q					
Development		1Q-4Q					
Production Decision		4Q					
Spiral 1			1Q-4Q	1Q-4Q			
Spiral 2					1Q-4Q	1Q-4Q	
Spiral 3							1Q-4Q
JCREW 3.3							
Initiation	2Q						
System Development & Demonstration	2Q-4Q	1Q-4Q	1Q-4Q	1Q-3Q			
Milestone B		4Q					
Developmental Testing			2Q-4Q	1Q			
Operational Testing				2Q			
Milestone C				3Q			
Production				3Q-4Q	1Q-4Q	1Q-4Q	1Q-3Q
JCREW 3.X							
Initiation					2Q		
Technology Refresh					2Q-4Q	1Q-4Q	1Q-3Q
Production Decision							3Q
Production							3Q-4Q

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603654N/JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT**				PROJECT NUMBER AND NAME **4023/VSM MCM/Force Protection UUV**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	6.118	4.145	3.600	5.016	4.341	5.839	3.388
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Provides for development of small affordable, Unmanned Underwater Systems to support Explosive Ordnance Disposal (EOD) , Mobile Diving and Salvage Units, Naval Special Clearance Team mission operations. The equipment must be highly portable in order to support the EOD technician to safely approach, render-safe, recover, exploit and dispose of underwater explosive threats to include sea mines, limpet mines and unexploded ordnance. Provides support for the Navy's high priority missions of Maritime Homeland Defense Very Shallow Water (VSW) mine countermeasures, including clandestine reconnaissance and mine clearance in support of amphibious operations. Development of EOD UUV systems to support localization render-safe and detailed intelligence gathering of UXO including Underwater Improvised Explosive Devices.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603654N/JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOI**	PROJECT NUMBER AND NAME **4023/VSM MCM/Force Protection UUV**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	6.118	4.145	3.600
RDT&E Articles Quantity	0	0	0

This program supports development, testing and Fleet approval for evolving generations of small affordable unmanned underwater vehicles, support equipment, and common operator interface systems to address validated requirements in support of Explosive Ordnance Disposal and Naval Special Clearance Team mission areas. Mission areas include: open and confined areas, hulls, piers and pilings to search, classify, map, re-acquire, identify, and neutralize sea and limpet mines and underwater improvised explosive devices.

FY07 Plan: Continued production of 1st Generation S-C-M UUV systems including delivery and acceptance of initial production items: achieved FOC of 1st Generation S-C-M systems. Continued test and evaluation of 2nd Generation Systems (R-I) in preparation for production decision. Began test and evaluation of 3rd generation system (DACP initiative); continue requirements definition for 3rd Generation (UUV-N) systems. Initiate Spiral CIP for 1st Generation system. Initiate Spiral CIP for 2nd Generation system. Magneto-Inductive Firing Systems requirements withdrawn, program cancelled.

FY08 Plan: Initiate production of 2nd Generation system (R-I). Continue requirements definition for 3rd Generation (UUV-N) system. Complete production and delivery of 2nd Generation (R-1) systems.

FY09 Plan: Continue Spiral CIP for 1st and 2nd Generation systems. Complete requirements definition for 3rd Generation System. Initiate UOES test and evaluation phase for UUV-N.

C. OTHER PROGRAM FUNDING SUMMARY:

Funds listed in section C. are under cost code UQ-034

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
OPN 0975	7.653	6.436	3.543	3.463	3.523	3.533	4.317	Continuing	Continuing

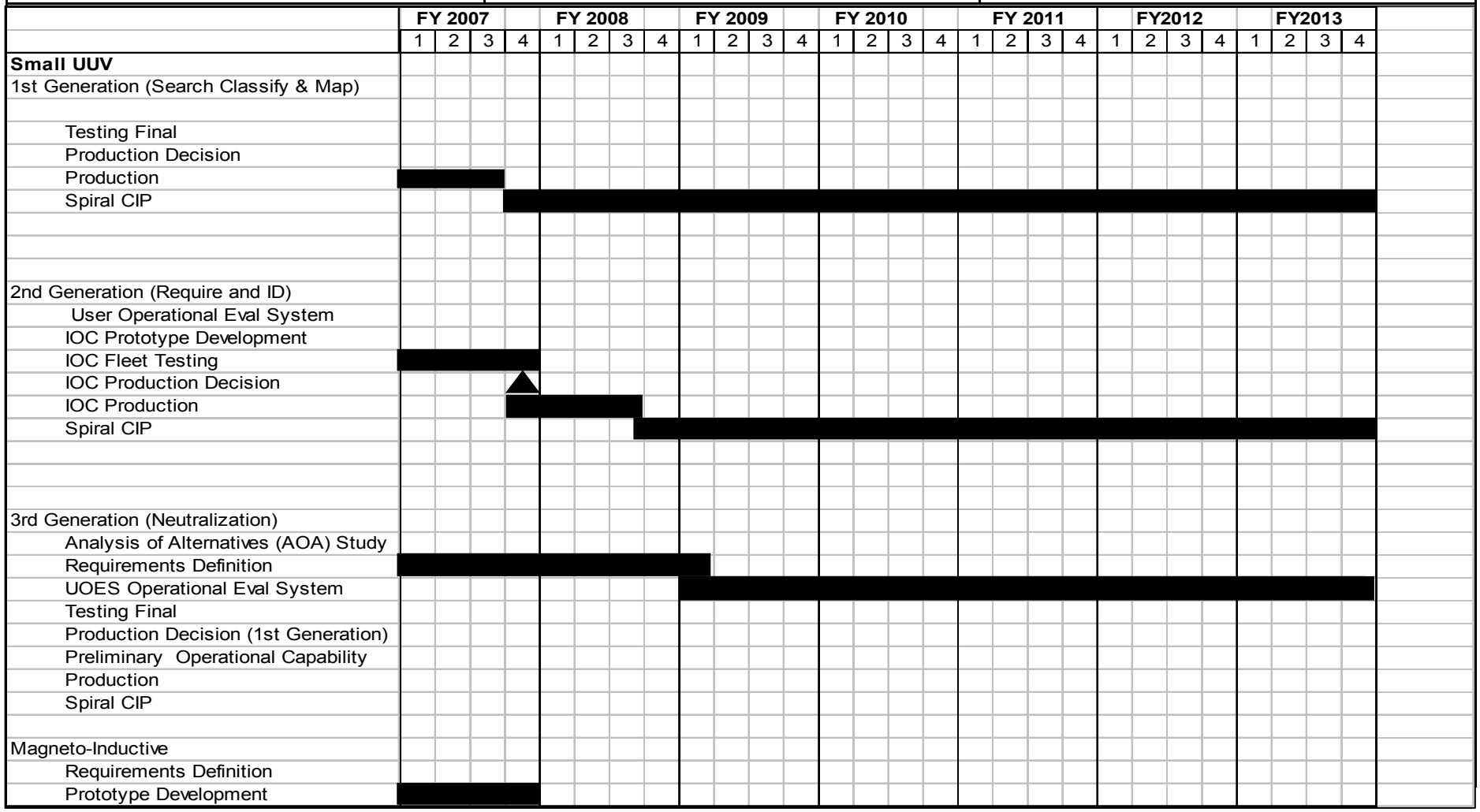
D. ACQUISITION STRATEGY:

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 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 (UOES) 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 has been realized at the Naval Special Clearance Team One (NSCT-1), with a competitive acquisition strategy to field a more robust and capable first generation Search Classify Map (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. EOD UUV systems ship hull and harbor bottom providing capability to localize, Render Safe & gather detailed intelligence of UXO is programmed for acquisition.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603654N/JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT**					PROJECT NUMBER AND NAME **4023/VSM MCM/Force Protection UUV**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WX	EODTD,IH,MD	10.034	1.913	OCT-06	1.313	OCT-07	1.094	OCT-08	CONT	CONT	0.000
Systems Engineering	WX	EODTD,IH,MD	6.018	1.970	OCT-06	1.240	OCT-07	0.998	OCT-08	CONT	CONT	0.000
Subtotal Product Development			**16.052**	**3.883**		**2.553**		**2.092**		**CONT**	**CONT**	**0.000**
Remarks:												
Program Management Support	C/CPFF	EDO, Alex, VA	1.362	0.616	OCT-06	0.539	OCT-07	0.463	OCT-08	CONT	CONT	0.000
			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Subtotal Support Costs			**1.362**	**0.616**		**0.539**		**0.463**		**CONT**	**CONT**	**0.000**
Remarks:												
Developmental Test & Evaluation	WX	EODTD,IH,MD	2.890	0.986	OCT-06	0.635	OCT-07	0.600	OCT-08	CONT	CONT	0.000
Operational Test & Evaluation	WX	EODTD,IH,MD	0.580	0.252	OCT-06	0.127	OCT-07	0.142	OCT-08	CONT	CONT	0.000
Subtotal Test and Evaluation			**3.470**	**1.238**		**0.762**		**0.742**		**CONT**	**CONT**	**0.000**
Remarks:												
Program Management Support	WX	EODTD,IH,MD	0.860	0.310	OCT-06	0.211	OCT-07	0.173	OCT-08	CONT	CONT	0.000
Miscellaneous	WX	VARIOUS	0.828	0.071	OCT-06	0.080	OCT-07	0.130	OCT-08	CONT	CONT	0.000
Subtotal Management Services			**1.688**	**0.381**		**0.291**		**0.303**		**CONT**	**CONT**	**0.000**
Remarks:												
Total Cost			**22.572**	**6.118**		**4.145**		**3.600**		**CONT**	**CONT**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603654N/JOINT SERVICE EXPLOSIVE ORDNANCE DEVE**	PROJECT NUMBER AND NAME **4023/VSM MCM/Force Protection UUV**



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603654N/JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPME**			PROJECT NUMBER AND NAME **4023/VSM MCM/Force Protection UUV**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
1st Generation Small UUV (Search, Classify & Map)							
Production	1Q-3Q						
Spiral CIP	4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
2nd Generation (Require and ID)							
IOC Prototype Development							
IOC Testing	1Q-4Q						
IOC Production Decision	4Q						
IOC Production	4Q	1Q-3Q					
Sprial CIP		4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
3rd Generation (Neutralization)							
Requirements Definition	1Q-4Q	1Q-4Q	1Q				
UOES Operational Eval System			1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Production Decision (1st Generation)							
Production							
Magneto-Inductive							
Prototype Development	1Q-4Q						

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	R-1 ITEM NOMENCLATURE **0603658N/COOPERATIVE ENGAGEMENT**						
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	52.688	36.513	38.316	49.248	46.302	45.726	46.080
2039 / COOP Engagement	52.688	36.513	38.316	49.248	46.302	45.726	46.080
9999 / CONGRESSIONAL ADDS	0.000	0.000	0.000	0.000	0.000	0.000	0.000

A. MISSION DESCRIPTION:

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 significantly improves our Battle Force defense in depth, including both local area and ship defense capabilities against current and future AAW threats. Moreover, CEC provides 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.

The Navy has begun implementation of a Signal Data Processor (SDP) approach to modify the current equipment to meet reduced size, weight, cost, power and cooling objectives. This SDP approach also supports continuity for interoperability improvements and program protection, as well as supporting open architecture initiatives, comms independence, Joint Tactical Radio System (JTRS) compliancy, and Global Information Grid (GIG) horizontal fusion initiatives. SDP will provide hardware which complies with Category 3 Open Architecture Computing Environment (OACE) standards with rehosted existing software, which will be fielded fleet-wide to allow affordable replacement of obsolete computing system components and eliminate dependencies on "closed" equipment, operating systems, and middleware.

Additionally, CEC is working with Joint Program Executive Office (JPEO) to jointly engineer a sensor measurement fusion and track management algorithm set of solutions which is viable for all Services to implement toward achieving optimum interoperability across the battlespace. This effort supports re-architecting of battleforce functionality in order to support the Navy's Open Architecture functional architecture which establishes a common functional framework across Navy programs and platforms to reduce development cost by promoting software reuse. This architecture promotes interoperability by allowing functionality to be consistently engineered across the battlespace. The Joint Track Manager (JTM) is derived from an Integrated Architecture Behavior Model (IABM) through a series of configuration deliveries which will include JTM functionality. General Dynamics was competitively awarded the Systems Integrator/Design Agent (SI/DA) contract in March 2005 to facilitate the development, integration, and testing of the JTM functionality across the applicable Navy Programs (e.g. DDG 1000, E-2).

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	R-1 ITEM NOMENCLATURE **0603658N/COOPERATIVE ENGAGEMENT**	

Funding includes the following Congressional adds:FY07 includes $10.872K for CEC Improvements.

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY08 Pres Controls)	64.296	33.283	39.174
Current FY 2009 President's Budget	52.688	36.513	38.316
Total Adjustments	-11.608	3.230	-0.858
Summary of Adjustments			
Programmatic Adjustments	-9.900	0.000	0.000
Undistributed General Reductions	-1.708	-0.745	-0.858
Congressional Increase		3.975	
Subtotal	-11.608	3.230	-0.858

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
PE 0206313M - RDT&E, N (Marine Corps)	2.300	0.900	0.600						
BLI 019500 - E-2D PPAs		15.975							
BLI 0102419A - RDT&E JLENS (Army)	3.170	10.000	7.175	3.950	3.950				
BLI 227300 - Procurement, Marine Corps		3.000	7.000	10.000	5.000				
BLI 260600 - Cooperative Engagement Capability/OPN	27.345	27.634	34.561	26.618	21.262	25.967	22.986		
BLI 0960 - CG Modernization/OPN	10.749	11.288	13.381	18.726	19.338	21.359	21.583		
BLI 019500 - E-2D Aircraft/APN			13.049	13.365	18.176	18.984	19.402		
ICN 52860161 - JLENS (Army) Procurement					1.614		1.679		
Various - SCN Procurement	16.181	11.701	9.211	29.507	9.920	9.913	9.714		
BLI 0900 - DDG Modernization/OPN				9.700	15.810	24.827	29.851		

D. ACQUISITION STRATEGY:

A revision to the August 2004 Acquisition Plan (AP) was approved on 29 August 2007. The AP includes procurement requirements for the CEC from FY08-FY11 to support USN ship and Aircraft programs, the USMC Composite Tracking Network (CTN), and the Army's Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS). The AP includes requirements for the competitive procurement of the Compact Solid State Antenna (CSSA) for the USMC CTN and USA JLENS programs for FY09-FY12. The AP provides for CEC System Design Agent and Engineering Services for FY08-FY12. This AP also identifies the requirement for continued Low Rate Initial Production (LRIP) authority for the E-2D CEC system. Incremental LRIP mitigates program and design risk by linking CEC procurements to E-2D program events and testing results. The incremental LRIP strategy will be presented to the Acquisition Strategy Integrated Product Team (ASIPT) later this year for final approval. Twenty-one E-2D CEC systems are planned to be procured under LRIP authority from FY08 through FY13.

E. MAJOR PERFORMERS:

General Dynamics Advanced Information Systems /Fairfax, Virginia/Systems Integration / Design Agent
Raytheon Systems Company/St. Petersburg, FL/Development of AN/USG-2 (shipboard) and AN/USG-3(airborne)equipment.
Johns Hopkins University, Applied Physics Laboratory/Laurel, MD / Technical Design Agent for AN/USG-2 and AN/USG-3 equipment.
Northrop-Grumman Corporation/Bethpage LI, NY/Integration of AN/USG-3 equipment with E-2C HAWKEYE 2000 and Advanced E2 aircraft.
Naval Surface Warfare Center/Dahlgren, VA/Software Support Activity (SSA) and Systems Engineering/Integration Agent (SE/IA).
SAIC/St. Petersburg, FL/Mini Terminal.
Sechan/Lititz, PA/Signal Data Processor.
Naval Surface Warfare Center / Pt. Hueneme, CA / Test and Evaluation.

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603658N/COOPERATIVE ENGAGEMENT**				PROJECT NUMBER AND NAME **2039/COOP Engagement**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	52.688	36.513	38.316	49.248	46.302	45.726	46.080
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Includes FY07 Congressional Add of $10.872 and FY08 Congressional Add of $3.975.

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 significantly improves our Battle Force defense in depth, including both local area and ship defense capabilities against current and future AAW threats. Moreover, CEC provides 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.
The Navy has begun implementation of a Single Data Processor (SDP) approach to modify the current equipment to meet reduced size, weight, cost, power and cooling objectives. This SDP approach also supports continuity for interoperability improvements and program protection, as well as supporting open architecture initiatives, comms independence, Joint Tactical Radio System (JTRS) compliancy, and Global Information Grid (GIG) horizontal fusion initiatives. SDP will provide hardware which complies with Category 3 Open Architecture Computing Environment (OACE) standards with rehosted existing software, which will be fielded fleet-wide to allow affordable replacement of obsolete computing system components and eliminate dependencies on "closed" equipment, operating systems, and middleware.

Additionally, CEC is working with Joint Program Executive Office (JPEO) to jointly engineer a sensor measurement fusion and track management algorithm set of solutions which is viable for all Services to implement toward achieving optimum interoperability across the battlespace. This effort supports re-architecting of battleforce functionality in order to support the Navy's Open Architecture functional architecture which establishes a common functional framework across Navy programs and platforms to reduce development cost by promoting software reuse. This architecture promotes interoperability by allowing functionality to be consistently engineered across the battlespace. The Joint Track Manager (JTM) is derived from an Integrated Architecture Behavior Model (IABM) through a series of configuration deliveries which will include JTM functionality. General

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603658N/COOPERATIVE ENGAGEMENT**	PROJECT NUMBER AND NAME **2039/COOP Engagement**

Dynamics was competitively awarded the Systems Integrator/Design Agent (SI/DA) contract in March 2005 to facilitate the development, integration, and testing of the JTM functionality across the applicable Navy Programs (e.g. DDG 1000, E-2).

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603658N/COOPERATIVE ENGAGEMENT**	PROJECT NUMBER AND NAME **2039/COOP Engagement**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	11.890	3.500	10.430
RDT&E Articles Quantity	0	0	0

FY07 Plan: Continued CEC integration efforts with E-2D.
FY08 Plan: Continue CEC integration efforts with E-2D.
FY09 Plan: Continue CEC integration efforts with E-2D.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	4.900	3.400	4.000
RDT&E Articles Quantity	0	0	0

FY07 Plan: Continued development, integration and testing of computer program Baseline 2.1 for ACDS, AEGIS, and SSDS platforms. Begin FOT&E-4 testing efforts on SSDS MK2 Mod 2 (LPD 17) equipped ships and begin Single Data Processor (SDP) test analysis.
FY08 Plan: Continue development, integration and testing of computer program Baseline 2.1 for ACDS, AEGIS, and SSDS platforms. Complete FOT&E-4 test analysis, continue SDP test analysis.
FY09 Plan: Continue development, integration and testing of computer program Baseline 2.1 for ACDS, AEGIS, and SSDS platforms. Begin FOT&E-5 testing and analysis. Continue SDP test analysis.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	4.700	1.100	2.850
RDT&E Articles Quantity	0	0	0

FY07 Plan: Continued CEC integration efforts with NIFC-CA.
FY08 Plan: Continue CEC integration efforts with NIFC-CA.
FY09 Plan: Continue CEC integration efforts with NIFC-CA.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	1.000	1.300	1.564
RDT&E Articles Quantity	0	0	0

FY07 Plan: Continued Systems Engineering/Integration Agent (SE/IA) for development and execution of systems engineering processes by NSWC, Dahlgren.
FY08 Plan: Continue Systems Engineering/Integration Agent (SE/IA) for development and execution of systems engineering processes by NSWC, Dahlgren.
FY09 Plan: Continue Systems Engineering/Integration Agent (SE/IA) for development and execution of systems engineering processes by NSWC, Dahlgren.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	11.244	0.000	0.000
RDT&E Articles Quantity	0	0	0

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603658N/COOPERATIVE ENGAGEMENT**	PROJECT NUMBER AND NAME **2039/COOP Engagement**

FY07 Plan: Completed SI/DA contract for JTM / IABM integration, implementation, and test.
FY08 Plan: None
FY09 Plan: None

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	8.934	18.435	9.909
RDT&E Articles Quantity	0	0	0

FY07 Plan: Continued CEC system improvements including enhanced communications, expansion of networking capability, development of system protection/multi-level secure operational-level secure operations, and Modeling and Simulation.
FY08 Plan: Continue CEC system improvements including enhanced communications, expansion of networking capability, development of system protection/multi-level secure operational-level secure operations, and Modeling and Simulation.
FY09 Plan: Continue CEC system improvements including enhanced communications, expansion of networking capability, development of system protection/multi-level secure operational-level secure operations, and Modeling and Simulation.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	2.000	1.500	1.500
RDT&E Articles Quantity	0	0	0

FY07 Plan: Continued participation in system interoperability exercises and Joint Integrated Demonstrations.
FY08 Plan: Continue participation in system interoperability exercises and Joint Integrated Demonstrations.
FY09 Plan: Continue participation in system interoperability exercises and Joint Integrated Demonstrations.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	8.020	7.278	8.063
RDT&E Articles Quantity	0	0	0

FY07 Plan: Continued field activity support of CEC development efforts (I.e. Technical Direction Agent, In-Service Engineering, Integrated Logistics Support Planning) and program management support.
FY08 Plan: Continue field activity support of CEC development efforts (I.e. Technical Direction Agent, In-Service Engineering, Integrated Logistics Support Planning) and program management support.
FY09 Plan: Continue field activity support of CEC development efforts (I.e. Technical Direction Agent, In-Service Engineering, Integrated Logistics Support Planning) and program management support.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603658N/COOPERATIVE ENGAGEMENT**	PROJECT NUMBER AND NAME **2039/COOP Engagement**

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
AN/USG-2/3 Development	CPAF	Raytheon, St. Petersburg, FL	6.276	3.074	OCT-06	9.888	OCT-07	8.665	OCT-08	CONT	CONT	0.000
AN/USG-2/3 Development/TDA	CPFF	JHU/APL, Laurel, MD	9.877	6.228	OCT-06	6.178	OCT-07	8.000	OCT-08	CONT	CONT	0.000
SI/DA	CPAF	General Dynamics	14.024	9.955	DEC-06	0.000		0.000		0.000	23.979	46.657
SI/DA	CPAF	Award Fees	1.614	1.289	DEC-06	0.000		0.000		0.000	2.903	16.423
P3I	CPAF	Raytheon	11.475	0.000		3.975		0.000		0.000	15.450	60.727
DDG 1000	CPAF	Raytheon, Massachusetts	7.384	2.299	APR-07	0.000		0.000		0.000	9.683	10.130
NIFC-CA Integration	Various	Various	20.829	4.700	APR-07	1.100	TBD	2.850	TBD	CONT	CONT	0.000
In-Service Engineering Activity	WX	NSWC, Port Hueneme, CA	0.111	0.246	NOV-06	0.245	NOV-07	0.200	NOV-08	CONT	CONT	0.000
Software Support Activity/SEIA	WX	NSWC, Dahlgren, VA	2.725	2.000	NOV-06	1.300	NOV-07	1.564	NOV-08	0.000	7.589	0.000
Production Engineering Activity	WX	NSWC, Crane, IN	1.879	1.215	NOV-06	0.150	NOV-07	0.900	NOV-08	CONT	CONT	0.000
JTRS	Various	Various	8.500	0.000		0.000		0.000		0.000	8.500	15.000
Various	Various	Miscellaneous	2.340	1.024	APR-07	4.201	TBD	1.232	TBD	CONT	CONT	0.000
DDG 1000	CPAF	Award Fee	0.247	0.200	APR-07	0.000		0.000		0.000	0.447	0.000
NAVSSI	WX	SPAWAR, San Diego, CA	0.000	0.368	APR-07	0.000		0.000		0.000	0.368	0.000
Certification	MP	NSA, Fort Meade, MD	0.000	0.300	APR-07	0.075	NOV-07	0.125	NOV-08	0.000	0.500	0.000
Certification	WX	SPAWAR, Charleston, SC	0.130	0.650	APR-07	0.750	NOV-07	0.000		0.000	1.530	0.000
MSI/NCCT	MP	Wright Pat AFB, Dayton, OH	0.600	0.628	APR-07	0.000		0.000		0.000	1.228	0.000
Joint Exercises	WX	NSWC, Corona, CA	0.000	0.150	APR-07	0.000		0.000		0.000	0.150	0.000
LBTS Testing	WX	CDSA, Dam Neck, VA	0.630	0.540	APR-07	0.600	NOV-07	0.000		0.000	1.770	0.000
Testing Support	PD	Wallops Island	0.683	0.682	APR-07	0.801	NOV-07	0.000		0.000	2.166	0.000
E-2D Integration	Various	Various	0.000	11.890	APR-07	3.500	TBD	10.430	TBD	0.000	25.820	0.000
Subtotal Product Development			**89.324**	**47.438**		**32.763**		**33.966**		**CONT**	**CONT**	**148.937**

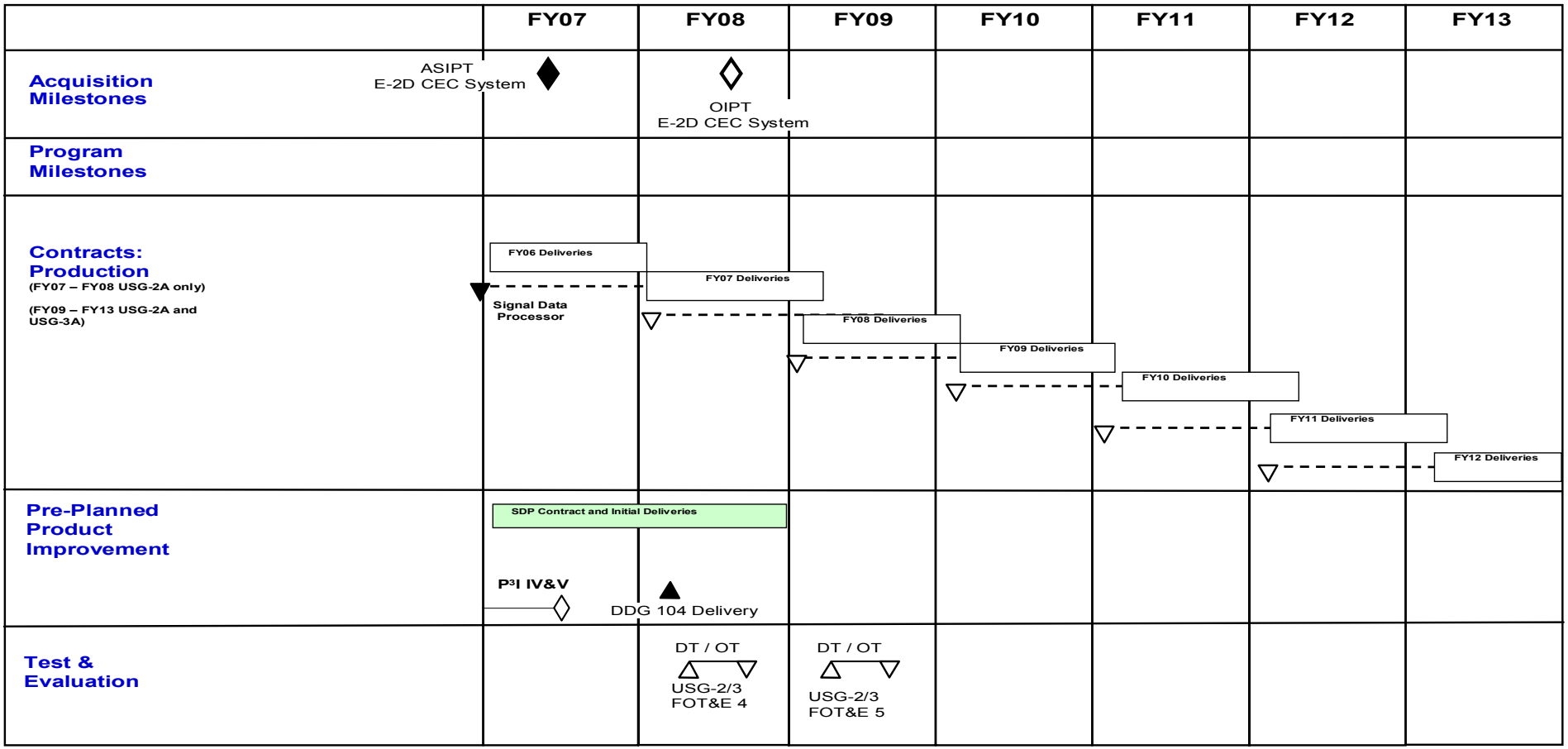
Remarks:
Explanations for the use of "WX, MP, and PD" in the "Contract method & type" column are as follows:

When using "MP", these documents are issued to DOD activities that are outside of the Department of the Navy.

When using "WX", these documents are sent to Navy activities who obligate funding on their vehicles to accomplish tasking for CEC. These activities are the only ones who can accomplish these tasks for the program.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603658N/COOPERATIVE ENGAGEMENT**					PROJECT NUMBER AND NAME **2039/COOP Engagement**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
When using "PD" for Wallops Island, this document is used because this is the only document we can provide to the activity to accomplish taskings for the CEC program.												
Subtotal Support Costs			**0.000**	**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	**0.000**
Remarks:												
Test Support	CPAF	Raytheon, St. Petersburg, FL	0.000	0.000		0.000		0.000		0.000	0.000	0.000
Test Support	CPAF	Award Fees	0.000	0.000		0.000		0.000		0.000	0.000	0.000
Test Support	CPFF	JHU/APL, Laurel, MD	0.000	0.000		0.000		0.000		0.000	0.000	0.000
Test Support	WX	NRL, Washington DC	0.128	0.000		0.000		0.000		0.000	0.128	0.000
Test Support	WX	NSWC, PHD, CA	2.010	3.651	NOV-06	1.500	OCT-07	2.100	OCT-08	CONT	CONT	0.000
Air Operations Test Support	WX	NAVAIR (PMA207)	0.860	0.250	NOV-06	0.200	OCT-07	0.200		0.000	1.510	0.000
Test Data Reduction Analysis	WX	NWAS, Corona, CA	0.972	0.771	NOV-06	1.500	OCT-07	1.500	OCT-08	CONT	CONT	0.000
Test Support	WX	COMOPTEVFOR, VA	0.742	0.228	NOV-06	0.200	OCT-07	0.200	OCT-08	CONT	CONT	0.000
Various	Various	Various	0.000	0.000		0.000		0.000	TBD	CONT	CONT	0.000
Subtotal Test and Evaluation			**4.712**	**4.900**		**3.400**		**4.000**		**CONT**	**CONT**	**0.000**
Remarks: Explanation for the use of "WX" in the "Contract method & type" column are as follows: When using "WX", these documents are sent to Navy activities who obligate funding on their vehicles to accomplish tasking for CEC. These activities are the only ones who can accomplish these tasks for the program.												
Program Management Support	FFP	Various	0.830	0.350	NOV-06	0.350	OCT-07	0.350	OCT-08	CONT	CONT	0.000
Subtotal Management Services			**0.830**	**0.350**		**0.350**		**0.350**		**CONT**	**CONT**	**0.000**
Remarks:												
Total Cost			**94.866**	**52.688**		**36.513**		**38.316**		**CONT**	**CONT**	**148.937**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603658N/COOPERATIVE ENGAGEMENT**	PROJECT NUMBER AND NAME **2039/COOP Engagement**



CLASSIFICATION:	UNCLASSIFIED					
EXHIBIT R-4a, SCHEDULE DETAIL					DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603658N/COOPERATIVE ENGAGEMENT**			PROJECT NUMBER AND NAME **2039/COOP Engagement**		
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Milestone III (MSIII) (AN/USG-2) - 3Q02							
Full Rate Production (AN/USG-2) - 3Q02							
LRIP-5 (AN/USG-3) - 3Q02							
LRIP-6 (AN/USG-3) - 3Q02							
FOT&E-1 (AN/USG-3) (DT-IIIA/OT-IIIA) (Start) - 2Q02							
FOT&E-1 (AN/USG-3) (DT-IIIA/OT-IIIA) (Complete) - 1Q03							
FOT&E-2 (AN/USG-3) (DT-IIIB/OT-IIIB) (Start) - 2Q04							
FOT&E-2 (AN/USG-3) (DT-IIIB/OT-IIIB) (Complete) - 3Q04							
Initial Operational Capability (AN/USG-3)							
Full Operational Capability (FOC) (AN/USG-2/3)							
FOT&E-3 (OT-IIIC) Start							
FOT&E-3 (OT-IIIC) Complete							
FOT&E-4 (OT-IIID) Start		2Q08					
FOT&E-4 (OT-IIID) Complete		3Q08					
FOT&E-5 (OT-IIID) Start			2Q09				
FOT&E-5 (OT-IIID) Complete			3Q09				
Block 1 Production							
SDP Production	1Q07	1Q08	1Q09	1Q10	1Q11	1Q12	1Q13
E-2D CEC System		3Q08					
DDG 104 Delivery		1Q08					

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	R-1 ITEM NOMENCLATURE **0603713N/OCEAN ENGINEERING TECHNOLOGY DEVELOPMENT**	

COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	20.725	5.080	7.737	17.591	12.834	7.925	8.091
0099 / Deep Submergence Bio Med Dev	2.983	3.299	3.286	3.363	3.388	3.986	4.064
0394 / Shallow Depth Diving EQ	17.742	1.781	4.451	14.228	9.446	3.939	4.027

A. MISSION DESCRIPTION:

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.

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY08 Pres Budget Controls)	20.725	5.122	7.737
Current BES/President Budget (FY09 Pres Budget Controls)	20.725	5.080	7.737
Total Adjustment	0.000	-0.042	0.000
Summary of Adjustments:	FY2007	FY2008	FY2009
Execution Realignment SB Issue	0.000	-0.009	0.000
Contractor Efficiencies	0.000	-0.008	0.000
Revised Economic Assumption	0.000	-0.025	0.000
Subtotal	0.000	-0.042	0.000

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603713N/OCEAN ENGINEERING TECHNOLOGY DEVELOPMENT**				PROJECT NUMBER AND NAME **0099/Deep Submergence Bio Med Dev**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	2.983	3.299	3.286	3.363	3.388	3.986	4.064
RDT&E Articles Qty	0	0	0	0	0	0	0

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:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603713N/OCEAN ENGINEERING TECHNOLOGY DEVELOPM**	PROJECT NUMBER AND NAME **0099/Deep Submergence Bio Med Dev**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	1.687	2.004	1.968
RDT&E Articles Quantity	0	0	0

Diver Health and Safety Research: Pulmonary oxygen toxicity exposure limits. 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 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	1.296	1.295	1.318
RDT&E Articles Quantity	0	0	0

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.

C. OTHER PROGRAM FUNDING SUMMARY:

Not Applicable

D. 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.

E. 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:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603713N/OCEAN ENGINEERING TECHNOLOGY DEVELOPMENT**					PROJECT NUMBER AND NAME **0099/Deep Submergence Bio Med Dev**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Primary Hardware Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Ancillary Hardware Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Component Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Ship Integration			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Ship Suitability			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Systems Engineering			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Training Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Licenses			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Tooling			0.000	0.000		0.000		0.000		0.000	0.000	0.000
GFE			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Award Fees			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Subtotal Product Development			**0.000**	**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	**0.000**
Remarks:												
Development Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Software Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Training Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Integrated Logistics Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Configuration Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Technical Data			0.000	0.000		0.000		0.000		0.000	0.000	0.000
GFE			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Award Fees			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Subtotal Support Costs			**0.000**	**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	**0.000**
Remarks:												
Developmental Test & Evaluation	WX	NEDU, Panama City, Fl.	2.942	2.772	OCT-06	3.101	OCT-07	3.059	OCT-08	0.000	11.874	0.000
Operational Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Live Fire Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603713N/OCEAN ENGINEERING TECHNOLOGY DEVELOPMENT**					PROJECT NUMBER AND NAME **0099/Deep Submergence Bio Med Dev**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Test Assets			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Tooling			0.000	0.000		0.000		0.000		0.000	0.000	0.000
GFE			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Award Fee			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Subtotal Test and Evaluation			**2.942**	**2.772**		**3.101**		**3.059**		**0.000**	**11.874**	**0.000**
Remarks:												
Contractor Engineering Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Government Engineering Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Program Management Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Travel	Various	Various	0.000	0.033	TBD	0.020	TBD	0.049	TBD	0.000	0.102	0.000
Labor (Research Personnel)			0.000	0.000		0.000		0.000		0.000	0.000	0.000
*SBIR Assessment	Various	Various	0.000	0.178	TBD	0.178	TBD	0.178	TBD	0.000	0.534	0.000
Subtotal Management Services			**0.000**	**0.211**		**0.198**		**0.227**		**0.000**	**0.636**	**0.000**
Remarks: *SBIR Assessment includes other extramural program assessments.												
Total Cost			**2.942**	**2.983**		**3.299**		**3.286**		**0.000**	**12.510**	**0.000**

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603713N/OCEAN ENGINEERING TECHNOLOGY DEVELOPMENT**				PROJECT NUMBER AND NAME **0394/Shallow Depth Diving EQ**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	17.742	1.781	4.451	14.228	9.446	3.939	4.027
RDT&E Articles Qty	0	0	0	0	0	0	0

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 FY11) 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 incapability at a fraction of the cost of the currently available systems.

Shallow Depth Diving Equipment managed under SEA00C (FY08-FY11) - This project develops 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. Current plans are to perform R&D in the areas of contaminated water diving in FY08-FY13.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603713N/OCEAN ENGINEERING TECHNOLOGY DEVELOPM**	PROJECT NUMBER AND NAME **0394/Shallow Depth Diving EQ**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	17.742	0.598	3.163
RDT&E Articles Quantity	0	0	0

Continue fabrication and acceptance testing of the prototype Submarine Decompression System and support equipment. Complete design, complete fabrication and acceptance testing of prototype Pressurized Rescue Module and support equipment. Begin integration of all SRDRS components.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.000	1.183	1.288
RDT&E Articles Quantity	0	0	0

R&D for contaminated water diving.

C. OTHER PROGRAM FUNDING SUMMARY:

Not Applicable

D. 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).

E. MAJOR PERFORMERS:

Oceaneering International is providing systems engineering and integration support for the SRS. Oceanworks, Inc. is the detailed designer and fabricator of the Pressurized Rescue Module.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603713N/OCEAN ENGINEERING TECHNOLOGY DEVELOPMENT**					PROJECT NUMBER AND NAME **0394/Shallow Depth Diving EQ**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Primary Hardware Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Ancillary Hardware Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Design, System Integration	CPAF	Oceaneering, Hanover, MD	0.000	0.000		0.000		0.000		0.000	0.000	0.000
Decompression Chambers (SDC1 and 2)			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Various Mission Support Equipment (MSE)			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Pressurized Rescue Module System (PRMS)	CPIF	Oceanworks, Ottawa, Ontario, CAN	12.824	11.000	FEB-07	0.000		0.000		0.000	23.824	0.000
PRMS	FFP	Oceanworks, Ottawa, Ontario, CAN	0.000	4.000	APR-07	0.000		0.000		0.000	4.000	0.000
Various PRMS MSE			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Systems Engineering - Design, Integration	Various	Oceaneering, Hanover, MD	0.829	0.396	MAY-07	0.593	OCT-07	2.596	OCT-08	29.339	33.753	0.000
Systems Engeineering - Technical	Various	Various	0.537	0.000		0.000		0.000		0.300	0.837	0.000
Licenses			0.000	0.000		0.000		0.000		0.000	0.000	0.000
GFE			0.000	0.000		0.000		0.000		0.000	0.000	0.000
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
Subtotal Product Development			**14.190**	**15.396**		**0.593**		**2.596**		**29.639**	**62.414**	**0.000**

Remarks:

1. Restructuring or rephasing of non-rescue related subsystems and components done with N773 and CNSF staff concurrence.

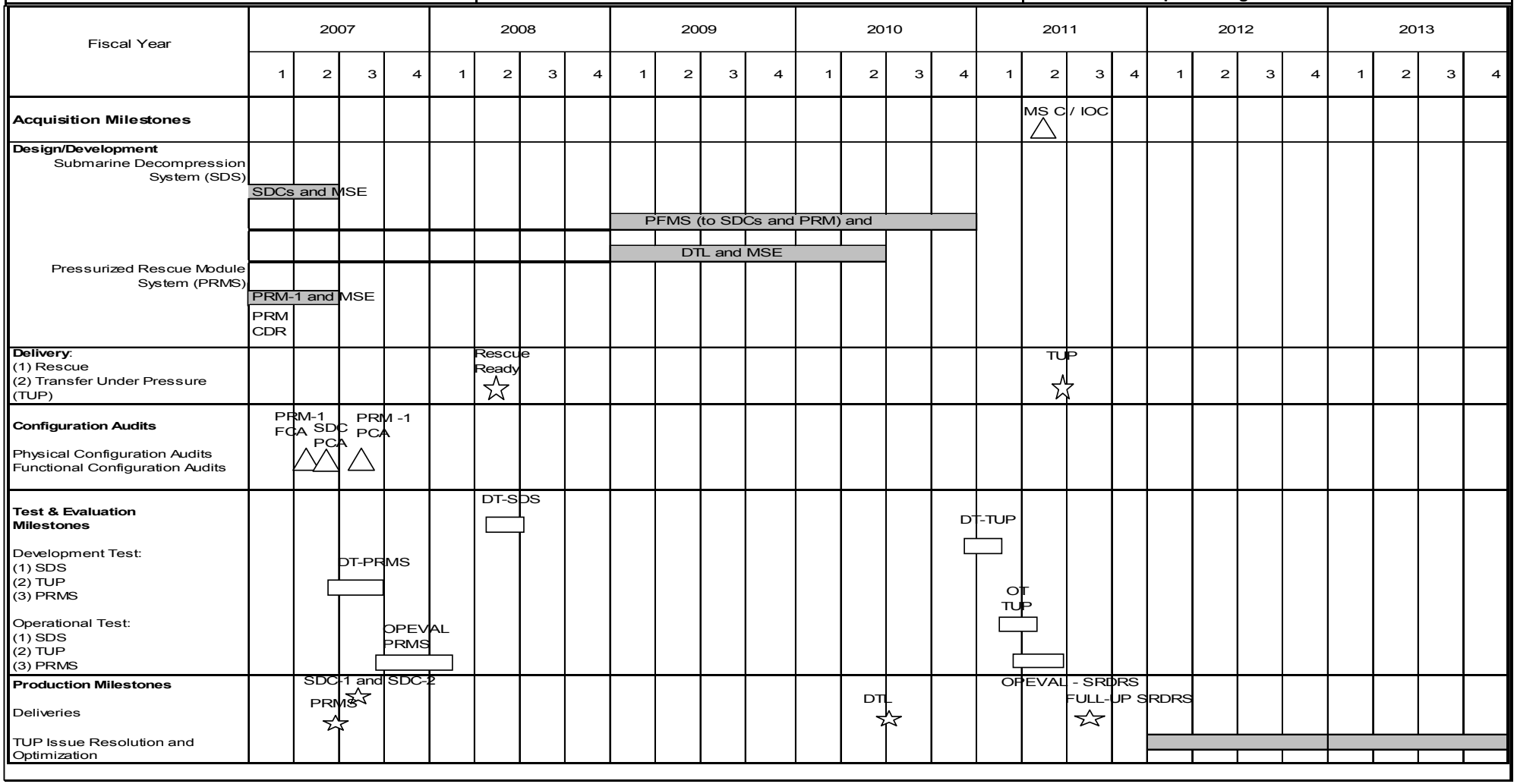
2. SDC-1 and SDC-2 chambers under a FFP contract through NFESC. Contract completion date (CCD) remains 31 August 2003 and was missed. Liquidated damages are being assessed per the FAR. A significant Request for Equitable Adjustment (REA) has been submitted and denied within NAVFESC. Further adjudication or financial liability to program is not included in controls.

3. Adjustments for Oceanworks PRMS cost growth negotiated between NAVSEA 02 and Canadian Commercial Corporation; contract converted to Firm Fixed Price (FFP).

Development Support	Various	Various	0.000	0.000		1.183	OCT-07	1.288	OCT-08	5.195	7.666	0.000
Software Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Integrated Logistics Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Integrated Logistics Support	Various	Various	0.841	0.000		0.000		0.000		0.000	0.841	0.000

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603713N/OCEAN ENGINEERING TECHNOLOGY DEVELOPMENT**					PROJECT NUMBER AND NAME **0394/Shallow Depth Diving EQ**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Configuration Management	CPAF	Oceaneering, Hanover, MD	0.489	0.000	N/A	0.000		0.000		0.500	0.989	0.000
Technical Data			0.000	0.000		0.000		0.000		0.000	0.000	0.000
GFE			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Award Fees			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Subtotal Support Costs			**1.330**	**0.000**		**1.183**		**1.288**		**5.695**	**9.496**	**0.000**
Remarks:												
Developmental Test & Evaluation	Various	Various	2.762	0.393	MAY-07	0.000		0.000		0.000	3.155	0.000
Operational Test & Evaluation	WX	COMOPTEVFOR, Norfolk, VA	0.050	0.225	MAY-07	0.000		0.050	OCT-08	0.320	0.645	0.000
Subtotal Test and Evaluation			**2.812**	**0.618**		**0.000**		**0.050**		**0.320**	**3.800**	**0.000**
Remarks:												
Contractor Engineering Support	Various	QBS/Various	0.074	0.000		0.000		0.000		0.000	0.074	0.000
Government Engineering Support	WX	NFESC, Port Hueneme, CA	0.106	0.091	JAN-07	0.000		0.000		0.000	0.197	0.000
Government Engineering Support	WX	PSNSY, Bremerton, WA	0.339	0.747	JAN-07	0.000		0.096	OCT-08	0.000	1.182	0.000
Government Engineering Support	Various	Various	1.360	0.326	FEB-07	0.000		0.000		0.000	1.686	0.000
Program Management Support	Various	Various	0.267	0.439	JAN-07	0.000		0.381	OCT-08	1.121	2.208	0.000
Travel	Various	Various	0.075	0.125	TBD	0.005	TBD	0.040	TBD	0.150	0.395	0.000
SBIR Assessment	Various	Various	0.443	0.000	N/A	0.000		0.000		0.000	0.443	0.000
Government Engineering Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Subtotal Management Services			**2.664**	**1.728**		**0.005**		**0.517**		**1.271**	**6.185**	**0.000**
Remarks: *SBIR Assessment inludes other extramural program assessments												
Total Cost			**20.996**	**17.742**		**1.781**		**4.451**		**36.925**	**81.895**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603713N/OCEAN ENGINEERING TECHNOLOGY DEVELOPMENT**	PROJECT NUMBER AND NAME **0394/Shallow Depth Diving EQ**



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603713N/OCEAN ENGINEERING TECHNOLOGY DEVELOPMENT**			PROJECT NUMBER AND NAME **0394/Shallow Depth Diving EQ**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Milestone II (MSII)							
Detail Design/Development and Fab (SDS - SDC, PFMS, DTL)	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q			
Detail Design/Devel. and Fab (PRMS)	1Q-2Q						
Critical Design Review (CDR) - PRMS							
Physical Configuration Audit - SDC	2Q						
Hardware Delivery - SDC-1 and SDC-2	3Q						
Functional Configuration Audit (FCA) - PRM	2Q						
Developmental Testing (DT-SDS)		1Q-2Q					
Physical Configuration Audit - PRM	3Q						
Hardware Delivery - PRMS	2Q						
Developmental Testing (DT-PRMS)	2Q-3Q						
Operational Testing (OPEVAL-PRMS)	4Q	1Q					
Acquisition Capability Delivery - Rescue Ready		2Q					
Hardware Delivery - DTL				2Q-3Q			
Developmental Testing (DT-TUP)				4Q	1Q		
Operational Testing (OT-TUP)					1Q-2Q		
Acquisition Capability Delivery - TUP					2Q-3Q		
First Deployment (Rescue Ready (DSRV equiv.))		2Q					
First Deployment (Fly Away Recompression w/TUP)					3Q		
First Deployment Full-Up SRDRS					3Q		
Initial Operational Capability (IOC) of Full-Up SRDRS					3Q		
TUP Issue Resolution and Optimization						1Q-4Q	1Q-4Q

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION							DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**			R-1 ITEM NOMENCLATURE **0603721N/ENVIRONMENTAL PROTECTION**				
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	27.530	20.618	19.632	20.309	20.740	21.155	21.586
0401 / Shipboard Waste Mgmt	6.863	6.438	6.826	6.891	7.328	7.487	7.655
0817 / Pollution Abatement	8.895	8.745	8.423	9.015	8.960	9.129	9.303
9204 / Marine Mammal Research	6.247	4.243	4.383	4.403	4.452	4.539	4.628
9999 / Congressional Add	5.525	1.192	0.000	0.000	0.000	0.000	0.000

A. MISSION DESCRIPTION:

(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 and evaluates processes, 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 laws, regulations, Executive Orders, policies and international agreements. Projects support the Navy's compliance with: OPNAVINST 5090.1B CH-4 and other DoD and 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 enable Navy ships and submarines to comply with laws, regulations, and policies in four major areas: ozone depleting substances, liquid wastes, solid wastes, and hazardous and other wastes. Project 2210 supports RDT&E that enables Navy compliance with environmental 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 supports RDT&E to develop and validate technologies to enable Navy facilities to comply with environmental laws, regulations, and policies in a cost-effective manner. Project 9204 supports RDT&E to develop planning and monitoring tools for minimizing Fleet contacts with and potential harrassment of protected marine animals in response to Federal laws and regulations and public scrutiny.

(U) In FY07, the requirements and funding of Project 2210 are combined with Project 0817.

(U) Project 9999 is comprised of Congressional adds.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	R-1 ITEM NOMENCLATURE **0603721N/ENVIRONMENTAL PROTECTION**	

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
FY2008 President's Budget:	25.972	19.850	20.297
FY2009 President's Budget	27.530	20.618	19.632
Total Adjustments	1.558	0.768	-0.665
Summary of Adjustments			
Undistributed General Reductions	-0.014	-0.432	-0.620
Execution Realignment	2.000		
SBIR	-0.428		
Navy Working Capital Fund Rate Adjustment			-0.045
Congressional Adds		1.200	
Subtotal	1.558	0.768	-0.665

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**				PROJECT NUMBER AND NAME **0401/Shipboard Waste Mgmt**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	6.863	6.438	6.826	6.891	7.328	7.487	7.655
RDT&E Articles Qty	0	0	0	0	0	0	0

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 considered environmentally susceptible, where special prohibitions on ship discharges and operations are imposed. Navy vessels must comply with applicable environmental legal requirements while maintaining 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, systems, and data 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., hull antifouling and access to environmental data for planning Fleet operations and exercises.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**	PROJECT NUMBER AND NAME **0401/Shipboard Waste Mgmt**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Technical Authority	0.000	1.985	2.892
RDT&E Articles Quantity	0	0	0

FY 08: (U) Develop environmental equipment/system requirements documentation, design criteria and guidance, specifications and standards, and certification protocols, and perform test and evaluation, to facilitate execution of technical authority for legacy and new-design ship and submarine environmental capabilities.

FY 09: (U) Continue developing environmental equipment/system requirements documentation, design criteria and guidance, specifications and standards, and certification protocols, and perform test and evaluation, to facilitate execution of technical authority for legacy and new-design ship and submarine environmental capabilities.

	FY 2007	FY 2008	FY 2009
Integrated Liquid Wastes	5.100	2.795	2.401
RDT&E Articles Quantity	0	0	0

FY 07: (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 and evaluation of MPCD treatment systems, technologies, and procedures. Continue evaluation of commercial non-oily wastewater treatment systems.

FY 08: (U) Continue support, at a reduced pace of work from that of FY07 and prior years, of rulemaking process with Environmental Protection Agency (EPA) in development of Uniform National Discharge Standards (UNDS) for liquid waste discharges from Naval vessels; continue discharge analyses and setting of Marine Pollution Control Devices (MPCD) performance standards, at the same reduced pace of work from that of FY07 and prior years.

Continue development of MPCD treatment systems, technologies and procedures.

Continue evaluation of commercial non-oily wastewater systems.

FY 09: (U) Continue support, at a reduced pace of work from that of FY07 and prior years, of rulemaking process with Environmental Protection Agency (EPA) in development of Uniform National Discharge Standards (UNDS) for liquid waste discharges from Naval vessels; continue discharge analyses and setting of Marine Pollution Control Devices (MPCD) performance standards, at the same reduced pace of work from that of FY07 and prior years.

Continue development of MPCD treatment systems, technologies and procedures.

Continue evaluation of commercial non-oily wastewater systems.

Hazardous and Other Major Ship Wastes	1.763	1.658	1.533
RDT&E Articles Quantity	0	0	0

FY 07: (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 and testing of new low/no-copper underwater hull antifouling coatings. Complete development of underwater hull cleaning system. Complete development of Environmental Information Management System (EIMS).

FY 08: (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 and testing of new low/no-copper underwater hull antifouling coatings.

FY 09: (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 and testing of new low/no-copper underwater hull antifouling coatings.

C. OTHER PROGRAM FUNDING SUMMARY:

(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 0601153N / 3162)

(U) Related RDT&E: (U) Readiness, Training, and Environmental Quality/Logistics and Environmental Quality (PE 0602233N)

D. ACQUISITION STRATEGY:

(U) RDT&E Contracts are Competitive Procurements.

E. MAJOR PERFORMERS:

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**					PROJECT NUMBER AND NAME **0401/Shipboard Waste Mgmt**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Ancillary Hardware Development	Various	Misc. Contracts	18.849	0.300	TBD	0.200	TBD	0.200	TBD	0.000	19.549	0.000
Primary Hardware Development	C/CPFF	Oceaneering	1.000	0.000	TBD	0.000	TBD	0.000	TBD	0.000	1.000	0.000
Systems Engineering	C/CPFF	John J. McMullen & Son	4.487	0.000	TBD	0.000	TBD	0.000	TBD	0.000	4.487	0.000
Subtotal Product Development			**24.336**	**0.300**		**0.200**		**0.200**		**0.000**	**25.036**	**0.000**
Remarks:												
Software Development	WR	SPAWARS, Charleston, SC	10.838	0.000	VAR	0.000		0.000		0.000	10.838	0.000
Subtotal Support Costs			**10.838**	**0.000**		**0.000**		**0.000**		**0.000**	**10.838**	**0.000**
Remarks:												
Developmental Test & Evaluation	WR	NSWCCD, Bethesda, MD	151.884	3.900	VAR	3.880	VAR	4.540	VAR	CONT	CONT	0.000
Developmental Test & Evaluation	WR	NRL,Wash,DC	29.182	0.400	VAR	0.400	VAR	0.300	VAR	CONT	CONT	0.000
Developmental Test & Evaluation	WR	SPAWARSYSCEN,SD,CA	11.370	0.200	VAR	0.300	VAR	0.200	VAR	CONT	CONT	0.000
Developmental Test & Evaluation	WR	Misc. Govt Labs	22.832	0.000	VAR	0.000	VAR	0.000	VAR	CONT	CONT	0.000
Developmental Test & Evaluation	C/CPFF	SAIC, San Diego, CA	15.251	0.319	TBD	0.500	TBD	0.550	TBD	CONT	CONT	0.000
Developmental Test & Evaluation	C/CPFF	Misc. Contracts	12.523	0.124	TBD	0.158	TBD	0.216	TBD	CONT	CONT	0.000
Process Control Engineering	C/CPFF	M. Rosenblatt & Sons	3.000	1.500	DEC-06	0.880	TBD	0.700	TBD	0.000	6.080	0.000
Developmental Test & Evaluation	C/CPFF	ONR, Arlington, VA	0.400	0.000	TBD	0.000	TBD	0.000	TBD	0.000	0.400	0.000
Developmental Test & Evaluation	WR	Naval Postgraduate School	1.800	0.000	VAR	0.000	VAR	0.000	VAR	0.000	1.800	0.000
Process Control Engineering	MIPR	EPA, Hdqtrs	0.740	0.100	TBD	0.100	TBD	0.100	TBD	0.000	1.040	0.000
Subtotal Test and Evaluation			**248.982**	**6.543**		**6.218**		**6.606**		**CONT**	**CONT**	**0.000**
Remarks:												
Travel			0.250	0.020	NOV-06	0.020	TBD	0.020	TBD	0.000	0.310	0.000
SBIR Assessment			0.078	0.000	TBD	0.000	TBD	0.000	TBD	0.000	0.078	0.000
Subtotal Management Services			**0.328**	**0.020**		**0.020**		**0.020**		**0.000**	**0.388**	**0.000**
Remarks:												
Total Cost			**284.484**	**6.863**		**6.438**		**6.826**		**CONT**	**CONT**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**	PROJECT NUMBER AND NAME **0401/Shipboard Waste Mgmt**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	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																												
Lubrication and Engineering Problems for HFC-236fa Air-Conditioning Plants																												
Integrated Liquid Wastes																												
Uniform National Discharge Standards (UNDS) Rulemaking																												
Develop & Evaluate Marine Pollution Control Device Systems & Technologies																												
Oil Pollution Abatement (OPA) System Improvements																												
Evaluate Commercial Non-Oily Wastewater Treatment Systems																												
Solid Wastes																												
Evaluate Commercial Thermal Destruction Systems																												
Hazardous and Other Major Ship Wastes																												
Hazardous Materials and Pollution Prevention																												
Low/No-Copper Hull Antifouling Coatings																												
Underwater Hull Cleaning System																												
Environmental Information Management System (EIMS)																												
Technical Authority																												

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**			PROJECT NUMBER AND NAME **0401/Shipboard Waste Mgmt**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Ozone Depleting Substances							
Lubrication and Engineering Problems for HFC-236fa Air-Conditioning Plants							
Integrated Liquid Wastes							
Uniform National Discharge Standards (UNDS) Rulemaking	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
Develop & Evaluate Marine Pollution Control Device Systems & Technologies	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
Oil Pollution Abatement (OPA) System Improvements							
Evaluate Commercial Non-Oily Wastewater Treatment Systems	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
Solid Wastes							
Evaluate Commercial Thermal Destruction Systems							
Hazardous and Other Major Ship Wastes							
Hazardous Materials and Pollution Prevention	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
Low/No-Copper Hull Antifouling Coatings	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4		
Underwater Hull Cleaning System							
Environmental Information Management System (EIMS)							
Technical Authority		Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**				PROJECT NUMBER AND NAME **0817/Pollution Abatement**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	8.895	8.745	8.423	9.015	8.960	9.129	9.303
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) Inherent to the realization of the vision outlined in Sea Power 21 are certain environmental consequences that will, to a lesser or greater degree, impact on the Navy's ability to fully achieve the strategy outlined in the Navy Capability Pillars (NCP) SEA SHIELD, SEA STRIKE, SEA BASING and FORCEnet and the supporting initiatives of SEA WARRIOR, SEA TRIAL and SEA ENTERPRISE. Readiness and training are primary considerations for determining whether any fighting force is at its peak proficiency. The ability to train our forces in a realistic environment is paramount. Today's reality requires training and operating within environmental constraints (national and international laws and agreements), and searching for alternatives to comply with and alleviate those constraints. Moreover, as we develop new systems and technologies in support of Sea Power 21, the Navy must anticipate potential environmental regulations which, while not currently an issue, could in the future adversely impact our ability to project and sustain our forces at home and abroad.

This program identifies pervasive Navy shoreside environmental requirements and develops and validates information, new processes, and technologies that address requirements that pose significant impact on Naval shore activities in complying with environmental laws, regulations, orders, and policies. The goal of the program is to maximize opportunities for significant cost savings while minimizing personnel liabilities, operational costs, and regulatory oversight and preserving or enhancing the ability of Naval shore activities to accomplish their required missions and functions in support of the Navy's transformational strategy. Program investments supports 4 of 5 Environmental Enabling Capabilities (EEC-2 though 5) that are required to meet the objectives of Sea Power 21.

(U) EEC-2 MAXIMIZE TRAINING AND TESTING RANGE REQUIREMENTS WITHIN ENVIRONMENTAL CONSTRAINTS

(U) This capability addresses environmental impacts and restrictions at Navy land and sea ranges, including munitions testing and manufacturing, to ensure Navy ranges are available to conduct required training and testing operations for the Fleet. Investments in EEC-2 provide validated knowledge, models, and processes to mitigate environmental impacts, restrictions, and costs at Navy training and test ranges to maximize the availability and utilization of the ranges. The results support operational readiness by providing the tools and technologies necessary for sustaining and managing Navy land and sea ranges related to UXO and munitions, encroachment, air quality, airborne noise, water quality, and wetlands. Capabilities gained include the ability to assess and determine the risks from underwater UXO, the evaluation and prioritization ordnance contaminated sites for evaluation in environmental programs, and the implementation of range specific best management practices by evaluating and modeling available process, procedures, and technologies.

(U) EEC-3 PLATFORM MAINTENANCE AND REPAIR WITH MINIMAL ENVIRONMENTAL FOOTPRINT

(U) This capability focuses on minimizing or eliminating environmental impact related to Navy and Marine Corps weapon system O, I, and D level repair and maintenance operations. Investments in EEC-3 provide valid knowledge, models, process, and technologies to minimize regulated emissions, discharges and hazardous material usage during the repair and maintenance of ships, submarines, and surface/sub-surface vehicles and aircraft and air vehicles. The program supports Fleet operational readiness and Navy acquisition communities by investing in information to understand emerging environmental requirements and to develop innovative processes and technologies that result in savings while reducing the fleet environmental constraints related to platform maintenance. Capabilities and benefits gained include, but are not limited to, the reduction in the usage of heavy metals used in metal finishing (chromium and cadmium), reduced hazardous air pollutant (HAP) emissions, and the development of best management practices and tools to minimize the use of hazardous materials and the generation of hazardous wastes associated with maintaining and repairing ships, submarines and aircraft and unmanned vehicles. Results of program investments will be leveraged across weapon system and platform acquisition to ensure continued reduction in lifecycle costs and long-term environmental compliance burdens to the Fleet.

(U) EEC-4. SUPPORT SHORE READINESS WITHIN ENVIRONMENTAL CONSTRAINTS

(U) Naval shore establishment requires the capability to operate and maintain facilities and provide waterfront and airfield services to the fleet while complying with applicable environmental regulations and minimizing environmental impacts and costs. The program invests in knowledge and innovative processes and technologies that minimize infrastructure and operational costs, regulated emissions, while minimizing discharges and hazardous material usage from ship (waterfront) and aviation operations. Capabilities and benefits gained under EEC-4 include reduced costs associated with wastewater treatment, elimination/reduction in the use of HAPs/ODS/VOCs and the associated reporting requirements, reduced hazardous waste and disposal costs, and improved storm water management.

((U) EEC-5. COST-EFFECTIVE MANAGEMENT OF ENVIRONMENTAL REGULATORY REQUIREMENTS

(U) The environmental compliance regulations require base managers to permit, monitor and report on many processes associated with weapon system and platform operations. Naval shore environmental managers require the capability to efficiently and cost effectively manage these compliance requirements. Under EEC-5, the program invests in improved data collection, methods, and models to assess environmental impacts and ecological risk assessments of Naval operations on harbors, US waterways, and surrounding communities. Benefits include gaining standardized technical environmental management improvements/techniques related to source control, assessment, and monitoring. EEC-5 also provides validated knowledge, models, processes and technologies to improve environmental monitoring and reporting, and to reduce the cost of compliance with regulations applicable to coastal contamination and contaminated sediments.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**	PROJECT NUMBER AND NAME **0817/Pollution Abatement**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Maximize Training & Testing Requirements Within Environmetal Constrain	2.456	1.729	1.743
RDT&E Articles Quantity	0	0	0

FY07: (U) Continue providing validated knowledge, models, and processes to mitigate environmental impacts, restrictions, and costs at Navy training and test range to maximize the availability and utilization of the ranges. Continuing efforts include analysis of the effects of underwater UXO in order to give the Navy the ability to assess and determine the risks from underwater UXO, analysis on the long term disposition of underwater cables, and the development of range residue management tools to ensure the continued operation of Navy testing and training ranges. Increased efforts on the SWTR Seafloor Cable Baseline Assessment will continue sampling in order to finish establishing a baseline condition from which any adverse effects associated with seafloor ranges, in particular, seafloor communication cables can be determined. Continue developing direct push and point-and-detect sensor systems for perchlorate.

FY08: (U) Environmental Effects of Abandoned Equipment in Underwater Ranges. Alleviate regulatory restrictions and facilitate range operations by providing a database on the potential effects from expendable (non-munitions) equipment. Continued efforts on the Seafloor Cable Baseline Assessment will continue sampling in order to finish establishing a baseline condition from which any adverse effects associated with seafloor ranges, in particular, seafloor communication cables can be determined. Continue providing validated knowledge, models, and process to mitigate environmental impacts, restrictions, and costs at Navy training and test range to maximize the availability and utilization of the ranges. Continuing efforts will address energetic emission for open burn/open detonation permitting, evaluate underwater blow-in-place detonation mitigation techniques, and the evaluation of the environmental effects of abandoned equipment in Navy ocean ranges. Continue developing direct push and point-and-detect sensor systems for perchlorate.

FY09: (U) Conclusion of efforts on the SWTR Seafloor Cable Baseline Assessment will allow decision makers to determine a long term monitoring strategy for the underwater range. Continue providing validated knowledge, models, and processes to mitigate environmental impacts, restrictions, and costs at Navy training and test range to maximize the availability and utilization of the ranges.

	FY 2007	FY 2008	FY 2009
Aviation Maintenance	4.015	2.342	1.846
RDT&E Articles Quantity	0	0	0

FY 07: (U) Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting from the repair and maintenance of ships, submarines, and aircraft. Development of dry dock best management practices and decision selection tool assisting naval shipyards, stations and bases in meeting the copper discharge standards will conclude. Alternative solvents demonstrations for ship maintenance operations and identification of alternatives for NAVSEA targeted chemicals will continue. The development of hazardous material allocation information for ship maintenance will continue. Additional tasks will be initiated that address Fleet maintenance operations with the overall objectives of reducing the cost of compliance and mission increasing readiness. Beginning in FY07 the requirements under Project 2210 requirements were rebaselined to Project 0817, Pollution Abatement Ashore. These projects support development and implementation of technologies, which will

lead to environmentally safe naval aviation operations and support; compliance with international, federal, state, and local regulation and policies; reduction of increasing compliance costs and personal liability; and enhancement of naval aviation mission readiness and effectiveness. Continuing efforts include investigations into removal coating materials and the use of alternative coatings and plating materials to reduce the amount of hazardous materials used during the repair and maintenance of aircraft. Additional tasks will be initiated that address aircraft maintenance operations with the overall objectives of reducing the cost of compliance and mission increasing readiness. Efforts will also include investigating options to control emissions from tactical vehicle engines such as Jet Air Start Units (JASUs) that provide the compressed air to start jet engines. A new initiative will begin to develop, demonstrate, and transition cost-effective deactivation, demilitarization and disposal (3D) methods for legacy aircraft platforms, engines, and components. Another effort will develop and evaluate materials or processes for repair of powder coatings that will reduce or eliminate the air emissions associated with the current method and reduce labor cost.

FY 08: (U) Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting from the repair and maintenance of ships, submarines, and aircraft. Continued development of hazardous material allocation information for ship maintenance. Additional tasks will be initiated that address Fleet maintenance operations with the overall objectives of reducing the cost of compliance and mission increasing readiness. Continue effort on developing, demonstrating, and transitioning cost-effective deactivation, demilitarization and disposal (3D) methods for legacy aircraft platforms, engines, and components. Validate Shipboard Mobile Surface Cleaning Technology. Validation of a mobile technology for critical cleaning of shipboard non-skid and shore-side surfaces. Continue to develop and evaluate materials or processes for repair of powder coatings that will reduce or eliminate the air emissions associated with the current method and reduce labor cost. Additional tasks will be initiated that address Fleet maintenance operations with the overall objectives of reducing the cost of compliance and mission increasing readiness.

FY09: (U) Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting from the repair and maintenance of ships, submarines, and aircraft. New initiative to demonstrate and validate to what extent a Cold Galvanized Coating Systems for Repair Applications repair technology can be successfully utilized in the Fleet to eliminate red rusting of HSS components.

	FY 2007	FY 2008	FY 2009
Support Shore Readiness Within Environmental Constraints	1.576	2.869	3.229
RDT&E Articles Quantity	0	0	0

FY07: (U) Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting specifically from waterfront support, aviation support, and other base operations. Continue selected demonstrations of alternative solvents for industrial operations. Continue demonstration of NoFoam system for fire fighting pumper trucks. Continue the development of a wastewater treatment system to collect and treat the waste stream for vertical launch missile tubes. Initiate effort to determine strategy for use of compliant diesel engines. Continue investigating improved biofouling control and preventative maintenance planning for permanent oil containment boom systems.

FY08: (U) Integrating effort related to Shipboard Acid Waste Treatment Technology. This pier-side reclamation system separates heavy metal and marine fouling sludge to allow ship waste water to meet local sanitary sewer discharge limits. Validate a Shipboard Mobile Surface Cleaning Technology. Validation of a mobile surface cleaning technology

for critical cleaning of shipboard non-skid and shoreside surfaces to remove contaminants, mitigate pollution from weather deck and stormwater runoff and reduce associated manpower and waste management burden.

Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting specifically from waterfront support, aviation support, and other base operations. Realign the program to focus on addressing the fleets high priority needs and investment in processes related to waterfront or aviation support.

FY09: (U) Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting specifically from waterfront support and aviation support operations.

	FY 2007	FY 2008	FY 2009
Costal Contamination and Contaminated Sediments	0.848	1.805	1.605
RDT&E Articles Quantity	0	0	0

FY 07: (U) Continue providing validated knowledge, models, processes and systems to improve environmental monitoring and reporting, and reduce the cost of compliance with regulations applicable to coastal contamination and contaminated sediments. Continue developing containment and monitoring strategies for contaminated sediments. Develop an integrated software system that will allow for more exact location/identification of UXO in sediments, thereby eliminating excess costs of investigating/remediating non-UXO metal anomalies and further reduce safety risks to workers conducting the removals and long-term safety to subsequent users. Ultimately, this will improve the decision-making strategy for prioritizing locations for cleanup both cost effectively and safely. Efficiencies related to aligning the program to the priorities of SEAPOWER 21 and focusing on addressing the fleets high priority needs have resulted in cost saving starting in FY07 and investments in assessment and risk based management of contaminated sediments not associated with range sustainability is concluded in FY07.

FY08: (U) Disinfection Byproducts Users Guide. The Potable Water Quality Management Guidance Document which provides Navy drinking water program managers with the direction and information for meeting compliance goals contained in the new disinfection byproducts rules. Continue providing validated knowledge, models, processes and system to improve environmental monitoring and reporting, and to reduce the cost of compliance with regulations applicable to coastal contamination and contaminated sediments. Continue effort to establish guidelines & limitations for the Use of Biodiesel with Ground Tactical Vehicles. Maximize the use of biodiesel fuels in tactical vehicles and equipment. Demonstrate the practical application of Compound Specific Isotope Analysis (CSIA) associated with Monitored Natural Attenuation (MNA) to provide practical guidelines associated with its use and interpretation. Continue evaluating pollutant source tracking technologies. Sediment Transport Users Guide. A practical user□s guide that provides Remedial Project Managers (RPM) with practical guidance on evaluating sediment transport at contaminated sediment sites to achieve successful, cost effective remedial decisions.

FY09: (U) Continue providing validated knowledge, models, processes and systems to improve environmental monitoring and reporting, and to reduce the cost of compliance with regulations applicable to coastal contamination and contaminated sediments

C. OTHER PROGRAM FUNDING SUMMARY:

(U) P-1 Procurement Line Item No. & Name. Not Applicable.

(U) 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 finalcertification 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 programsthrough 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 0603716D, Strategic Environmental Research & Development Program (SERDP)

(U) PE 0603851D, Environmental Security Technology Certification Program (ESTCP)

D. ACQUISITION STRATEGY:

(U) This project is categorized as Non-ACAT (Non Acquisition). 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) or directly through the base operating budget. 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) Program. All these acquisition processes are pursued using a common strategy that satisfies the needs of all the critical stakeholders: 1) Fleet end user; 2) Funding sponsor for the Navy end user; 3) Other stakeholders with cognizance over the Navy process or operation being changed, 4) Cognizant environmental federal, state, and local regulators; and 5) The private or government organization that will produce the product.

E. MAJOR PERFORMERS:

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**					PROJECT NUMBER AND NAME **0817/Pollution Abatement**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
EEC 2	WR/PO	NFESC	2.708	1.888	VAR	0.569	VAR	0.579	VAR	CONT	CONT	0.000
EEC 2	WR/PO	SSC/SD	0.779	0.568	VAR	1.160	VAR	1.164	VAR	CONT	CONT	0.000
EEC 2	WR/PO	NSWC/IH	15.666	0.000	VAR	0.000	VAR	0.000	VAR	CONT	CONT	0.000
EEC 3	WR/PO	NFESC	12.255	1.724	VAR	0.450	VAR	0.425	VAR	CONT	CONT	0.000
EEC 3	WR/PO	NSWC/CD	6.477	0.797	VAR	0.520	VAR	0.681	VAR	CONT	CONT	0.000
EEC 3	WR/PO	NAWC PAX	1.665	1.494	VAR	1.372	VAR	0.740	VAR	CONT	CONT	0.000
EEC 4	WR/PO	NFESC	19.086	1.476	VAR	2.235	VAR	1.720	VAR	CONT	CONT	0.000
EEC 4	WR/PO	SSC/SD	0.000	0.100	VAR	0.634	VAR	0.729	VAR	CONT	CONT	0.000
EEC 5	WR/PO	NFESC	3.538	0.624	VAR	0.479	VAR	0.455	VAR	CONT	CONT	0.000
EEC 5	WR/PO	SSC/SD	3.474	0.224	VAR	0.650	VAR	0.575	VAR	CONT	CONT	0.000
EEC 4	WR/PO	NSWC/CD	0.000	0.000	VAR	0.000	VAR	0.780	VAR	0.000	0.780	0.000
EEC 5	WR/PO	NSWC/CD	0.000	0.000	VAR	0.211	VAR	0.225	VAR	0.000	0.436	0.000
EEC 5	WR/PO	NAWC PAX	0.000	0.000	VAR	0.465	VAR	0.350	VAR	0.000	0.815	0.000
Subtotal Product Development			**65.648**	**8.895**		**8.745**		**8.423**		**0.000**	**CONT**	**0.000**
Remarks:												
Total Cost			**65.648**	**8.895**		**8.745**		**8.423**		**0.000**	**CONT**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**	PROJECT NUMBER AND NAME **0817/Pollution Abatement**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	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
EEC 2: Maximiize training and Testing Requirements within Environmental Constraints																												
EEC 3: Platform Repair and Maintenance with Minimal Environmental Impact																												
EEC 4: Support Shore Readiness within Environmenal Constraints																												
EEC 5: Coast Effective Management of Environmental Regulatory Requirements																												

CLASSIFICATION:	UNCLASSIFIED					
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**			PROJECT NUMBER AND NAME **0817/Pollution Abatement**		
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
EEC 2: Maximiize training and Testing Requirements within Environmental Constrain	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
EEC 3: Platform Repair and Maintenance with Minimal Environmental Impact	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
EEC 4: Support Shore Readiness within Environmenal Constraints	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
EEC 5: Coast Effective Management of Environmental Regulatory Requirements	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**				PROJECT NUMBER AND NAME **9204/Marine Mammal Research**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	6.247	4.243	4.383	4.403	4.452	4.539	4.628
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) The Navy has been and will continue to be subject to litigation with regard to the potential injuring and killing of marine animals by the use of intense underwater sound. Since Fleet operation and training areas coincide with known or probable marine mammal habitats, migration routes, or breeding areas, the possibility exists that such incidents are likely to continue in the future. The increasing public interest and pressure has resulted in escalating Fleet costs. For example, Fleet and SYSCOM development activities have been interrupted, modified, or altogether cancelled and environmental regulations have, among other things, required new ship construction shock trials to obtain Federal permits and conduct extensive environmental planning that can take several years to complete. The incorporation of mitigation measures in Fleet training operations to minimize the potential adverse effects on protected marine animals can significantly reduce the realism of these operations. In addition, the testing, evaluation, and deployment of new sonar detection and monitoring systems that use active acoustics are under severe public scrutiny for their potential adverse effects on whales and other marine animals. Navy needs scientific evidence to substantiate its claims of limited or inconsequential adverse effects to marine life from operations.

(U) This program primarily focuses on the development of planning and monitoring tools to aid the Fleet in minimizing contact with and the potential harassment of protected marine animals during operations, exercises, training, and undersea surveillance and weapons testing. These new capabilities will encompass historical and newly acquired data and analytical models that together can predict marine animal habitats (where they are likely to be) and their natural and expected behavior (diving patterns, prey localization, calling activity, etc.).

(U) Accurate and timely monitoring and predicting the movement of whales and other protected marine animals plus an enhanced knowledge of how marine animals may react to Fleet activities (e.g., hearing and behavioral effects) will reduce Navy interaction with these animals; minimize the risk that legally-imposed monitoring and avoidance measures will adversely affect Fleet operations and exercises; minimize the substantial costs associated with operations, exercises, and tests that have to be modified or curtailed as a result of concerns about protected marine animals; and will reduce the likelihood of litigation related to actual or anticipated compliance problems with protected animals.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**	PROJECT NUMBER AND NAME **9204/Marine Mammal Research**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Marine Mammal Location, Abundance and Movement	2.068	1.500	1.670
RDT&E Articles Quantity	0	0	0

FY 07: (U) Continue investigations in marine mammal location, abundance, and movement through habitat investigations; predictive models; marine mammal database; and data analysis, protocols and surveys.

FY08: (U) Continue investigations in marine mammal location, abundance, and movement through habitat investigations; predictive models; marine mammal database; and data analysis, protocols and surveys.

FY09: (U) Continue investigations in marine mammal location, abundance, and movement through habitat investigations; predictive models; marine mammal database; and data analysis, protocols and surveys.

	FY 2007	FY 2008	FY 2009
Criteria and Thresholds, Physiology and Behavior, and Effects of Sound	2.091	1.158	1.200
RDT&E Articles Quantity	0	0	0

FY 07: (U) Continue investigations in criteria and thresholds, physiology and behavior, and effects of sound through hearing sensitivity; temporary threshold shift (TTS)/Sub-TTS; physical injury models; cumulative effects of sound and/or multiple events; effects of sound on the marine mammal habitat; and workshops.

FY08: (U) Continue investigations in criteria and thresholds, physiology and behavior, and effects of sound through hearing sensitivity; temporary threshold shift (TTS)/Sub-TTS; physical injury models; cumulative effects of sound and/or multiple events; effects of sound on the marine mammal habitat; and workshops.

FY09: (U) Continue investigations in criteria and thresholds, physiology and behavior, and effects of sound through hearing sensitivity; temporary threshold shift (TTS)/Sub-TTS; physical injury models; cumulative effects of sound and/or multiple events; effects of sound on the marine mammal habitat; and workshops.

	FY 2007	FY 2008	FY 2009
Mitigation Methodologies: Monitoring, New Technology, and Risk Assess	1.938	1.500	1.400
RDT&E Articles Quantity	0	0	0

FY 07: (U) Continue mitigation methodologies for monitoring, new technology and risk assessment through passive acoustic monitoring; active acoustic monitoring; improved tag development; alternative monitoring; defining risk assessment variables; model risk assessment and determine mitigation effectiveness.

FY08: (U) Continue mitigation methodologies for monitoring, new technology and risk assessment through passive acoustic monitoring; active acoustic monitoring; improved tag development; alternative monitoring; defining risk assessment variables; model risk assessment and determine mitigation effectiveness.

FY09: (U) Continue mitigation methodologies for monitoring, new technology and risk assessment through passive acoustic monitoring; active acoustic monitoring; improved tag development; alternative monitoring; defining risk assessment variables; model risk assessment and determine mitigation effectiveness.

	FY 2007	FY 2008	FY 2009
Acoustic Source Propagation	0.150	0.085	0.113
RDT&E Articles Quantity	0	0	0

FY 07: (U) Continue investigation of acoustic source propagation through 3-D modeling of multiple acoustic sources.

FY08: (U) Continue investigation of acoustic source propagation through 3-D modeling of multiple acoustic sources.

FY09: (U) Continue investigation of acoustic source propagation through 3-D modeling of multiple acoustic sources.

C. OTHER PROGRAM FUNDING SUMMARY:
(U) Related RDT&E: Office of Naval Research (PE 0601153N / PE 0602435N / PE 0602782N / PE 0603235N)
(U) Related RDT&E: Strategic Environmental Research & Development Program (SERDP)
(U) Related RDT&E: National Oceanographic Partnership Program (NOPP)

D. ACQUISITION STRATEGY:
(U) RDT&E Contracts are Competitive Procurements.

E. MAJOR PERFORMERS:

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**					PROJECT NUMBER AND NAME **9204/Marine Mammal Research**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Subtotal Management Services			**0.000**	**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	**0.000**
Remarks:												
Developmental Test & Evaluation	WX	NUWC	0.450	1.007	VAR	0.400	VAR	0.400	VAR	0.000	2.257	0.000
Developmental Test & Evaluation	WX	NPGS, Monterey, CA	0.450	0.475	VAR	0.400	VAR	0.400	VAR	0.000	1.725	0.000
Developmental Test & Evaluation	MIPR	NOAA, Fish Science Center	0.490	0.050	TBD	0.500	TBD	0.500	TBD	0.000	1.540	0.000
Developmental Test & Evaluation	CPFF	Misc Contracts	0.213	0.000	TBD	0.236	TBD	0.285	TBD	0.000	0.734	0.000
Developmental Test & Evaluation	CPFF	Scripps Institute	1.942	2.060	TBD	1.000	TBD	1.000	TBD	0.000	6.002	0.000
Developmental Test & Evaluation	CPFF	U of Wash, APL	0.200	0.250	TBD	0.200	TBD	0.200	TBD	0.000	0.850	0.000
Developmental Test & Evaluation	CPFF	Duke Univ.	0.425	0.000	TBD	0.400	TBD	0.400	TBD	0.000	1.225	0.000
Developmental Test & Evaluation	CPFF	Oregon State Univ.	0.175	0.270	TBD	0.200	TBD	0.200	TBD	0.000	0.845	0.000
Developmental Test & Evaluation	CPFF	University of Maryland	0.000	0.680	TBD	0.000		0.000		0.000	0.680	0.000
Developmental Test & Evaluation	CPFF	Woods Hole Oceanographic Inst	0.000	0.000	TBD	0.907	TBD	0.998	TBD	0.000	1.905	0.000
Developmental Test & Evaluation	WX	SPAWARSYSCEN SD CA	0.000	0.250	VAR	0.000		0.000		0.000	0.250	0.000
Developmental Test & Evaluation	WX	NSWCCD Bethesda	0.000	0.050	VAR	0.000		0.000		0.000	0.050	0.000
Developmental Test & Evaluation	WX	NRL	0.000	0.140	VAR	0.000		0.000		0.000	0.140	0.000
Developmental Test & Evaluation	WX	NATO URC	0.000	0.015	VAR	0.000		0.000		0.000	0.015	0.000
Developmental Test & Evaluation	CPFF	Marine Acoustics, Inc.	0.000	1.000	TBD	0.000		0.000		0.000	1.000	0.000
Subtotal Test & Evaluation			**4.345**	**6.247**		**4.243**		**4.383**		**0.000**	**19.218**	**0.000**
Remarks:												
Total Cost			**4.345**	**6.247**		**4.243**		**4.383**		**0.000**	**19.218**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**	PROJECT NUMBER AND NAME **9204/Marine Mammal Research**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	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
Marine Mammal Location, Abundance, and Movement																												
Criteria and Thresholds, Physiology and Behavior, and Effects of Sound																												
Mitigation Methodologies: Monitoring, New Technology, and Risk Assessment																												
Acoustic Source Propagation																												

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**			PROJECT NUMBER AND NAME **9204/Marine Mammal Research**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Marine Mammal Location, Abundance, and Movement	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
Criteria and Thresholds, Physiology and Behavior, and Effects of Sound	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
Mitigation Methodologies: Monitoring, New Technology, and Risk Assessment	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
Acoustic Source Propagation	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**	PROJECT NUMBER AND NAME **9999/Congressional Add**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
9204C Integrated Marine Mammal Monitoring & Protection	1.637	0.000	0.000
RDT&E Articles Quantity	0	0	0

(U) This Congressional Add is a continuation of Congressional Add Project 9204. This effort involves the development and testing of an Integrated Marine Mammal Monitoring and Protection System (IMAPS), which integrates an Active/Passive Sonar System with the Mitigation Management and Control Module (MMCM). The active/passive acoustic system will act as the primary detection method, while the MMCM will act to optimize the functional settings of the active/passive system to maximize the probability of detection of marine mammals for the given operation. This system will be evaluated for its ability to track gray whales and other marine mammals of special interest to the Navy

	FY 2007	FY 2008	FY 2009
9536C Pugent Sound Anoxia Research	1.943	1.192	0.000
RDT&E Articles Quantity	0	0	0

(U) FY 2007 - This Congressional Add is a continuation of Congressional Add Project 9536. This effort will involve the monitoring of the oxygen content of the water in Hood Canal and streams throughout the watershed and will increase understanding of the long-term effects of low-oxygen levels on sealife. The monitoring information will be used to develop a mathematical model of Hood Canal. The model will be used to evaluate the effect of different potential sources of input to Hood Canal that might account for an existing anoxic condition.

(U) FY 2008 - Continued FY 07 effort.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**	PROJECT NUMBER AND NAME **9999/Congressional Add**

	FY 2007	FY 2008	FY 2009
9A10N Marine Mammal Budget Plus-Up	1.945	0.000	0.000
RDT&E Articles Quantity	0	0	0

(U) This Congressional Add is to the Project 9204 Budget. This effort involves: (1) The integration of several technologies in large-scale ocean experiments designed to observe, measure and analyze the effect of mid-frequency sonar type signals on the behavior of marine mammals. Several variables have to be considered, such as an initial understanding of "normal" behavior in different ocean environments and in different marine mammal habitat conditions. Behavior encompasses such things as feeding, breeding, nursing migration, calling etc. (2) Applying the most advanced finite element (analytical) computer modeling techniques to simulate the effect of various types of sonar signals on marine mammal physiology, organs, tissue etc. This is the only method available to investigate and determine the potential of physical damage to marine mammals from intense sound that does not require destructive testing on real animals, which is prohibited. The initial task in this effort involves translating all the dissected small marine mammal body parts into physical variables such as: density, shear modulus, elasticity etc. The ultimate goal in this rigorous process is to convert normal scaling from electronic scans (MRI, MRA cat scan etc) into these required physical variables that will be used in the analytical models. (3) Testing the feasibility of using the Navy's complex undersea training ranges to detect, classify, track and monitor marine animals that are within the range. An initial determination as to what animals are likely to "call" and under what circumstances must first be addressed. The ultimate goal is to use existing range sensors to measure any "abnormal" marine mammal behavior and relate it to any man-made influence such as commercial shipping, oil and gas exploration, Navy sonar activity etc. (4) Determining the habitat of several threatened species of marine mammals by correlating physical ocean conditions with the expectation of the development of a food source or other conditions which will attract marine mammals and change the average normal population densities. (5) The continued development of instrumentation to uniquely study the natural behavior of beaked whales, that seem to be most vulnerable to Navy sonar type signals. Deployment of these instruments along with the use of other ancillary ocean data collection devices to first determine the natural behavior of these whales and then to observe, measure and analyze changes to this normal behavior because of some outside influence such as shipping, underwater sound, distant undersea explosives etc.

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION							DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**			R-1 ITEM NOMENCLATURE **0603724N/NAVY ENERGY PROGRAM**				
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	1.579	6.020	5.611	5.840	6.013	6.128	6.248
0829 / ENERGY CONSERVATION (ADV)	0.000	3.658	3.884	4.018	4.136	4.217	4.300
0838 / Mobility Fuels (ADV)	1.579	1.567	1.727	1.822	1.877	1.911	1.948
9999 / CONGRESSIONAL ADDS	0.000	0.795	0.000	0.000	0.000	0.000	0.000

A. MISSION DESCRIPTION:

This program supports projects to evaluate, adapt, and demonstrate energy related technologies for Navy aircraft and ship 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 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 supports 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.

(U) Project 0829 - The Fleet Readiness R&D Program is designed to develop and implement energy and maintenance saving improvements into existing Fleet assets. This Fleet driven program will identify mature potential energy saving and maintenance improvement areas, by involvement with Life-Cycle Managers (LCMs), NAVSEA technical warrant holders, In-Service Engineering Agents (ISEAs), PEO, and the TMA/TMI community.

(U) Project 0838- 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.

(U) Project 9999: Comprised of Congressional adds

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	R-1 ITEM NOMENCLATURE **0603724N/NAVY ENERGY PROGRAM**	

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
FY 2008 President's Budget:	1.594	5.335	5.635
FY 2009 President's Budget	1.579	6.020	5.611
Total Adjustments	-0.015	0.685	-0.024
Summary of Adjustments			
SBIR Reductions	-0.011		
Misc Reductions	-0.004	-0.115	-0.024
Congressional Add		0.800	
Subtotal	-0.015	0.685	-0.024

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603724N/NAVY ENERGY PROGRAM**				PROJECT NUMBER AND NAME **0829/ENERGY CONSERVATION (ADV)**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	0.000	3.658	3.884	4.018	4.136	4.217	4.300
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Fleet Readiness R&D Program is designed to develop and implement energy and maintenance saving improvements into existing Fleet assets. This Fleet driven program will identify mature potential energy saving and maintenance improvement areas, by involvement with Life-Cycle Managers (LCMs), NAVSEA technical warrant holders, In-Service Engineering Agents (ISEAs), PEO, and the TMA/TMI community. Potential technology target areas will include: hull hydrodynamics, hull husbandry, heating, Ventilation & Air Conditioning (HVAC) systems, thermal management, propulsion systems, electrical systems, and power generation and storage systems. The program directly supports Fleet requirements to reduce energy consumption and lower maintenance costs. The program will focus on research and development across the following major areas:

(U) Hull Hydrodynamic Project(s) - This project area will accomplish prototype development, laboratory and Fleet testing to determine overall mission and cost effectiveness of these improvements.

(U) Hull Husbandry Project(s) - Project funds will be utilized to identify and evaluate new underwater hull coating systems and underwater hull cleaning and maintenance techniques both landbased and shipboard to reduce hydrodynamic drag on the hull and thereby increase fuel efficiency.

(U) HVAC Projects (s) - Project funds will be utitized to accomplish prototype development, land and shipboard testing to determine overall mission and cost effectiveness of these improvements.

(U) Thermal Management Project(s) - Project funds will be utilized to identify and evaluate potential uses for Thermal Management techniques designed to reduce overall shipboard heat generation and reduce the overall need for HVAC.

(U) Propulsion Systems Project(s) - Project funds will be utilized to indentify, perform landbased and ship board testing of ship propulsion system improvements, on gas turbine and diesel engine systems to reduce overall fuel consumption and lower maintenance costs. (SCD# 1801 - online waterwash system for GTM/GTG, SCD# 1808 power conservation management)

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603724N/NAVY ENERGY PROGRAM**	PROJECT NUMBER AND NAME **0829/ENERGY CONSERVATION (ADV)**

(U) Electrical Systems Project(s) - Project funds will be utilized to indentify, perform landbased and ship board testing of ship electrical system improvements, to reduce overall fuel consumption and lower maintenance costs. (SCD# 1817 Variable Speed Drive (VSD)) for 1000 gal. firemain system, (SCD# 1818 VSD-IMP for 2000 gal. firepumps)

(U) Power Generation & Storage System Project(s) - This project area will accomplish prototype development, laboratory and Fleet testing to determine overall mission and cost effectiveness of these improvements.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603724N/NAVY ENERGY PROGRAM**	PROJECT NUMBER AND NAME **0829/ENERGY CONSERVATION (ADV)**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.000	0.934	0.978
RDT&E Articles Quantity	0	0	0

(U) Hull Hydrodynamic Project(s) - This project area will accomplish prototype development, laboratory and Fleet testing to determine overall mission and cost effectiveness of these improvements.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.000	0.387	0.395
RDT&E Articles Quantity	0	0	0

(U) Hull Husbandry Project(s) - Project funds will be utilized to identify and evaluate new underwater hull coating systems and underwater hull cleaning and maintenance techniques both landbased and shipboard to reduce hydrodynamic drag on the hull and thereby increase fuel efficiency.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.000	0.187	0.194
RDT&E Articles Quantity	0	0	0

(U) HVAC Projects (s) - Project funds will be utitized to accomplish prototype development, land and shipboard testing to determine overall mission and cost effectiveness of these improvements.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.000	0.188	0.194
RDT&E Articles Quantity	0	0	0

(U) Thermal Management Project(s) - Project funds will be utilized to identify and evaluate potential uses for thermal management techniques designed to reduce overall shipboard heat generation and reduce the overall need for HVAC.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.000	1.119	1.175
RDT&E Articles Quantity	0	0	0

(U) Propulsion Systems Project(s) - Projects funds will be utilized to indentify, perform landbased and ship board testing of ship propulsion system improvements, on gas turbine and diesel engine systems to reduce overall fuel consumption and lower maintenance costs. (SCD# 1801 - online waterwash system for GTM/GTG, SCD# 1808 power conservation management)

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603724N/NAVY ENERGY PROGRAM**	PROJECT NUMBER AND NAME **0829/ENERGY CONSERVATION (ADV)**

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.000	0.655	0.753
RDT&E Articles Quantity	0	0	0

(U) Electrical Systems Project(s) - Projects funds will be utilized to indentify, perform landbased and ship board testing of ship electrical system improvements, to reduce overall fuel consumption and lower maintenance costs. (SCD# 1817 Variable Speed Drive(VSD)) for 1000 gal. firemain system, (SCD# 1818 VSD-IMP for 2000 gal. firepumps)

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.000	0.188	0.195
RDT&E Articles Quantity	0	0	0

(U) Power Generation & Storage System Project(s) - This project area will accomplish prototype development, laboratory and Fleet testing to determine overall mission and cost effectiveness of these improvements.

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
N/A									

D. ACQUISITION STRATEGY:

This is a non acquisition program that develops, evaluates, and validates mature technologies in support of Fleet fuel and maintenance savings.

E. MAJOR PERFORMERS:

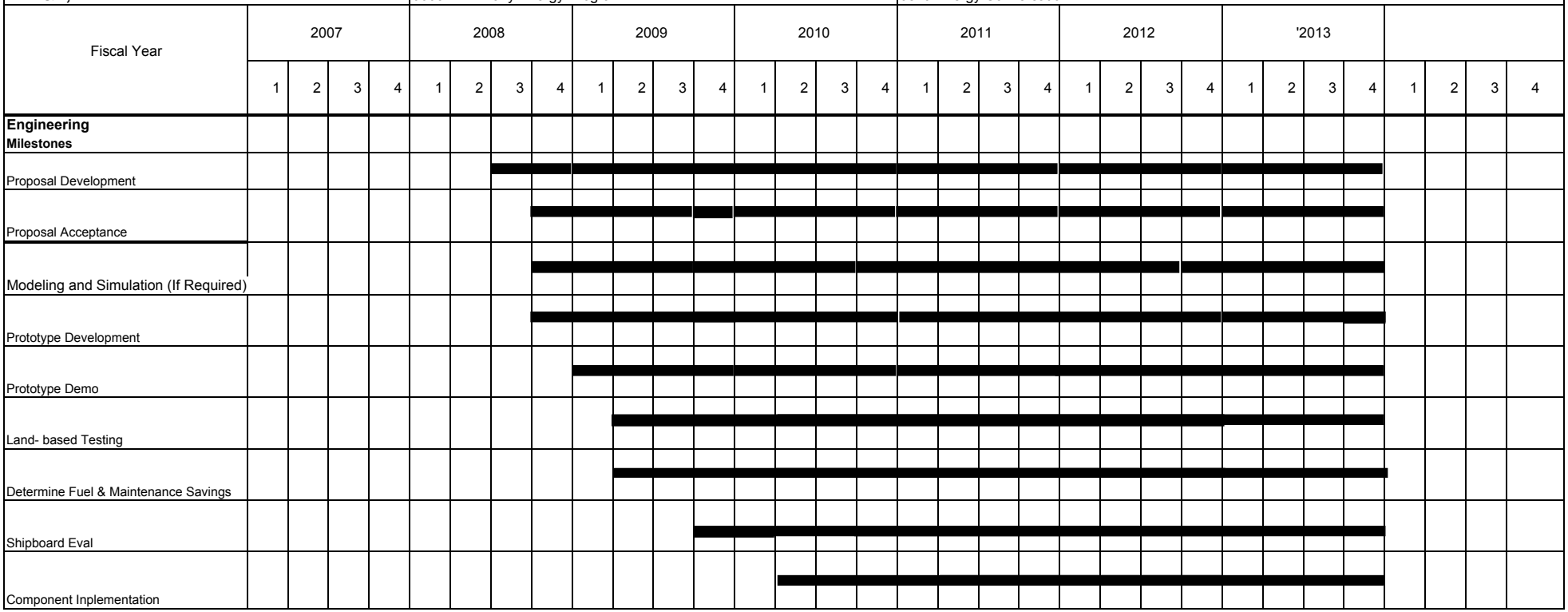
Field Activities & Locations - Work Performed:

NSWC Carderock, Bethesda, MD and Philadelphia- Utlilize various engineering capabilities and core equities within the Carderock Division to support the goals of the program. This aligns within the Ship and Ships Systems Product Area.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603724N/NAVY ENERGY PROGRAM**					PROJECT NUMBER AND NAME **0829/ENERGY CONSERVATION (ADV)**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Primary Hardware Development		NAVSEA, Carderock	0.000	0.000		0.374		0.387		CONT	CONT	0.000
Systems Engineering		NAVSEA, Carderock	0.000	0.000		0.374		0.392		CONT	CONT	0.000
Engineering Development		NAVSEA, Carderock	0.000	0.000		0.707		0.778		CONT	CONT	0.000
Engineering Development		NAVSEA, Carderock	0.000	0.000		0.709		0.763		CONT	CONT	0.000
Subtotal Product Development			**0.000**	**0.000**		**2.164**		**2.320**		**CONT**	**CONT**	**0.000**
Remarks:												
Subtotal Support Costs			**0.000**	**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	**0.000**
Remarks:												
Developmental Test & Evaluation		NAVSEA, Carderock	0.000	0.000		0.747		0.783		CONT	CONT	0.000
Operational Test & Evaluation		NAVSEA, Carderock	0.000	0.000		0.187		0.195		CONT	CONT	0.000
Live Fire Test & Evaluation		NAVSEA, Carderock	0.000	0.000		0.187		0.195		CONT	CONT	0.000
Subtotal Test and Evaluation			**0.000**	**0.000**		**1.121**		**1.173**		**CONT**	**CONT**	**0.000**
Remarks:												
Program Management Support			0.000	0.000		0.261		0.275		0.000	0.536	0.000
Travel			0.000	0.000		0.037		0.039		0.000	0.076	0.000
Test Assets			0.000	0.000		0.075		0.077		0.000	0.152	0.000
Subtotal Management Services			**0.000**	**0.000**		**0.373**		**0.391**		**0.000**	**0.764**	**0.000**
Remarks:												
Total Cost			**0.000**	**0.000**		**3.658**		**3.884**		**CONT**	**CONT**	**0.000**

CLASSIFICATION:

EXHIBIT R4, Schedule Profile			DATE: **February 2008**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N /BA-4	0603724N/Navy Energy Program	0829/Energy Conversation	



CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2008**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603724N/Navy Energy Program				PROJECT NUMBER AND NAME 0829/Energy Conversation			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	
PROPOSAL DEVELOPMENT		Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	
PROPOSAL ACCEPTANCE		Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	
MODELING AND SIMULATION		Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	
PROTOTYPE DEVELOPMENT		Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	
PROTOTYPE DEMONSTRATION			Q1Q2Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	
LAND-BASED TESTING			Q2Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	
DETERMINE FUEL & MAINTENANCE SAVINGS			Q2Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	
SHIPBOARD EVALUATION			Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	
COMPONENT IMPLEMENTATION RECOMMEND				Q2Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	Q1Q2Q3Q4	

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603724N/NAVY ENERGY PROGRAM**				PROJECT NUMBER AND NAME **0838/Mobility Fuels (ADV)**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	1.579	1.567	1.727	1.822	1.877	1.911	1.948
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) 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 nnecessarily 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 specificatioin 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 product. 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 $2.5 B per year for procurement, transport, storeage and consuming and are essential to fleet operations.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603724N/NAVY ENERGY PROGRAM**	PROJECT NUMBER AND NAME **0838/Mobility Fuels (ADV)**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.787	0.760	0.875
RDT&E Articles Quantity	0	0	0

(U) Aircraft Fuels

Performs development, test and evaluation work on Naval 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 that include new additives or are from new sources including synthetics; and c) make needed periodic changes to the fuel specifications to ensure fuel quality and avoid fleet operating problems while accommodating evolutionary changes in the fuel supply industry.

Continue development of a qualification procedure to evaluate and approve utilization of synthetic and ultra clean, low sulfur jet fuels. Continue development and evaluation of JP-5 copper contamination removal system. Initiate development of shipboard-based sensors and instruments to rapidly determine critical jet fuel properties. Implement +100 thermal stability enhancing jet fuel additive across T-45 (Training aircraft fleet) fleet for shore-based application.

Continue development of JP-5 copper contamination removal system. Continue development of a qualification procedure to evaluate and approve utilization of synthetic and ulta-clean, lowsulfur jet fuels. Continue development of shipboard-based sensors and instruments to rapidly determine critical jet fuel properties.

Conduct field trial of copper contamination system. Continue development of shipboard-based sensors and instruments to rapidly determine critical jet fuel properties. Continue development of a qualification procedure to evaluate and approve utilization of synthetic and ultra-clean, low sulfur jet fuels.

Continued development and evaluation of JP-5 copper contamination removal system. Initiated development of an equipment/fuel qualification procedure to evaluate and approve synthetic aircraft fuels. Completed evaluation of impacts of copper contamination on aircraft engine maintenance/performance.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.792	0.807	0.852
RDT&E Articles Quantity	0	0	0

(U) Ship Fuels

Performs development, test and evaluation work on Naval ship propulsion 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 fuels are unavailable or in limited supply; and c) make needed periodic changes to fuel specifications to ensure fuel quality and avoid fleet operating problems while accomodating evolutionary changes in the fuel supply industry.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603724N/NAVY ENERGY PROGRAM**	PROJECT NUMBER AND NAME **0838/Mobility Fuels (ADV)**

Continued assessment of the feasibility of specifying JP-5 (jet fuel) as the single fuel at sea for use by all Naval Systems (ships, aircraft and ground equipment). Continued review of the F-76 ship distillate fuel specification and test requirements evaluation to remove any unnecessary requirements to increase availability. Completed development and acceptance of commercial fuel specification American Society For the Testing of Materials (ASTM D6985 Specification For Middle Distillate Fuel Oil- Military Marine Applications). Initiated development of a qualification procedure to evaluate and approve utilization of synthetic and ultr-clean. low sulfur ship fuels.

Complete assessment of the feasibility of specifying JP-5 as the Single Fuel at-sea for use by all Naval Systems (ships, aircraft and ground equipment). Continue development of a qualification procedure to evaluate and approve utilization of synthetic and ultra clean, low sulfur ship fuels. Complete F-76 specification and test requirements evaluation to determine, modify and/or remove any unnecessary requirements to increase availability.

Conduct JP-5 single fuel at sea iniative field trial. Continue development of a qualification procedure to evaluate and approve utilization of synthetic and ultra-clean, low sulfur ship fuels. Initiate development of shipboard-based sensors and instruments to rapidly determine critical ship fuel properties.

Initiate implementation of JP-5 as Single Naval Fuel At-Sea. Continue development of a qualification procedure to evaluate and approve utilization of synthetic and ultra-clean, low sulfur ship fuels. Continue development of shipboard-based sensors and instruments to rapidly determine critical ship fuel properties.

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
Not Applicable.									

D. ACQUISITION STRATEGY:

Not Applicable.

E. MAJOR PERFORMERS:

NAWCAD, Patuxent River, MD Technical engineering support FY06 Award FY07 Award FY08 Award
to help identify and execute Date Date Date
requirements associated with Oct-05 Oct -06 Oct -07
Navy Mobility Fuels Program.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603724N/NAVY ENERGY PROGRAM**					PROJECT NUMBER AND NAME **0838/Mobility Fuels (ADV)**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Systems Development		NRL, Washington DC	0.350	0.000		0.000		0.000		0.000	0.350	0.000
Subtotal Product Development			**0.350**	**0.000**		**0.000**		**0.000**		**0.000**	**0.350**	**0.000**
Remarks:												
Developmental Test & Evaluation	Various	Various	1.643	0.789	TBD	0.760	TBD	0.875	TBD	0.000	4.067	0.000
Developmental Test & Evaluation	MIPR	Army Tank & Armaments	0.000	0.000	TBD	0.000	TBD	0.000	TBD	0.000	0.000	0.000
Subtotal Support Costs			**1.643**	**0.789**		**0.760**		**0.875**		**0.000**	**4.067**	**0.000**
Remarks:												
Subtotal Test and Evaluation			**0.000**	**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	**0.000**
Remarks:												
Program Management Support	Various	Various	1.996	0.448	TBD	0.807	TBD	0.852	TBD	0.000	4.103	0.000
Program Management Support	MIPR	Army Tank & Armaments	0.339	0.342	TBD	0.000	TBD	0.000	TBD	0.000	0.681	0.000
Subtotal Management Services			**2.335**	**0.790**		**0.807**		**0.852**		**0.000**	**4.784**	**0.000**
Remarks:												
Total Cost			**4.328**	**1.579**		**1.567**		**1.727**		**0.000**	**9.201**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603724N/NAVY ENERGY PROGRAM**	PROJECT NUMBER AND NAME **0838/Mobility Fuels (ADV)**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	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																												
Aircraft Fuels																												
Ship Fuels																												

CLASSIFICATION:	UNCLASSIFIED					
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603724N/NAVY ENERGY PROGRAM**			PROJECT NUMBER AND NAME **0838/Mobility Fuels (ADV)**		
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Aircraft Fuels	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
Ship Fuels	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603724N/NAVY ENERGY PROGRAM**	PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.000	0.795	0.000
RDT&E Articles Quantity	0	0	0

(U) Ocean Thermal Energy Conversion -

Ocean Thermal Energy Conversion to produce liquid hydrocarbon fuels from sea water.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification						February 2008	
Appropriation/Budget Activity **RDT&E, N BA4**			R-1 Item Nomenclature: 0603725N / Facilities Improvement				
COST ($ in millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	**8.179**	**9.363**	**4.086**	**4.057**	**4.012**	**4.088**	**4.162**
0995 Naval Facilities System	**1.691**	**1.701**	**1.782**	**1.859**	**1.912**	**1.947**	**1.982**
3155 Force Protection Ashore	**2.488**	**2.346**	**2.304**	**2.198**	**2.100**	**2.141**	**2.180**
9999 Congressional Adds	**4.000**	**5.316**					

A. Mission Description and Budget Item Justification:

(U) This program provides for capabilities to a) overcome performance limitations and reduce the life cycle cost of shore facilities, and b) provide protection against terrorist attacks for shore installations and their operations. The program focuses on technical and operational issues of specific Navy interest, where there are no unbiased test validated Commercial Off the Shelf (COTS) solutions available, and where timely capabilities may not materialize without specific demonstration or validation by the Navy. Additionally, the program completes the development of technologies originating from Navy, DOD and other sources of Science and Technology programs, including the National Science Foundation (NSF), the National Institute of Standards and Technology (NIST) and Department of Energy (DOE). Validated technologies are implemented in the Navy's Military Construction (MILCON) and Facilities, Sustainment Restoration and Modernization (FSRM) program, and Antiterrorism and Force Protection (ATFP) Other Procurement, Navy (OP,N) program. Project 0995 addresses the following Navy facilities requirements during FY 2006 through FY 2009: Advance Technology for Waterfront Facilities Repair and Upgrade, Facilities Technologies t Reduce the Cost of Facilities Sustainment, Restoration and Modernization, and Modular Hybrid Pier for reducing the total ownership cost of future facilities and enable new planning options through relocatable waterfront facilities.. This project is consistent with 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." Starting in FY2006 the Force Protection Ashore Project 3155, addresses selective topics in simulation and risk modeling; and material technologies to reduce the vulnerability of installations; and reduce the acquisition and operating costs of protective technologies. The demonstrations and validations provide the independent, technical and operational test data for the development of competitive performance specifications to acquire the required capabilities. The ATFP project is coordinated with other DOD programs.

B. Program Change Summary:

Funding:	FY 2007	FY 2008	FY 2009
Previous PRES Budget:	8.263	4.131	4.090
Current PRES Budget:	8.179	9.363	4.086
Total Adjustments	-0.084	5.232	-0.004
Summary of Adjustments			
Small Business Adjustments	-0.084	-0.058	0.000
Congressional Adds		5.350	
Congressional Undistributed Reductions	0.000	-0.060	0.000
Navy Working Capital Rate Adjustment	0.000	0.000	-0.004
Subtotal	-0.084	5.232	-0.004

C. Other Program Funding Summary: Provided in R-2a.

D. Acquisition Strategy: Provided in R-2a.

E. Performance Metrics: Provided in R-4.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							**DATE: February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603725N / Facilities Improvement			PROJECT NUMBER AND NAME 0995 / Naval Facilities System			
COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0995 / Naval Facilities System	**1.691**	**1.701**	**1.782**	**1.859**	**1.912**	**1.947**	**1.982**
RDT&E Articles Quantity	**0**	**2**	**1**	**TBD**	**TBD**	**TBD**	**TBD**

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 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 Facilities, Sustainment Restoration and Modernization Programs (FSRP). Project 0995 is addressing four Navy facilities requirements during the fiscal years FY 2007 throughFY 2009: Waterfront Facilities Repair and Upgrade, Facilities Technologies to Reduce the Cost of Facilities, 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: About 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 mus be strengthened to support concentrated crane loads up to 140 tons when piers 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. Other initiatives include; new longer-lasting low-maintenance fendering systems that eliminate the need for the frequent replacement of timber piles and fenders a new Impulse Load Method (ILM) for accurately and quickly determining the vertical load capacity of piers and wharves; and a new Swinging Weight Deflectometer (SWD) technique to determine the lateral stability of piers for earthquake forces and docking ship's impact. Using this new technology at a cost of $1-2M for repairs and upgrades per pier will result in $50M in cost avoidance for demolition and replacement.

(U) Technologies To Reduce The Cost of Facilities, Sustainment, Restoration and Modernization (FSRM): SRM issues of high operational significance are addressed on a priority basis .The costs to correct these critical facility deficiencies are over $3.1B as reported in the FY 2000 Annual Inspection Summary (AIS). Current Navy FSRM 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 validate the cost and reliability of advanced technologies in order to assure their acceptance and implementation in traditionally conservative public works 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 FSRM backlog. Estimated returns on these investments are better than 60 to 1.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603725N / Facilities Improvement	0995 / Naval Facilities System

(U) MODULAR HYBRID PIER (MHP): 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 may 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 of construction and lower the cost relative to conventional on-site demolition followed by on site/on base construction. Plant fabrication will vastly improve quality and result in repair-free durability because of superior performance concrete with post-tensioning technologies. The modular concept will facilitate change-out of components for modifications to increase capacity to adapt to future ship designs. Mobility due to barge configuration will enable relocatability of structural platform modules through flotation is a significant new capability option which will save money and provides new military worth/planning and deployment options. 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, partly because of following the sea levels will have superior operational benefits to ship/port operations. The knowledge from this pier project will enable other concrete facility options that are fabricatable offsite and relocatable for adjustment to basing changes. The technology of concrete and reinforcement and corrosion proofing will have wide spread applicability to all concrete construction.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603725N / Facilities Improvement	PROJECT NUMBER AND NAME 0995 / Naval Facilities System

B. Accomplishments/Planned Program

		FY 07	FY 08	FY 09
Waterfront Repair and Upgrade		0.000	0.100	0.297
RDT&E Articles Quantity		0	1	0

FY 07: Work deferred to maximize resources allocated to Modular Hybrid Pier to achieve completion required for construction acquisition.

FY 08: 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.

FY 09: Initiate testing of high durability waterfront structural sub-systems.

		FY 07	FY 08	FY 09
Facilities, Sustainment, Restoration & Modernization		0.000	0.500	1.000
RDT&E Articles Quantity		0	1	1

FY 07: Work deferred to maximize resources allocated to Modular Hybrid Pier to achieve completion required for construction acquisition.

FY 08: Conduct field (validation) testing of high temperature resistant pavement joint sealants.

FY 09: Complete testing (interim validation) of flexible (non-cracking) marking paint for bituminous airfield pavements. Continue testing and evaluation of pile encasement to extend life of currently decomposing concrete piles. Initiate validation testing of high return-on-investment facilities/materials technologies from ONR and other science and technology from universities and industry.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		**DATE: February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603725N / Facilities Improvement	PROJECT NUMBER AND NAME 0995 / Naval Facilities System

B. Accomplishments/Planned Program (Cont.)

		FY 07	FY 08	FY 09
Modular Hybrid Pier		1.691	1.101	0.485
RDT&E Articles Quantity		0	0	0

FY 07: Initiate structural and hydrodynamic tests on demonstration structure. Continue corrosion monitoring. Complete simulation and modeling of response to long period waves (harbor seiche) and to wakes of passing ships. Complete hydrodynamic modeling and simulation of response to hurricane generated wind, wave and current. Develop conceptual design for small craft MHP.

FY 08: Complete structural and hydrodynamic tests on demonstration structure. Continue corrosion monitoring. Revise preliminary design of prototype MHP to capture lessons-learned from test article construction, demonstration testing and simulation & modeling. Apply MHP technology lessons to other- than- pier floating/relocatable facility options .

FY09: Complete T&E of first prototype MHP.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603725N / Facilities Improvement	PROJECT NUMBER AND NAME 0995 / Naval Facilities System

C. Other Program Funding Summary:

Line Item No. & Name	FY 2007	FY 2008	FY 2009	FY2010	FY2011	FY 2012	FY 2013	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 Facilities, 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 production acquisition processes but site specific construction acquisitions by the construction industry that fundamentally differs from weapons serial production..

E. Major Performers:

Major performers include Naval Facilities Engineering Service Center, Port Hueneme, CA. , Berger/Abam Engineers, Federal Way, WA, and Marathon Construction, Lakeside, CA.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)

DATE: February 2008

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603725N / Facilities Improvement	0995 / Naval Facilities System

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost			FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Waterfront Facilities Repair & Upgrade	WX	NFESC, Pt Hueneme, CA	1.760					0.100	10/07	0.300	10/08	nominal varies	2.160	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	
Facilities, Sustainment, Restoration	WX	NFESC, Pt Hueneme, CA	3.583					0.200	10/07	0.500	10/08	nominal varies	4.283	na
and Modernization Tech	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					0.300	03/08	0.500	03/09	cont.	0.850	
Modular Hybrid Pier	WR	NFESC, Pt Hueneme, CA	2.274			0.756	10/06	0.538	10/07	0.297	10/08	nominal varies	3.865	na
	WR	SWDIV, San Diego, CA	0.337			0.010	10/06						0.347	
	FP	BergerAbam. Seattle, WA	2.854			0.865	02/07	0.463	10/07	0.185	10/08		4.367	
	RC	Marathon Const., CA	2.207										2.207	
	RC	Texas A&M	0.075			0.060	04/07	0.100	03/08	0.000			0.235	
			14.460			1.691		1.701		1.782		0.000	19.634	

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	

Remarks: Included in Product Development costs.

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)

DATE: February 2008

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603725N / Facilities Improvement	0995 / Naval Facilities System

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost				FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 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	

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	

Remarks: Not applicable.

Total Cost			14.460			1.691		1.701		1.782		0.000	19.634	

Remarks:

(Exhibit R-3, page 2 of 2)

CLASSIFICATION:

| EXHIBIT R4, Schedule Profile | | |

CLASSIFICATION:

Exhibit R-4a, Schedule Detail			DATE: February 2008				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603725N / Facilities Improvement		PROJECT NUMBER AND NAME 0995 / Naval Facilities System				
Schedule Profile (MHP)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Milestone II (MSII)							
MHP Systems (Test Bed) Development							
Combined Developmental/Operational Testing (DT/OT)	1Q-4Q	1Q-4Q					
Preliminary Design Review (PDR)		2Q					
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-4a Schedule Detail

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603725N / Facilities Improvement				PROJECT NUMBER AND NAME 3155 Force Protection Ashore			
COST ($ in Millions)		FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
3155 / Force Protection Ashore		**2.488**	**2.346**	**2.304**	**2.198**	**2.100**	**2.141**	**2.180**
RDT&E Articles Quantity		N/A	N/A	N/A	N/A	N/A	N/A	N/A

A. Mission Description and Budget Item Justification:

(U) Protection of the Navy Installations against terrorist activities requires development and deployment of advanced technology for force protection capabilities that are cost effective. Manpower costs of protection systems with today's technology are very high . Performance is not adequate to reduce vulnerability cost-effectively. This Antiterrorism and Force Protection Ashore Project will develop, demonstrate and validate technologies for the following: access control and perimeter denial; waterside protection against craft and swimmer intrusion; secure and efficient operations centers and emergency centers (including human and information support systems); construction integrated surveillance sensors and robotic systems for intruder detection; material systems to improve utilities security and recovery; and material concepts to reduce injury and death. Through demonstration and validation of risk modeling and simulation models, the potential of emerging technologies will be evaluated and installation security strategies that reduce manpower and other costs will be formulated. Installation protection concepts against attacks from the air will be identified and jointly demonstrated. These demonstrations and validations derive from advanced technology from science and technology programs of government academia and industry. The technology produces data for performance specifications for competitive procurement. All work will be coordinated with other programs and through industry forums as appropriate.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603725N / Facilities Improvement	PROJECT NUMBER AND NAME 3155 Force Protection Ashore

B. Accomplishments/Planned Program

		FY 07	FY 08	FY 09
3155 / Force Protection Ashore		2.488	2.346	2.304
RDT&E Articles Quantity		N/A	N/A	N/A

FY 07: Continue with demonstrations and validation of technical solutions for security enhancement and cost reduction of base installations.
- Demonstrated advanced concept for semi-automating the access control process for transient vehicle & and transient driver .
- Demonstrated advances in modeling for base security solutions.
- Demonstrated rapid design/cost estimating method for perimeter security investments to reduce base vulnerability.
- Demonstrated limited wireless technology application with low light and long range EO imaging for base security
- Demonstrated through full size models the cost effective anti- boat attack barriers to protect piers and berthed ships .
- Completed analytic evaluation of blast prediction and protection technology for buildings.

FY 08: Continue developments and demonstrations of advanced concepts and prototypes to ATFP problems.
- Demonstrate in four different terrains the capability to rapidly estimate (with available GIS data and without laborious ground surveys, perimeter sensor systems to specified security levels.
- Demonstrate for security certification and interoperability over the horizon wireless advanced technology technology
- Develop employment concepts, test bed and test plan for demonstrating advanced sensors capable of seeing under bad weather; to be transitioned in 09 from ONR's Future Navy Capabilities Program.

FY 09: Continue and initiate development and demonstrations as follows.
- Continue development of a multi-perimeter (both outer and inner) enclaves design and estimating tool for security applications to bases.
- Develop and test advanced prototypes of inclement weather sensors for detecting intruders; transitioned from ONR Future Navy Capabilities program.
- Develop advanced prototype models and test Intelligent Video technology transitioned from ONR Future Navy Capabilities program.
- Develop and test advanced prototypes of low frequency continuous wave technology to warn and stop (i.e. neutralize) intruding diver/swimmers approaching Navy piers and ships

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603725N / Facilities Improvement	3155 Force Protection Ashore

C. Other Program Funding Summary:

Line Item No. & Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
P-1 Procurement Line item No., Name:									
812800 Physical Security Equipment	106.593	53.941	54.607	49.878	49.662	54.364	27.255	Con't	Con't
C-1 MILCON Project No. & Name. Not applicable.									
(U) RELATED RDT&E:									

D. Acquisition Strategy: Not applicable.

Demonstration and validation is conducted for maximum transfer and interaction with industry such as to influence the industry COTS with the results of this demonstration and prototype validation. Acquisition is based on performance specifications enabled by this project.

E. Major Performers:

Naval Surface Warfare Center, Crane IN
Naval Facilities Engineering Service Center (NFESC), Port Hueneme, CA
Naval Surface Warfare Center (NSWC-DL), Dahlgren, VA
Naval Surface Warfare Center (NSWC) Panama City, FL
Naval Post Graduate School, Monterrey, CA
OPTEVFOR, VA
SPAWAR System Center, San Diego, CA
SPAWAR System Center, Charleston, SC

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)

DATE: February 2008

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603725N / Facilities Improvement	3155 Force Protection Ashore

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost			FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Force Protection Ashore	WR	NFESC, Port Hueneme, CA	0.000			1.873	03/07	0.746	02/08	0.500	10/08	Cont.	Cont	
Force Protection Ashore	WR	NSWC Dahlgren, Panama City, Crane	0.000			0.307	07/07	1.600	03/08	1.200	03/09	Cont.	Cont	
Force Protection Ashore	WR	SSC San Diego, CA	0.000			0.000		0.000		0.604	03/09			
Force Protection Ashore	WR	SSC Charleston, SC	0.000			0.062		0.000		0.000				
Force Protection Ashore	WR	Naval Post Graduate School	0.000			0.180		0.000		0.000		Cont.	Cont	
Force Protection Ashore	WR	OPTEVFOR, VA	0.000			0.067		0.000		0.000		Cont.	Cont	
			0.000			2.488		2.346		2.304		TBD	TBD	

Remarks:
New start in FY06.

Development Support													2.400	
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	

Remarks: Included in Product Development costs.

(Exhibit R-3, page 1 of 2)

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)

DATE: February 2008

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603725N / Facilities Improvement	3155 Force Protection Ashore

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost			FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	NA					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			0.000			2.488		2.346		2.304		0.000	0.000	

Remarks:

(Exhibit R-3, page 2 of 2)

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																																					**DATE: February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**																																					PROJECT NUMBER AND NAME Proj: 3155 Force Protection Ashore/ Subproj: Commercial Vehicle Access Control
Fiscal Year					2007				2008				2009				2010				2011				2012				2013							
	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				
Technology Assessment																																					
Concept of Employment																																					
System Development Spiral 1 Development (LPR) Spiral 2 Development (TF&I9)						PDR	demo																														
Test & Evaluation Milestones Development Test Operational Test						DT1																															
Production Milestones Procurement Specification																																					
Deliveries																																					

R-4 Schedule Profile

CLASSIFICATION:

Exhibit R-4a, Schedule Detail							DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT PE0603725N / Facilities Improvement			PROJECT NUMBER AND NAME 3155 / Force Protection Ashore/Subproj: Commercial Vehicle Access Control			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Technology Assessment							
Develop Concept of Employment	1Q						
System Development							
(Spiral 1 - License Plate Reader)	1Q-2Q						
(Spiral 2 - Trip File & I9 Integration)	3Q-4Q						
Preliminary Design Review (PDR)	2Q						
Program terminated after concept demonstration	2Q						

R-4a Schedule Detail

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																																					**DATE: February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**																	PROJECT NUMBER AND NAME Proj: 3155 Force Protection Ashore/ Subproj: Data Fusion																		
Fiscal Year					2007				2008				2009				2010				2011				2012				2013			
	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
Concept Definition																																
Concept Development																																
Transition Concepts to ATFP C4I																																

R-4 Schedule Profile

CLASSIFICATION:

Exhibit R-4a, Schedule Detail							**DATE: February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT PE0603725N / Facilities Improvement			PROJECT NUMBER AND NAME 3155 / Force Protection Ashore/Subproj: Data Fusion			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Concept Definition							
Concept Development							
Transition Concept to ATFP C4I	1Q						

R-4a Schedule Detail

CLASSIFICATION:

EXHIBIT R4, Schedule Profile	DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROJECT NUMBER AND NAME Proj: 3155 Force Protection Ashore/ Subproj: Perimeter Security

Fiscal Year					2007				2008				2009				2010				2011				2012				2013			
	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
Technology Assessment																																
Concept Formulation																																
Rapid Assessment Tools																																
Perimeter Security Sensors																																
System Development																																
Rapid Assessment - Spiral 1																																
Rapid Assessment - Spiral 2																																
Perimeter Security Sensors																																
Test & Evaluation Milestones																																
Development Test																																
Rapid Assessment Tools																																
Perimeter Security Sensors																																
Operational Test																																
Perimeter Security Sensors																																
Production Milestones																																
Procurement Specification																																

PDR
CDR
DT1
DT2
DT1
DT2
OT&E 1 (MUA of VPMS)
OT&E 2

R-4 Schedule Profile

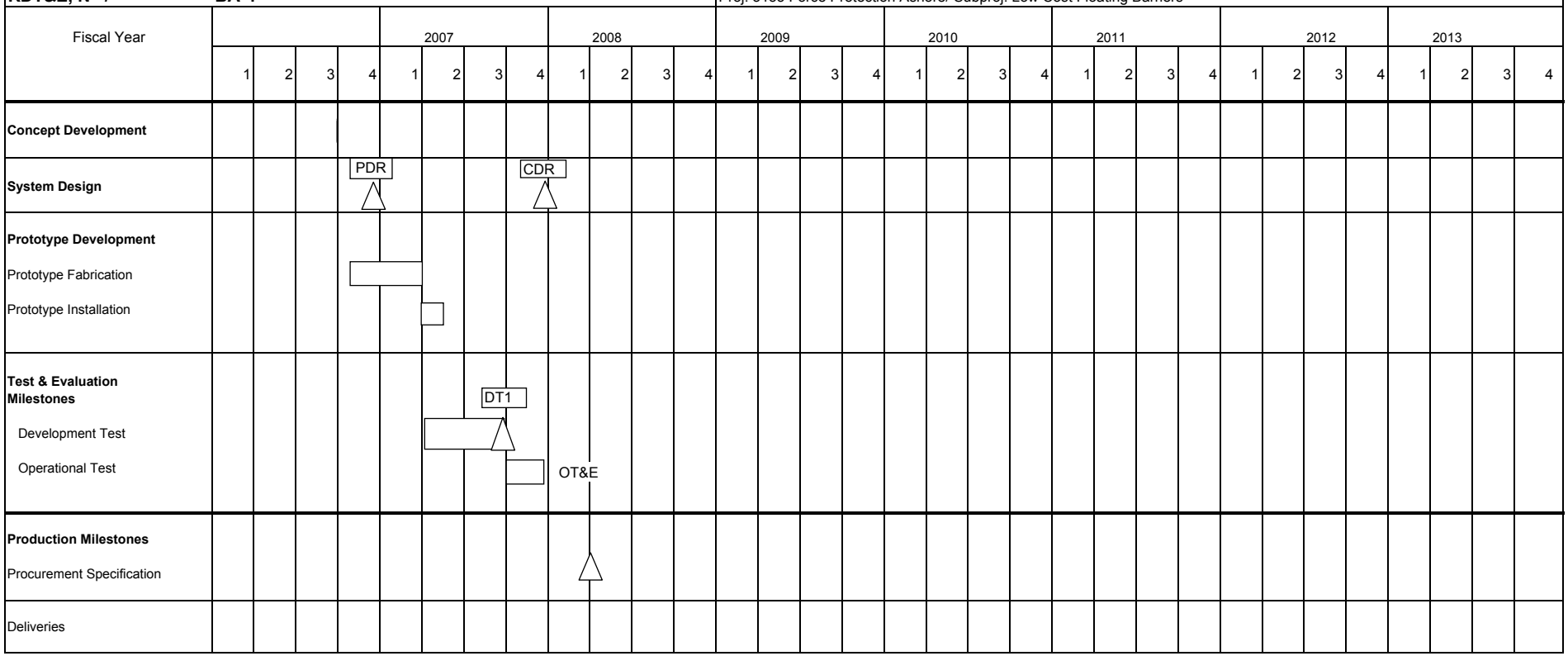
CLASSIFICATION:

Exhibit R-4a, Schedule Detail							DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT PE0603725N / Facilities Improvement			PROJECT NUMBER AND NAME 3155 / Force Protection Ashore/Subproj: Perimeter Security			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Technology Assessment							
Concept Formulation - Rapid Assessment Tools (RAT)	2Q-4Q						
Concept Formulation - Perimeter Security Sensors	1Q						
System Development							
(Rapid Assessment Tools - Spiral 1)	1Q-4Q						
(Rapid Assessment Tools - Spiral 2)		1Q-4Q					
(Perimeter Security Sensors)	2Q-4Q	1Q-3Q					
Preliminary Design Review (PDR) - RAT	4Q						
Developmental Test 1 (DT1) - RAT	4Q						
Developmental Test 2 (DT2) - RAT		4Q					
Developmental Test 1 (DT1) - PSS		1Q					
Developmental Test 2 (DT2) - PSS		3Q					
Field Operational I Test & Evaluation 1	3Q						
Field Operational Test & Evaluation (2)		3Q					
Critical Design Review (CDR) Final Assessment		4Q					
Procurement Specification			1Q				

R-4a Schedule Detail

CLASSIFICATION:

EXHIBIT R4, Schedule Profile	DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROJECT NUMBER AND NAME Proj: 3155 Force Protection Ashore/ Subproj: Low Cost Floating Barriers



R-4 Schedule Profile

CLASSIFICATION:

Exhibit R-4a, Schedule Detail				DATE: February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT PE0603725N / Facilities Improvement			PROJECT NUMBER AND NAME 3155 / Force Protection Ashore/Subproj: Low Cost Floating Barriers			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Concept Development							
System Design							
Prototype System Fabrication	1Q						
Prototype System Installation	2Q						
Preliminary Design Review (PDR)							
Developmental Test 1 (DT1)	2Q-3Q						
Operational Test & Evaluation (OT&E)	4Q						
Critical Design Review (CDR)	4Q						
IOC		1Q					
Procurement Specification		1Q					

R-4a Schedule Detail

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																																					**DATE: February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**																																					PROJECT NUMBER AND NAME Proj: 3155 Force Protection Ashore/ Subproj: Reduced Cost of Blast Protection
Fiscal Year					2007				2008				2009				2010				2011				2012				2013			
	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
Technology Assessment																																
Develop Concept																																
System Development Refine Blast Mitigation Model																																
Test & Evaluation Milestones Validate model with existing blast test data								DT1																								
Production Milestones Transition Results to UFC																																

R-4 Schedule Profile

CLASSIFICATION:

Exhibit R-4a, Schedule Detail							**DATE: February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT PE0603725N / Facilities Improvement			PROJECT NUMBER AND NAME 3155 / Force Protection Ashore/Subproj: Reduced Cost of Blast Protection			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Technology Assessment							
Develop Concept							
System Development (Blast Mitigation Model0	1Q-3Q						
Validate model with existing blast test data	4Q						
Procurement Specification	4Q						

R-4a Schedule Detail

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603725N / Facilities Improvement	9999/Congressional Adds

CONGRESSIONAL PLUS-UPS:

		FY 07	FY 08	FY 09
9859N				
Regenerative Fuel Cell Back-up Power		1.073	0.000	0.000
RDT&E Articles Quantity		1	N/A	N/A

(U) Development and use of energy from sources other than fossil fuels is highly encouraged by our National policy. Fuel Cells are a promising source that is rapidly maturing in efficiency. This Congressional Add provides for field test and evaluation of a regenerative fuel cell system to determine performance and reliability as a back up facility power system.

		FY 07	FY 08	FY 09
9A11N				
Advanced Tech to Reduce Vulnerability of Military Inst		1.950	0.000	0.000
RDT&E Articles Quantity		N/A	N/A	N/A

(U) Protection of the Navy Installations against terrorist activities requires development and deployment of advanced technology for force protection capabilities that are cost effective. Manpower costs of protection systems with today's technology are very high. Performance is not adequate to reduce vulnerability cost-effectively. This Congressional add will develop and demonstrate through longevity testing a prototype systems installed at Pacific Northwest Region bases. Two systems are needed: a) Perimeter security system comprised of a range/mixture of advanced sensors that will detect and report intruders entering the base where there is no fencing or the fencing is not effective in detection, alarming and delaying. b) A system to reduce the que waiting time to clear delivery trucks to enter an installation, reduce the manpower, improve/enable the creation of reliable truck data files to contain: driver, truck, trailer, content and inspection search information. Today fences can be breached or jumped in less than a minute and trucks require up to 30 minutes to check through a gate. Excessive guard manpower is required for perimeter and entry point access control. Each system shall be demonstrated at a needy base and extensive data shall be collected. The systems shall be removed after demonstration if shown to be ineffective or unsupportable.

		FY 07	FY 08	FY 09
9A12N				
Permanent Magnet Linear Generator Power Buoy Sys		0.977	0.000	0.000
RDT&E Articles Quantity		1	N/A	N/A

(U) Demonstrate a new concept for converting wave induced motions into electric power using a permanent magnet and linear motions.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603725N / Facilities Improvement	9999/Congressional Adds

CONGRESSIONAL PLUS-UPS:

		FY 07	FY 08	FY 09
9999				
Advanced Photovoltaic Material		0.000	0.950	0.000
RDT&E Articles Quantity		N/A	N/A	N/A

(U) Investigate material issues and advanced material opportunities suitable for advanced prototyping development and demonstration to improve the performance of photovoltaics of the categories suitable for Naval facilities applications.

		FY 07	FY 08	FY 09
9999				
Kinetic Hydropower System		0.000	3.200	0.000
RDT&E Articles Quantity		N/A	N/A	N/A

(U) Conduct a technical, operational, environmental and business study to determine the feasibility of generating power at a suitable location in Puget Sound using the Kinetic Hydropower Turbine System, from which power can be transmitted to a local commercial power grid or to a naval base(s) grid. The study, including the explorations for data will address: 1) the presence of suitably strong tidal currents to generate electricity with the kinetic turbines; 2) Proximity of such sites to ports and other infrastructure to facilitate cost effective construction and operational sustainment; 3) Proximity to electrical power grids/interconnections for distribution; 4) Adequate avoidance considerations for navigational Channels; 5) Regulatory and permitting issues; and 6) Environmental compatibility with fish/fisheries, marine mammals, other water uses and other environmental and demographic considerations. The study will conclusively identify all issues to enable effective discussions for agreements among Navy and Industry parties for the project continuation with design, fabrication, installation and demonstration of power generation, transmission, and cost effective power generation-grid operations and business activities to serve the Navy needs. Initiate critical design and tests of long lead components concurrently with the feasibility engineering and business study.

		FY 07	FY 08	FY 09
9999				
Swimmer Detection Sonar		0.000	1.200	0.000
RDT&E Articles Quantity		N/A	N/A	N/A

(U) Develop, install and demonstrate at the Portsmouth, NH Naval Shipyard water environment the Swimmer Detection Sonar Network, previously demonstrated successfully at Singapore and elsewhere. An advanced development prototype will be developed, installed, and tested to demonstrate performance in the temperature, salinity, currents, aqua-life, debris and industrial noise regime of the shipyard's waters. Consideration shall be given to installation designs to enable potential continuing development or operation if the fiscal year 2008 activities demonstrate adequate performance.

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY REASEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4					R-1 ITEM NOMENCLATURE 0603739N, NAVY LOGISTIC PRODUCTIVITY		
COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	24.961	19.401	2.846	2.962	3.090	3.151	3.213
2920 Ordnance Management	3.567	.927					
2955 JEDMICS	2.558	2.476	2.846	2.962	3.090	3.151	3.213
9999 CONGRESSIONAL ADDS	18.836	15.998					

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

Ordnance Management 2920 Covers the conversion of Naval Operational Logistics Support Center (NOLSC) systems to the Ordnance Information Systems (OIS).

JEDMICS 2955 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 106,000,000 engineering images and has 25,000 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 19 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.

Congressional Adds 9999

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY REASEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4	R-1 ITEM NOMENCLATURE 0603739N, NAVY LOGISTIC PRODUCTIVITY

B. PROGRAM CHANGE SUMMARY

Funding:	FY 2007	FY 2008	FY 2009
Previous President's Budget:	24.612	3.547	2.846
Current BES:	24.961	19.401	2.846
Total Adjustments	0.349	15.854	0.000
Summary of Adjustments			
Congressional Reductions			
Congressional Rescissions			
Congressional Undistributed Reductions	-0.537	-0.125	
Congressional Increases	1.882	16.100	
Economic Assumptions	0.004		
Miscellaneous Adjustments	-1.000	-0.121	
Subtotal	0.349	15.854	0.000

Schedule: Not Applicable

Technical: Not Applicable

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAM 0603739N Navy Logistic Productivity	PROJECT NUMBER AND NAME 2920 Ordnance Management

COST ($ in Millions)		FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost		3.567	.927					
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Naval Operational Logistics Support Center (NOLSC) 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.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-4	0603739N Navy Logistic Productivity	2920 Ordnance Management	

B. Accomplishments/Planned Program

Software Development and Training	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	3.567	.927	
RDT&E Articles Quantity			

NOLSC software development, training development, and configuration management for the following systems: PHS&T, Production / Industrial Base Support and Weapons Allocation Capability.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603739N, NAVY LOGISTIC PRODUCTIVITY	PROJECT NUMBER AND NAME 2955, JEDMICS

COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	
2955 JEDMICS	2.558	2.476	2.846	2.962	3.090	3.151	3.213	
RDT&E Articles Qty								

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 106,000,000 engineering images and has 25,000 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 19 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.

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

JEDMICS Development	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	2.280	2.273	2.641
RDT&E Articles Qty			

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.

JEDMICS Test	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	.045	.045	.045
RDT&E Articles Qty			

Conduct test and readiness reviews and functional performance tests on JEDMICS system.

JEDMICS Evaluation & Review	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	.233	.158	.160
RDT&E Articles Qty			

Conduct technical evaluations and configuration control reviews of JEDMICS system.

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603739N, NAVY LOGISTIC PRODUCTIVITY	PROJECT NUMBER AND NAME 2955, JEDMICS	

C. OTHER PROGRAM FUNDING SUMMARY:	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
Not Applicable									

D. ACQUISITION STRATEGY: Execution of sole-source negotiated requirements type contract for engineering, design, development and test efforts, Performance-based reviews conducted quarterly by the Project Management Office.

Exhibit R-3 Cost Analysis (page 1)									DATE: February 2008			
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4		PROGRAM ELEMENT 0603739N, NAVY LOGISTIC PRODUCTIVITY				PROJECT NUMBER AND NAME 2955, JEDMICS						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
PRODUCT DEVELOPMENT												
SUBTOTAL PRODUCT DEVELOPMENT												
SUPPORT												
Software Development	VARIOUS	VARIOUS	10.469								10.469	
Software Development	SS-ID/REQ*	NORTHROP GRUMMAN INFORMATION TECHNOLOGY, MC LEAN, VA	2.602	2.280	Nov 2006	2.273	Nov 2007	2.641	Nov 2008	17.772	27.568	27.568
SUBTOTAL SUPPORT			13.071	2.280		2.273		2.641		17.772	38.037	

Remarks: Funds are for development efforts associated with Commercial Off The Shelf (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.

* Sole Source Indefinate Delivery/Requirements Contract

TEST & EVALUATION												
Dev Test & Eval	VARIOUS	TBD	2.235	.045	Oct 2006	.045	Oct 2007	.045	Oct 2008	.180	2.550	
Dev Test & Eval	C-FFP	LOCKHEED MARTIN CORP, OWEGO, NY	.004								.004	.004
SUBTOTAL TEST & EVALUATION			2.239	.045		.045		.045		.180	2.554	

Remarks: Supports testing and evaluation of baseline releases in a user environment.

MANAGEMENT												
Government Eng Sup	VARIOUS	VARIOUS	.860	.184	Oct 2006	.108	Oct 2007	.109	Oct 2008	.661	1.922	
Program Mgmt Sup	WX	VARIOUS	.149	.005	Oct 2006	.005	Oct 2007	.005	Oct 2008	.036	.200	
Travel	VARIOUS	TBD	.153	.044	VARIOUS	.045	VARIOUS	.046	VARIOUS	.194	.482	
SUBTOTAL MANAGEMENT			1.162	.233		.158		.160		.891	2.604	

Remarks: Supports requirements management at the Prime Contractor location and program related travel by government employees.

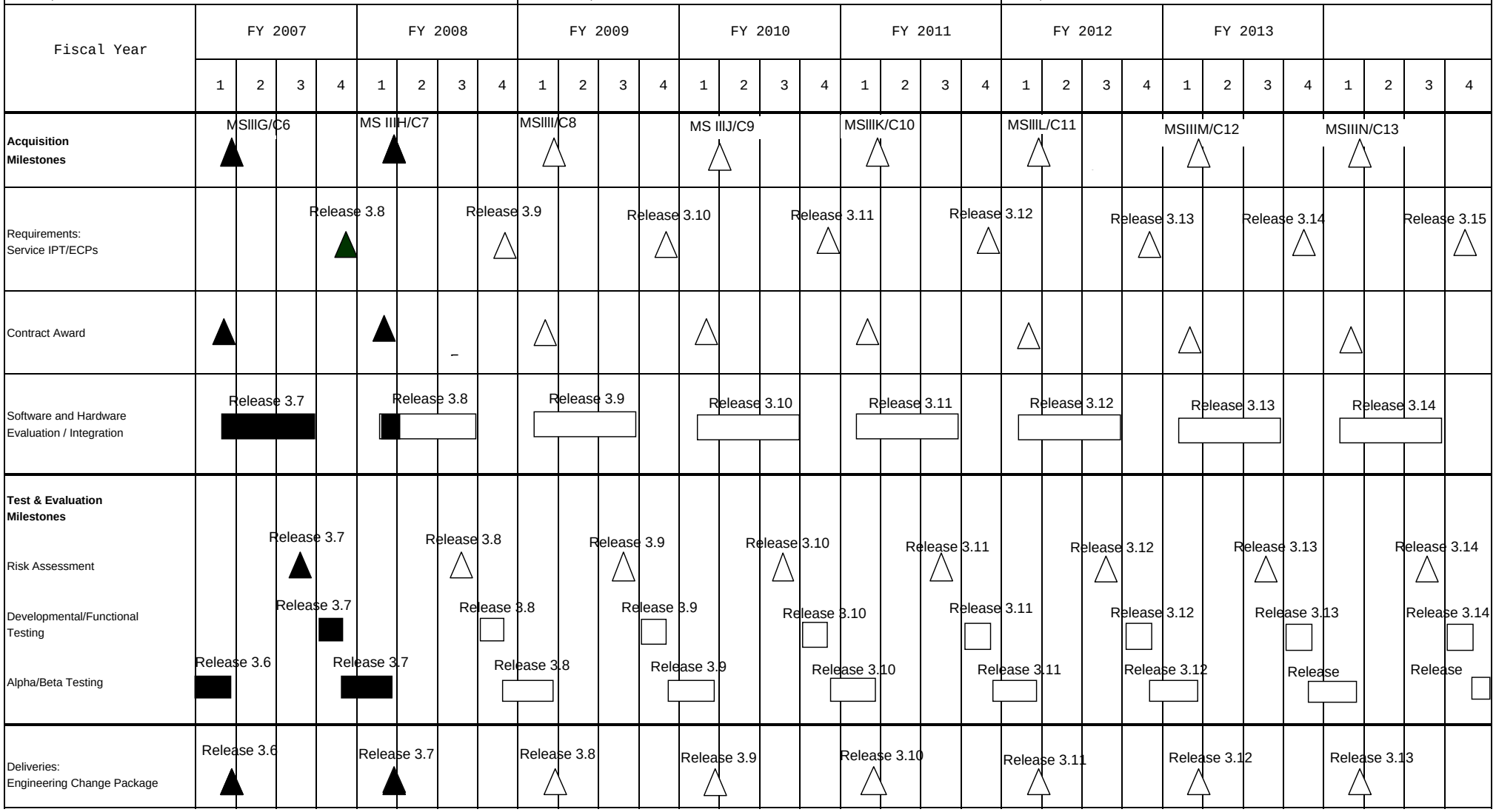
Total Cost			16.472	2.558		2.476		2.846		18.843	43.195	

CLASSIFICATION:

EXHIBIT R4, Schedule Profile

DATE: February 2008

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E,N / BA-4	0603739N, NAVY LOGISTIC PRODUCTIVITY	2955, JEDMICS



CLASSIFICATION:

Exhibit R-4a, Schedule Detail							DATE: February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT 0603739N, NAVY LOGISTIC PRODUCTIVITY				PROJECT NUMBER AND NAME 2955, JEDMICS			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	
Alpha/Beta Testing Release 3.6	1Q							
Engineering Change Package Release 3.6	1Q							
Milestone IIIG or C6 (MSIIIG/C6) Release 3.6	1Q							
Contract Award	1Q							
Software Hardware Evaluation/Integration Release 3.7	1Q-3Q							
Risk Assessment Release 3.7	3Q							
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	1Q			
Engineering Change Package Release 3.10					1Q			

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT 0603739N, NAVY LOGISTIC PRODUCTIVITY				PROJECT NUMBER AND NAME 2955, JEDMICS			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	
Milestone IIIK or C10 (MSIIIK/C10) Release 3.10					1Q			
Contract Award					1Q			
Software Hardware Evaluation/Integration Release 3.11					1Q-3Q			
Risk Assessment Release 3.11					3Q			
Developmental/Functional Testing Release 3.11					4Q			
Service IPT/ECPs Release 3.12					4Q			
Alpha/Beta Testing Release 3.11					4Q	1Q		
Engineering Change Package Release 3.11						1Q		
Milestone IIIL or C11 (MSIIIL/C11) Release 3.11						1Q		
Contract Award						1Q		
Software Hardware Evaluation/Integration Release 3.12						1Q-3Q		
Risk Assessment Release 3.12						3Q		
Developmental/Functional Testing Release 3.12						4Q		
Service IPT/ECPs Release 3.13						4Q		
Alpha/Beta Testing Release 3.12						4Q	1Q	
Engineering Change Package Release 3.12							1Q	
Milestone IIIM or C12 (MSIIIM/C12) Release 3.12							1Q	
Contract Award							1Q	
Software Hardware Evaluation/Integration Release 3.13							1Q-3Q	
Risk Assessment Release 3.13							3Q	
Developmental/Functional Testing Release 3.13							4Q	
Service IPT/ECPs Release 3.14							4Q	
Alpha/Beta Testing Release 3.13							4Q	

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603739N, NAVY LOGISTIC PRODUCTIVITY				PROJECT NUMBER AND NAME 9999, CONGRESSIONAL ADDS			
COST ($ in Millions)		FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
CONGRESSIONAL ADDS		18.836	15.998					
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: CONGRESSIONAL ADDS

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

9405C Fiber Optic Technology		FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost		1.068		
RDT&E Articles Qty				

Fiber Optic Components for Military Applications - The purpose of this add is to develop fiber optic components for military aerospace applications and to obliviate future maintenance and logistics problems through fiber optics/photonics.

9541C Infrared Sensors		FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost		3.157		
RDT&E Articles Qty				

Multi-color infrared sensors - A continuation of the FY06 Service Life Extension of Avionics Legacy Equipment with Guaranteed System (SEALEGS) program.

9599C Fiber Optic Technology		FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost		1.749		
RDT&E Articles Qty				

Fiber Optic Interconnect Technology - The purpose of this add is to develop low cost, high quality fiber optic interconnect technology for military aerospace applications and to obviate future maintenance and logistics problems through fiber optics/photonics.

9A13N Information Sharing		FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost		3.787		
RDT&E Articles Qty				

Defense Integrated Technical Data Center - This program will create an infrastructure with a set of applications to facilitate the sharing of weapons system product information between the members of the engineering and logistics communities to improve shipboard maintenance processes and sustain shipboard readiness. This will be accomplished by creating access within a single tool to critical technical (manuals, data packages, drawings, equipment configuration data, etc.) and supply (asset availability) information required to support the afloat maintenance process.

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603739N, NAVY LOGISTIC PRODUCTIVITY				PROJECT NUMBER AND NAME 9999, CONGRESSIONAL ADDS			
COST ($ in Millions)		FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
CONGRESSIONAL ADDS		18.836	15.998					
RDT&E Articles Qty								

9A16N High Density Power Electronics		FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost		1.408		
RDT&E Articles Qty				

High Density Power Electronics- The purpose of this add is to omplete the development of a prototype sonobuoy transmit module for evaluation of high power electronics based on state-of-the-art semiconductor materials , evaluate the developmental prototype sonobuoy systems and determine options for integration into the current market stream and support development of a plan for integration into that path to market.

9A18N Logistics Innovation		FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost		.971		
RDT&E Articles Qty				

FY 2007 Navy Operational Logistics Innovation - Congress appropriated and authorized $1.0M for Navy Operational Logistics Innovation (NOLI) in FY 2007. The NOLI initiative will be a catalyst for identification, development, and implementation of technology based solutions that meet strategic Navy needs. The Navy must develop command and control logistics functionalities that fully utilize sensors, identification technology and distance support capability to turn raw logistics and maintenance significant data into actionable information for the operational commanders. This will allow the Navy to integrate previously stove-piped functions and data sources to achieve the operational agility and reduced force structure envisioned in DoD Transformation.

9A19N Lead Free Circuits		FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost		1.262		
RDT&E Articles Qty				

FY 2007 - Reliability Testing of Lead Free Circuits/Components - As a result of European Council legislation which will immediately cause most manufacturers to use lead-free platings or alternative components on their manufactured components, there is a need for reliability research and product testing as it relates to the impact of this change on military hardware and relevant applications. In response to this need, a Reliability Research and Testing Program is proposed to address the product reliability problems that the military will face. A cornerstone of the program will be the development of a reliability testing laboratory within the Purdue Technology Center of Northwest Indiana. The development of this program and laboratory will assist in determining the impact of new material components and new processors on legacy military equipment of critical national importance.

9A20N Track Equipment		FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost		3.496		
RDT&E Articles Qty				

FY 2007 - Unique Identification Of Tangible Items - The UID Policy is an OSD mandate that will, once implemented, provide a means to track items from cradle to grave and provide the means to track the requirement footprint, streamline vendor payment via the Supply Chain, and provide procurement accountability.

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603739N, NAVY LOGISTIC PRODUCTIVITY				PROJECT NUMBER AND NAME 9999, CONGRESSIONAL ADDS			
COST ($ in Millions)		FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
CONGRESSIONAL ADDS		18.836	15.998					
RDT&E Articles Qty								

9B17N Advanced Lithography - Thin Film Masks		FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost		1.938		
RDT&E Articles Qty				

Advanced Lithography- The purpose of these funds is for the development of X-ray Lithography (XRL) / Collimated Plasma Lithography (CPL) mask materials/technology. Research was aimed at the 80nm node to improve upon the 90nm requirement. Improve the elements of the CPL System to match the 80nm requirements through Stepper stage modifications for increased resolution, and Point Source target chamber / BriteLight Laser package upgrades.

9999 Congressional Adds		FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost			15.998	
RDT&E Articles Qty				

Defense Integrated Technical Data Center - This program will create an infrastructure with a set of applications to facilitate the sharing of weapons system product information between the members of the engineering and logistics communities to improve shipboard maintenance processes and sustain shipboard readiness. This will be accomplished by creating access within a single tool to critical technical (manuals, data packages, drawings, equipment configuration data, etc.) and supply (asset availability) information required to support the afloat maintenance process.
National Item Identificiation Number - Purpose of this add is unknown
Unique Identification of Tangible Items - The UID Policy is an OSD mandate that will, once implemented, provide a means to track items from cradle to grave and provide the means to track the requirement footprint, streamline vendor payment via the Supply Chain, and provide procurement accountability.
Highly Integrated Optical Interconnect - Develop optical interconnects integrated into printed circuit boards typically used by the electronics industry. If successful, technology transition is targeted at replacing high density optical backplanes.
Multi-color infrared sensors - A continuation of the FY06 Service Life Extension of Avionics Legacy Equipment with Guaranteed System (SEALEGS) program.

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION							DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**			R-1 ITEM NOMENCLATURE **0603755N/SHIP SELF DEFENSE - DEM/VAL**				
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	11.166	10.719	11.001	10.803	10.815	10.791	10.750
2133 / QRCC	4.884	3.490	3.597	3.719	3.783	3.809	3.884
2184 / Force AAW Coordination Technology	1.926	7.229	7.404	7.084	7.032	6.982	6.866
3160 / Ocean Surveillance	4.356	0.000	0.000	0.000	0.000	0.000	0.000

A. MISSION DESCRIPTION:

This program incorporates efforts dedicated to the enhancement of ship defense against Anti-Air Warfare (AAW) and other evolving threats. Its primary focus is on the development of technologies, systems, and procedures necessary to defeat the evolving Anti-Ship Cruise Missile (ASCM) threat and then expands to allow for application of these technologies in other warfighting areas. 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.

Project 2133 is divided into two sub-projects,Requirements Analysis Working Group (RAWG) and Quick Reaction Combat Capability. Requirements 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. 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 ASCM threat.

Force Advanced Warfare Concept Technology (FACT), Project 2184, demonstrates concepts and capabilities that will enhance the warfighting ability of ships and aircraft and enable the coupling of the Force into a single, distributed weapon system through more effective use of tactical data, and force sensors and weapons. During FY06, the Innovation Team expanded the offensive counter air (OCA) capabilities developed for the Joint Targeting Attack and Assessment Capability (JTAAC) utilizing electro-optical (EO) and infrared (IR) sensors to include other sensors.

During FY07, under the Ocean Surveillance Initiative, Project 3160, the Innovation Team will continue to leverage their expertise in resolving complex warfighter issues as well as the end to end capability realized in previous products to develop a prototype focused on creating a coherent and consistent surface track picture. JTAAC brought innovative technology to offensive counter air and the Ocean Surveillance Initiative will extend those advancements to the maritime offensive counter air and surface track picture domains. FACT and Ocean Surveillence Initiative efforts will combine and continue under Project 2184 in FY08.

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
FY 2008 President's Budget	8.863	10.954	11.010
FY 2009 President's Budget	11.166	10.719	11.001
Total Adjustments	2.303	-0.235	-0.009
Summary of Adjustments			
Undistributed/General Adjustments	2.303	-0.235	-0.009

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603755N/SHIP SELF DEFENSE - DEM/VAL**				PROJECT NUMBER AND NAME **2133/QRCC**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	4.884	3.490	3.597	3.719	3.783	3.809	3.884
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

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. 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.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603755N/SHIP SELF DEFENSE - DEM/VAL**	PROJECT NUMBER AND NAME **2133/QRCC**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	4.884	0.000	0.000
RDT&E Articles Quantity	0	0	0

The RAWG will analyze Ship Self Defense PRA capabilities. Analysis will include baseline PRA requirements, excursions based on raid size, environment, and other operational considerations. The RAWG will respond to the PEO and OPNAV sponsors emergent tasking and participate and attend PRA working group meetings.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.000	3.490	0.000
RDT&E Articles Quantity	0	0	0

The RAWG will continue leadership and management of the Common ASCM Threat Characterization process for PEO IWS. The RAWG will continue to analyze Ship Self Defense PRA capabilities and respond to the PEO and OPNAV sponsors emergent tasking and participate and attend PRA working group meetings.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.000	0.000	3.597
RDT&E Articles Quantity	0	0	0

The RAWG will continue leadership and management of the Common ASCM Threat Characterization process for PEO IWS. The RAWG will continue to analyze Ship Self Defense PRA capabilities and respond to the PEO and OPNAV sponsors emergent tasking and participate and attend PRA working group meetings.

C. OTHER PROGRAM FUNDING SUMMARY:

N/A

D. ACQUISITION STRATEGY:

N/A

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603755N/SHIP SELF DEFENSE - DEM/VAL**					PROJECT NUMBER AND NAME **2133/QRCC**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
System Engineering	WR	Dahlgren, NSWC DD	3.487	4.884	OCT-06	3.490	OCT-07	3.597	OCT-08	CONT	CONT	0.000
Subtotal Product Development			**3.487**	**4.884**		**3.490**		**3.597**		**CONT**	**CONT**	**0.000**
Remarks:												
Total Cost			**3.487**	**4.884**		**3.490**		**3.597**		**CONT**	**CONT**	**0.000**

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603755N/SHIP SELF DEFENSE - DEM/VAL**				PROJECT NUMBER AND NAME **2184/Force AAW Coordination Technology**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	1.926	7.229	7.404	7.084	7.032	6.982	6.866
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Force Advanced Warfare Concept Technology (FACT) Program is an advanced development effort designed to demonstrate Advanced Force concepts and capabilities that will significantly improve our Force defense in depth, including both local area and self defense capabilities against current and future threats. FACT improvements are designed to enhance the warfighting ability of ships and aircraft and to enable coupling of the Force into a single, distributed 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 operations. FACT is a model Sea Enterprise effort that consistently delivers advanced war-fighting capability that addresses current Fleet shortfalls and needs quickly and cost effectively. 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 Quality (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 Link-11 (DNMFL); Force Threat Evaluation Weapons Assignment (FTEWA); and the prototype Area Air Defense Commander (AADC) and the Joint Targeting Attack and Assessment Capability (JTAAC). During FY06, the Innovation Team expanded the offensive counter air (OCA) capabilities developed for JTAAC utilizing electro-optical (EO) and infrared (IR) sensors to include other sensors. This effort will be a complement to the JTAAC, leveraging the technologies and end to end capability realized by JTAAC to inform future maritime offensive counter air efforts. In FY07, under 3160, the Ocean Surveillance Initiative (OSI), was begun to provide a persistent wide area surface track picture. This initiative is continuing in FY08 under 2184, FACT. In developing OSI, the FACT team is coordinating with other organizations to include a variety of Navy programs and Customs and Border Protection (CBP) to leverage off of experimentation opportunities and mission area expertise.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603755N/SHIP SELF DEFENSE - DEM/VAL**	PROJECT NUMBER AND NAME **2184/Force AAW Coordination Technology**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	1.926	7.229	7.404
RDT&E Articles Quantity	0	0	0

Conduct critical FACT initiative proof of concept experiments. 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. FACT and Ocean Surveillence Initiative efforts will combine and continue under Project 2184 in FY08. On-going development of an Ocean Serveillance Initiative prototype which will leverage the end to end capability realized by JTAAC and have the objective goal of attaining a tactically significant probability of detection, continuous track, and correct classification of small and medium sized vessels at sea state 5. Conduct critical experiments in support of the Ocean Surveillance Initiative. Provide top level programmactic support, technical analysis and assist in the development processess, procedures and documentation that impact the execution of the Ocean Surveillance Initiative.

C. OTHER PROGRAM FUNDING SUMMARY:

Not Applicable

D. ACQUISITION STRATEGY:

Not Applicable

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603755N/SHIP SELF DEFENSE - DEM/VAL**					PROJECT NUMBER AND NAME **2184/Force AAW Coordination Technology**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Primary Hardware Development	CPFF	APL/Laurel, MD	7.285	1.526	11-06	6.829	11-07	7.004	11-08		22.644	0.000
Subtotal Product Development			**7.285**	**1.526**		**6.829**		**7.004**		**0.000**	**22.644**	**0.000**
Remarks:												
Support Costs	SEAPORT	DELTA/Arlington, VA	0.000	0.400		0.400		0.400		0.000	1.200	0.000
Subtotal Support Costs			**0.000**	**0.400**		**0.400**		**0.400**		**0.000**	**1.200**	**0.000**
Remarks:												
Total Cost			**7.285**	**1.926**		**7.229**		**7.404**		**0.000**	**23.844**	**0.000**

CLASSIFICATION:

EXHIBIT R4, Schedule Profile:			DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-4	0603755N/SHIP SELF DEFENSE	2184 Force Advanced Warfare Concept Technology (FACT)	

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	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
Support GWOT Operations				End △																								
Support Transtion of JTAAC				End △																								
Begin Ocean Surveillance Initiative	Begin △		Phase 1 △	Phase 2 △	△	△ Exercise Prototype Capability	△		Begin Transition △ △			End △																
Follow-on FACT Initiative													Begin △															

CLASSIFICATION:
UNCLASSIFIED

EXHIBIT R-4
SCHEDULE

CLASSIFICATION:	UNCLASSIFIED					
EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603755N/SHIP SELF DEFENSE - DEM/VAL**			PROJECT NUMBER AND NAME **2184/Force AAW Coordination Technology**		
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Exercise Prototype Capability		2Q, 3Q					
Conclude OSI			4Q				
Begin Follow-on FACT Initiative				1Q			
Begin Ocean Surveillance Initiative	1Q						
Phase 1 Data Collection with Customs & Border Protection	3Q						
Phase 2 Data Collection with Customs & Border Protection	4Q	1Q					
Begin Transition of JTAAC Within USN							
Conclude Suppot of GWOT Operations	4Q						
Conclude Transition of JTAAC Within USN							

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603755N/SHIP SELF DEFENSE - DEM/VAL**				PROJECT NUMBER AND NAME **3160/Ocean Surveillance**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	4.356	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Innovation Program is an advanced development effort designed to demonstrate Force concepts and capabilities which significantly improve our Force defense in depth, including both local area and self defense capabilities against current and future threats. The Innovation Team has consistently provided the warfighter innovative products which resolve current complex warfighter issues quickly and cost effectively. The Innovation Team will begin expanding its focus to include maritime offensive counter air. Under the auspices of the Ocean Surveillance Initiative, this innovation cell plans to leverage technologies that they developed in the JTAAC to provide a prototype which will create a coherent surface track picture in a large area of operations (AO) enabling sustained situational understanding. Their focus will be optimizing sensor selection and configuration to reliably detect, track, and classify ships in the AO with an objective goal of attaining a tactically significant probability of detection, continuous track, and correct classification down to small and medium sized vessels in sea state 5. The Ocean Surveillance Initiative is a complement to JTAAC. The Ocean Surveillance Initiative is the natural progression for the USN to leverage the JTAAC offensive counter air end to end capability to the maritime domain. FACT and Ocean Surveillance Initiative efforts are combined and are continuing under Project 2184 in FY08.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603755N/SHIP SELF DEFENSE - DEM/VAL**	PROJECT NUMBER AND NAME **3160/Ocean Surveillance**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	4.356	0.000	0.000
RDT&E Articles Quantity	0	0	0

On-going development of an Ocean Serveillance Initiative prototype which will leverage the end to end capability realized by JTAAC and have the objective goal of attaining a tactically significant probability of detection, continuous track, and correct classification of small and medium sized vessels at sea state 5. Conduct critical experiments in support of the Ocean Surveillance Initiative. Provide top level programmactic support, technical analysis and assist in the development processess, procedures and documentation that impact the execution of the Ocean Surveillance Initiative. FACT and Ocean Surveillance Initiative efforts are combined and continue under Project 2184 in FY08.

C. OTHER PROGRAM FUNDING SUMMARY:

Not Applicable.

D. ACQUISITION STRATEGY:

Not Applicable.

FY 2009 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2008
Exhibit R-2

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0603790N
PROGRAM ELEMENT TITLE: NATO RESEARCH AND DEVELOPMENT

COST: (Dollars in Thousands)

Project Number & Title	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
Total PE	10,039	9,797	10,129	10,333	10,050	10,793	11,008
2293 NATO COOPERATIVE RESEARCH AND DEVELOPMENT (R&D)	10,039	9,797	10,129	10,333	10,050	10,793	11,008

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: In accordance with Title 10 United States (U.S.) Code Section 2350a, this Program Element provides funding for research and development (R&D) programs 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 and Logistics (USD,AT&L) 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) that also states why the project serves to increase the defense capabilities of the U.S. The SSOI is used to obtain Project approval by the Department of the Navy and the Office of the Secretary of Defense.

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0603790N
PROGRAM ELEMENT TITLE: NATO RESEARCH AND DEVELOPMENT

B. PROGRAM CHANGE SUMMARY:

	FY 2007	FY 2008	FY 2009
FY 2008/FY 2009 President's Budget Submission	9,741	9,934	10,135
Congressional Undistributed Reductions/Rescissions	0	-63	0
Execution Adjustments	450	0	0
Rate Adjustments	0	0	-6
SBIR Assessment	-152	-74	0
FY 2009 President's Budget Submission	10,039	9,797	10,129

PROGRAM CHANGE SUMMARY EXPLANATION:
Technical: Not applicable.

Schedule: Not applicable.

C. OTHER PROGRAM FUNDING SUMMARY:
Not applicable.

D. ACQUISITION STRATEGY:
Not applicable.

E. PERFORMANCE METRICS:
The intent of the North Atlantic Treaty Organization (NATO) cooperative R&D program is to provide "start-up" funds for projects seeking allied contributions into cooperative research and development projects with the U.S. The primary metric used in the program is foreign contributions into projects supported by the program. The performance goal is met if total foreign contributions into projects exceed total NATO cooperative R&D program funds by over 100%.

FY 2009 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2008
Exhibit R-2a

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0603790N PROGRAM ELEMENT TITLE: NATO RESEARCH AND DEVELOPMENT
PROJECT NUMBER: 2293 PROJECT TITLE: NATO COOPERATIVE RESEARCH AND DEVELOPMENT (R&D)

COST: (Dollars in Thousands)

Project Number & Title	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
2293 NATO COOPERATIVE RESEARCH AND DEVELOPMENT (R&D)	10,039	9,797	10,129	10,333	10,050	10,793	11,008

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 USD,AT&L 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. The SSOI is used to obtain Project approval by the Department of the Navy and the Office of the Secretary of Defense.

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
COOPERATIVE PROJECTS	10,039	9,797	10,129

FY 2007 Accomplishments:

• Completed support for the Multilateral Memorandum of Understanding (MOU) for Interoperable Networks for Secure Communication.
• Continued 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,AT&L and are submitted in separate SSOIs.
• Continued to support the Advance Radar Technology Integrated System Testbed cooperative project between the U.S. and the United Kingdom (U.K.).
• Continued to support the Unmanned Undersea Vehicles (UUV), Intelligence, Surveillance and Reconnaissance (ISR) and Anti-Submarine Warfare (ASW) cooperative project between the U.S. and the U.K.

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0603790N PROGRAM ELEMENT TITLE: NATO RESEARCH AND DEVELOPMENT
PROJECT NUMBER: 2293 PROJECT TITLE: NATO COOPERATIVE RESEARCH AND DEVELOPMENT (R&D)

• Continued to support the Advanced Hull Materials and Structures Technology (AHM&ST) cooperative project between the U.S. and Japan.
• Continued to support the multilateral cooperative project concerning Maritime Missile Defense Modeling and Simulation.
• Continued to provide support for the Six (6) Degrees of Freedom Ship Roll cooperative project between the U.S. and Italy.
• Continued to provide support for the cooperative project between the U.S. and Australia concerning Australia United States Phased Array Radar (AUSPAR).
• Continued to provide support for the cooperative project between the U.S. and Singapore regarding Multi-Statics Sonar.
• Continued to provide support for the cooperative project between the U.S. and U.K. regarding Stand-Off Sensors for Non-Acoustic ASW and ISR.
• Continued to provide support for the cooperative project between the U.S. and Japan regarding Japan/United States Radar Research (JUSRR).
• Continued to support the cooperative project between the U.S. and Japan regarding Open Architecture.
• Continued to support the cooperative project between the U.S. and Australia regarding the Australia/U.S. Distributed Engineering Plan (AUSDEP).
• Supported the cooperative project between the U.S. and Germany regarding Torpedo Countermeasures ELF Sensor System.
• Supported the cooperative project between the U.S. and the Netherlands regarding Failure Prediction of Composite and Hybrid Naval Structures (DYCOSS 3D).
• Supported the cooperative project between the U.S. and the Republic of Korea regarding Low Cost Guided Imaging Rocket.
• Supported the cooperative project between the U.S. and Singapore regarding Comprehensive Maritime Awareness (CMA) Joint Capability Technology Demonstration.
• Supported the cooperative project between the U.S. and Sweden regarding Nonacoustic Sensing and Nonlinear Dynamics (NSND) Amendment 1.
• Planned support for the cooperative project between the U.S. and Singapore regarding Infrared Hyperspectral Imaging at Wavelengths Beyond 3um.
• Planned support for the cooperative project between the U.S. and U.K. regarding Torpedo Guidance and Control.
• Planned support for the cooperative project between the U.S. and U.K. regarding Network Centric Mapping Database (NCMD).
• Planned support for the cooperative project between the U.S. and U.K. regarding Next Generation

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0603790N PROGRAM ELEMENT TITLE: NATO RESEARCH AND DEVELOPMENT
PROJECT NUMBER: 2293 PROJECT TITLE: NATO COOPERATIVE RESEARCH AND DEVELOPMENT (R&D)

Countermeasures.
• Planned support for the cooperative project between the U.S. and Australia regarding Multiplexed Fiber Laser Sensors.
• Planned support for the multilateral cooperative project regarding Open Architecture Radar Interface Standard Project (OARIS).

FY 2008 Plans:

• Continue to support approved cooperative projects.
• Initiate support for the Coalition Maritime Missile Defense Battle Management C4I (BMC4I) Architecture Definition project between the U.S. and multiple nations.
• Initiate support for the ALR-67(v3) project between the U.S. and Australia.
• Initiate support for enhancing and validating the Dynamic System Mechanics Advanced Simulation (DYSMAS) to meet emerging modeling and simulation changes project between the U.S. and Germany.
• Initiate support for Open Architecture Radar Interface Standard (OARIS) project between the U.S. and multiple nations.
• Initiate support for multiplexed fiber laser sensors project between the U.S. and Australia.
• Initiate support for Torpedo Guidance and Control; False Targets project between the U.S. and U.K.
• Initiate support for Advanced Non-Acoustic Magnetometer Technologies project between the U.S. and Sweden.
• Initiate Intelligence Ship Detection (MISD-I) project between the U.S. and U.K.

FY 2009 Plans:

• Continue to support approved cooperative projects.
• Initiate support for the Air-Independent Refuelable Energy System for Unmanned Undersea Vehicle (UUV) Application project between the U.S. and U.K.
• Initiate support for the Coalition Maritime Missile Defense Battle Management Command, Control, Communications, Computers and Intelligence (BMC4I) Architecture Definition PA2 between the U.S. and multiple nations.

C. OTHER PROGRAM FUNDING SUMMARY - NAVY RELATED RDT&E:
PE 0605853N Management, Technical & International Support

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0603790N PROGRAM ELEMENT TITLE: NATO RESEARCH AND DEVELOPMENT
PROJECT NUMBER: 2293 PROJECT TITLE: NATO COOPERATIVE RESEARCH AND DEVELOPMENT (R&D)

OTHER PROGRAM FUNDING SUMMARY - NON-NAVY RELATED RDT&E:
PE 0605130D8Z Foreign Comparative Testing

D. ACQUISITION STRATEGY:
Not applicable.

FY 2009 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2008
Exhibit R-2a

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0603790N PROGRAM ELEMENT TITLE: NATO RESEARCH AND DEVELOPMENT
PROJECT NUMBER: 2293 PROJECT TITLE: NATO COOPERATIVE RESEARCH AND DEVELOPMENT (R&D)

A. PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 2007	FY 2008	FY 2009
a. Cooperative Research and Development	10,039	9,797	10,129

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 2007 Budget	FY 2008 Budget	FY 2009 Budget	To Complete	Total Program
Product Development									
NAVSEA	PD				4,724	2,752	2,299	CONT.	CONT.
NSWC	WX				2,215	3,205	2,206	CONT.	CONT.
NUWC	WX				740	395	800	CONT.	CONT.
SPAWAR	WX				300	600	525	CONT.	CONT.
NAVAIR	WX				100	800	1,500	CONT.	CONT.
NRL	WX				1,210	710	600	CONT.	CONT.
Miscellaneous					750	1,335	2,199	CONT.	CONT.
Total					10,039	9,797	10,129		

FY 2009 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2008
Exhibit R-2a

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0603790N PROGRAM ELEMENT TITLE: NATO RESEARCH AND DEVELOPMENT
PROJECT NUMBER: 2293 PROJECT TITLE: NATO COOPERATIVE RESEARCH AND DEVELOPMENT (R&D)

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	FY 2007 Budget	FY 2008 Budget	FY 2009 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 2007 Budget	FY 2008 Budget	FY 2009 Budget	To Complete	Total Program
Test and Evaluation									

GOVERNMENT FURNISHED PROPERTY: Not applicable.

	FY 2007 Budget	FY 2008 Budget	FY 2009 Budget	To Complete	Total Program
Subtotal Product Development	10,039	9,797	10,129	CONT.	CONT.
Subtotal Support and Management	0	0	0	CONT.	CONT.
Subtotal Test and Evaluation	0	0	0	0	0
Total Project	10,039	9,797	10,129	CONT.	CONT.

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION							DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**			R-1 ITEM NOMENCLATURE **0603795N/LAND ATTACK TECHNOLOGY**				
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	64.339	51.027	40.028	28.627	17.802	17.377	17.731
2156 / NAVAL SURFACE FIRE SUPPORT	25.513	29.369	38.786	27.363	16.753	17.058	17.372
2325 / Naval Fires Control System	1.734	0.990	1.242	1.264	1.049	0.319	0.359
9999 / Congressional Add	37.092	20.668	0.000	0.000	0.000	0.000	0.000

A. MISSION DESCRIPTION:

A. (U) Mission Description and Budget Item Justification: The Naval Surface Fire Support (NSFS) mission supports the Land Attack Technology program element. To meet the United States Marine Corp (USMC) requirements for NSFS, the Navy is developing gun systems that can provide the required range, lethality, accuracy, and responsiveness. The NSFS program (Project 2156) is developing a 5" Extended Range Munition (ERM) with a coupled Global Positioning System (GPS)/Inertial Navigation System (INS) and the 5"/62 gun (a modification of the existing 5"/54 gun). This munition will have the capability to deliver its payload to a range in excess of current conventional ammunition utilizing rocket assisted propulsion with associated propelling charge improvements. The Naval Fires Control System (NFCS) (Project 2325) automates shipboard land attack battle management duties to be interoperable and consistent with joint C4ISR systems. This shipboard system will significantly improve the Navy's ability to support Operational Maneuver from the Sea (OMFTS). The Advanced Medium Caliber Gun System (AMCGD) (Project 9051C) is a demonstration to investigate an advanced gun design encompassing modularity, scalability, compactness, and long range. The Ballistic Trajectory Extended Range Munition (BTERM) (Project 9052C) - BTERM is a 5" gun-launched projectile employing a ballistic trajectory enroute to the target. BTERM utilizes rocket assisted propulsion to achieve extended ranges and a coupled GPS/INS guidance system for improved accuracy over current 5" ballistic ammunition. The Millennium Gun System (MGS) (Project 9362C) - The Millennium Gun System provides for the initial review of the 35mm Millennium Gun and ammunition development process and planning for successful weapon suitability. The 76mm Medium Caliber Gun (Project 9829N). The 76mm Super Rapid Gun effort is comprised of an evaluation of both the gun and associated ammunition. The Automated Explosives Safety Assessment Tools (Project 9A22N) - Developing quantitative risk-based explosives safety assessment tools and criteria, and applying methods as decision-making aids. The research goal is a risk-based safety decision-making strategy and implementation process, for all aspects of DoN explosives safety management initially at the headquarters level with a vision to implement at the operation Fleet and Field Activity levels. The EX-171 Extended Range Guided Munitions (ERGM) EMD (Project 9A23N). The ERGM EMD performs additional component level reliability tests in FY08. Perform flight test planning and test set-up activities in FY08 at White Sands Missile Range. The Projectile Common Guidance (Project 9A24N)- The Projectile Common Guidance project will investigate the integration of a lower cost Guidance Electronics Unit (GEU) in ERGM. The Affordable Weapon System (Project 9359C) - Conduct research with a Phase I study for Affordable Weapons System(s) (AWS).

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	R-1 ITEM NOMENCLATURE **0603795N/LAND ATTACK TECHNOLOGY**	

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
Previous President's Budget: (FY 08 Pres Controls)	56.257	31.021	40.044
Current Presidents Budget (FY 09 Pres Controls)	64.339	51.027	40.028
Total Adjustments	8.082	20.006	0.016
Summary of Adjustments:			
Congressional Undistributed Reductions		20.800	
SBIR Adjustments	-1.140		
Reprogramming Adjustments	9.222		
Miscellaneous Adjustments		-0.794	-0.016
Subtotal	-8.082	20.006	-0.016

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603795N/LAND ATTACK TECHNOLOGY**				PROJECT NUMBER AND NAME **2156/NAVAL SURFACE FIRE SUPPORT**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	25.513	29.369	38.786	27.363	16.753	17.058	17.372
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The NSFS program develops gun systems including the 5"/62 gun (a modification of the existing 5"/54 gun) and a 5" Extended Range Munition (ERM) with a coupled Global Positioning System (GPS) and an Inertial Navigation System (INS). This munition will have the capability to deliver its payload to a range in excess of current conventional ammunition utilizing rocket assisted propulsion with associated propelling charge improvements. In 1Q FY08, a contract modification was implemented for an extension of the ERGM System Development and Demonstration (SDD) to meet the ERM requirements. The SDD phase continues in FY08-10 leading to a Milestone C decision in FY10 and Initial Operational Capability in FY11.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603795N/LAND ATTACK TECHNOLOGY**	PROJECT NUMBER AND NAME **2156/NAVAL SURFACE FIRE SUPPORT**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	25.513	29.369	36.786
RDT&E Articles Quantity	0	0	0

Continued ERGM development. Continued component testing, qualification efforts and flight tests. A contract modification for ERGM SDD was implemented in 4Q FY07 leading to an FY11 IOC. In FY08, a 20 round reliability test will be performed. In FY09, qualification testing and Land Based Flight Tests will begin.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.000	0.000	2.000
RDT&E Articles Quantity	0	0	0

Continue integration and testing of 5 MK 45 modifications, Gun Fire Control modifications and required interfaces in support of the Extended Range Munition IOC .

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
PAN,MC BL, 025300	0.000	0.000	0.000	20.100	20.100	64.200	93.100	CONT	
WPN BLI: 4217, E5004	1.676	8.350	0.398	6.735	10.242	17.190	17.196	CONT	

D. ACQUISITION STRATEGY:

The ERM program will be continued via a contract modification in 1Q FY08 leading to a reliability test in FY08. In FY 09, qualification testing and Land Based Flight Testing will begin. Developmental Testing (DT) is planned in FY10 leading to Operational Testing (OT) IOC in FY11. BAE, the sole source manufacturer of the 5" MK 45 Gun Mount, is responsible for gun mount development efforts. The Naval Surface Warfare Center, Dahlgren is the development agent for the MK 160 Fire Control System.

E. MAJOR PERFORMERS:

Prime Contractor for ERGM development: Raytheon Missile Systems located in Tucson, AZ.

Prime Contractor for Gun development: BAE, located in Minneapolis, MN

Prime Contractor for BTERM II development: Alliant TechSystems located in Woodland Hills, CA.

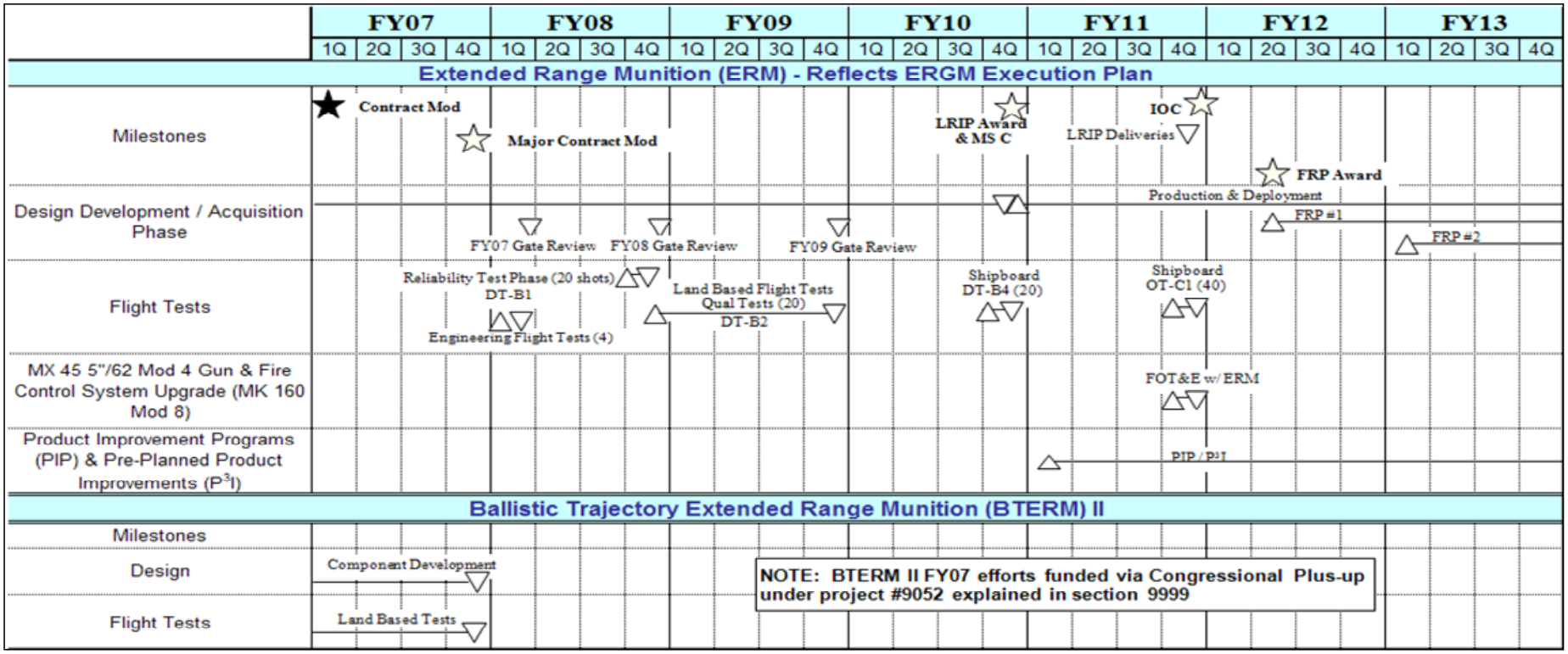
Primary Navy Warfare Center: Naval Surface Warfare Center (NSWC) located in Dahlgren, VA. Will provide technical assistance to the PMO, input into Integrated Product Teams, and will be responsible for Ship Based Developmental Flight testing and evaluation.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603795N/LAND ATTACK TECHNOLOGY**					PROJECT NUMBER AND NAME **2156/NAVAL SURFACE FIRE SUPPORT**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Privatization (2)	CPAF	BAE, Louisville, KY (96C5432)	3.908	0.000		0.000		0.000		0.000	3.908	0.000
Primary Hardware Development (2)	CPIF/FF	BAE, Minneapolis, Mn (96C5223)	58.738	0.000		0.000		0.000		0.000	58.738	0.000
	CPFF	BAE, Minneapolis, Man (01C4101)	9.872	0.000		0.000		0.000		0.000	9.872	0.000
	CPFF	BAE, Minneapolis, MN (TBD)	0.000	0.000		0.000		0.600	OCT-08	CONT	CONT	7.000
ERM SDD	CPAF/IF	Raytheon, Tucson, AZ (96C5204)	196.258	22.633	NOV-06	24.235	OCT-07	27.500	OCT-08	CONT	CONT	295.000
	WR/WX	NSWC, Dahlgren, VA	57.704	0.500	NOV-06	0.600	NOV-07	0.600	OCT-08	CONT	CONT	0.000
	WR/WX	NSWC, Indian Head, MD	15.338	0.189	NOV-06	0.250	NOV-07	0.750	OCT-08	CONT	CONT	0.000
	WR/WX	NSWC, PT Hue, CA	25.386	0.150	NOV-06	0.150	NOV-07	0.150	OCT-08	CONT	CONT	0.000
BTERM Demonstration	CPIF/AF	ATK, Woodland Hills, CA (04C4302)	16.226	0.000		0.000		0.000		CONT	CONT	40.262
	WR/WX	NSWC (VARIOUS)	1.622	0.000		0.000		0.000		0.000	1.622	0.000
Systems Engineering	WX/WR	NSWC (VARIOUS)	16.465	0.000		0.000		2.400	OCT-08	CONT	CONT	0.000
Systems Engineering	VAR	Miscellaneous	33.281	0.000		0.000		0.000		0.000	33.281	0.000
Award Fees	CPAF/IF	Raytheon, Tucson AZ (01C5402)	3.396	0.000		0.000		2.000	OCT-08	CONT	CONT	7.369
Award Fees	CPIF/AF	ATK, Woodland Hills, CA	0.000	0.000		0.000		0.000		0.000	0.000	0.000
Subtotal Product Development			**438.194**	**23.472**		**25.235**		**34.000**		**CONT**	**CONT**	**349.631**
Remarks: (1) PU 9052 funding is included in target value of contract (2) BAE was formerly known as UDLP												
Integrated Logistics Support	WR/WX	NSWC (VARIOUS)	8.944	0.000		0.000		0.250	OCT-08	CONT	CONT	0.000
Subtotal Support Costs			**8.944**	**0.000**		**0.000**		**0.250**		**CONT**	**CONT**	**0.000**
Remarks:												
Developmental Test and Eval	WR/WX	NSWC (VARIOUS)	38.593	0.801	NOV-06	1.460	NOV-07	3.346	OCT-08	CONT	CONT	0.000
Operational Test and Eval	WR/WX	OPTEVFOR	0.040	0.040	NOV-06	0.040	NOV-07	0.040	OCT-08	CONT	CONT	0.000
Subtotal Test and Evaluation			**38.633**	**0.841**		**1.500**		**3.386**		**CONT**	**CONT**	**0.000**
Remarks:												

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603795N/LAND ATTACK TECHNOLOGY**					PROJECT NUMBER AND NAME **2156/NAVAL SURFACE FIRE SUPPORT**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
T&E costs for the primary contract are included in the development costs located in the Product Development section.												
Government Engineering Support	WR/WX	NSWC (VARIOUS)	18.029	0.300	NOV-06	0.500	NOV-07	0.600	OCT-08	CONT	CONT	0.000
Project Engineering Support	WR/WX	NSWC (VARIOUS)	8.309	0.000		0.000		0.000		0.000	8.309	0.000
Program Management Support	WR/WX	VARIOUS	15.046	0.850	NOV-06	2.084	NOV-07	0.500	OCT-08	CONT	CONT	0.000
Travel	PD	NAVSEA HQ	1.136	0.050	NOV-06	0.050	NOV-07	0.050	OCT-08	CONT	CONT	0.000
Subtotal Management Services			**42.520**	**1.200**		**2.634**		**1.150**		**CONT**	**CONT**	**0.000**
Remarks:												
Total Cost			**528.291**	**25.513**		**29.369**		**38.786**		**CONT**	**CONT**	**349.631**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603795N/LAND ATTACK TECHNOLOGY**	PROJECT NUMBER AND NAME **2156/NAVAL SURFACE FIRE SUPPORT**

D. (U) Schedule Profile:



CLASSIFICATION:	UNCLASSIFIED					
EXHIBIT R-4a, SCHEDULE DETAIL					DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603795N/LAND ATTACK TECHNOLOGY**			PROJECT NUMBER AND NAME **2156/NAVAL SURFACE FIRE SUPPORT**		
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
ERM (Includes Prop Charge)							
Milestones/Contract Mods	1Q						
Contract Mod	4Q						
Major Contract Award	4Q						
LRIP Award & MS C				4Q			
LRIP Deliveries					4Q		
FRP Award						2Q	
Design Development/Acquisition Phase				4Q			
Production & Deployment				4Q			
FY 07 Gate Review		1Q					
FY 08 Gate Review		4Q					
FY 09 Gate Review			4Q				
FRP #1						2Q	
FRP #2							1Q
Reliability Test Phase DT/B1 (20)		4Q					
Engineering Flight Tests (4)		1Q					
Land Based Flight Tests Qual Test (20) DT-B2		4Q	1Q-4Q				
Shipboard OT-B4 (20)				4Q			
Shipboard OT-C1 (40)					4Q		
MX 45 5					4Q		
Product Improvement Program (PIP) & Pre-planned Product Improvements (P3I)					1Q		
BTERM II							
Demonstration Phase	4Q						
Flight Tests	4Q						

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603795N/LAND ATTACK TECHNOLOGY**				PROJECT NUMBER AND NAME **2325/Naval Fires Control System**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	1.734	0.990	1.242	1.264	1.049	0.319	0.359
RDT&E Articles Qty	0	0	0	0	0	0	0

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 current and future Naval Surface Fire Support system requirements. NFCS plans, coordinates and manages the firing of Naval Surface Fires Support (NSFS) weapon systems including the 5”/62 caliber gun and Conventional Munitions. The NFCS phase I is interfacing with the Advanced TOMAHAWK Weapons Control Systems (ATWCS) and the Tactical TOMAHAWK Weapons Control Systems (TTWCS) in order for NFCS to share the Advanced Tactical Display Console (ATDC) with ATWCS and TTWCS. 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.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/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 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	1.230	0.690	0.742
RDT&E Articles Quantity	0	0	0

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 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.103	0.000	0.000
RDT&E Articles Quantity	0	0	0

Funding supports hardware configuration to support NFCS implementation. Support DT validation.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.201	0.100	0.100
RDT&E Articles Quantity	0	0	0

Funding provides Technical Direction Agent support, joint requirements investigation and Concept of Operations (CONOPs) scenario development.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.100	0.100	0.100
RDT&E Articles Quantity	0	0	0

Funding provides C4I and combat system interface investigation and analysis in relation to developing C4I systems and technologies.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.100	0.100	0.100
RDT&E Articles Quantity	0	0	0

Funding supports developmental test and evaluation, and logistics support elements development.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.200
RDT&E Articles Quantity	0	0	0

Funding supports operational test and evaluation and logistics support elements development.

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
OPN BLI 5112	3.296	1.371	1.695	1.424	1.117	1.137	1.150	CONT	

D. ACQUISITION STRATEGY:

A sole source contract was awarded to GDIS for Phase 1 software development. NSWC/DD took over this function from GDIS and will remain the software developer. The hardware developer is NUWC-KP.

E. MAJOR PERFORMERS:

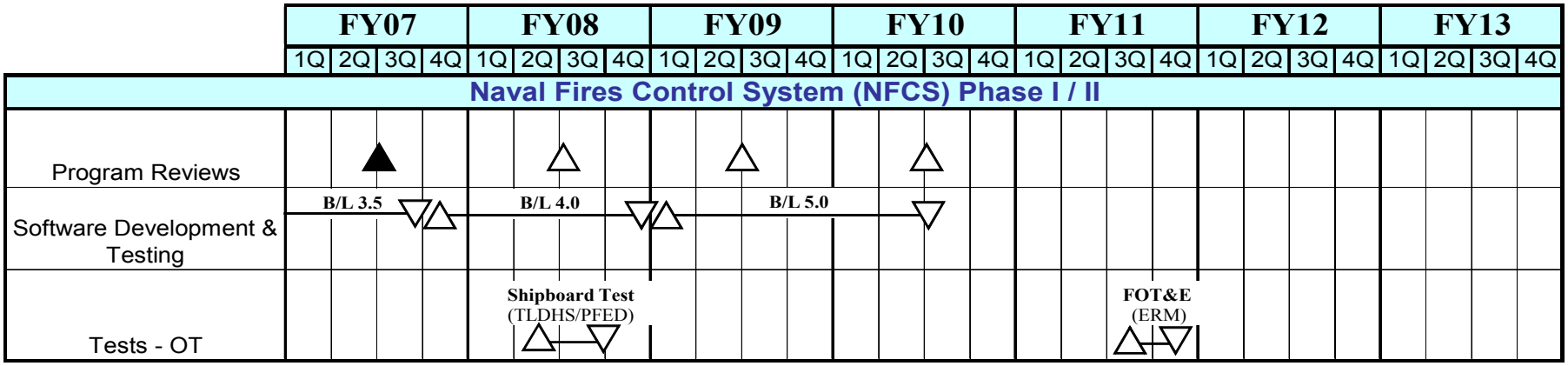
NSWC/DD - Technical Direction Agent, Software Development Agent and Systems Engineering Lead.
NUWC/KP - Hardware Design Agent and Hardware Developer.
NSWC/PHD - Test and Evaluation Agent and Integrated Logistics Support Agent.
SPAWARSYSCEN, San Diego - Common Operating Environment (COE) and Adjunct Processor Developer.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603795N/LAND ATTACK TECHNOLOGY**					PROJECT NUMBER AND NAME **2325/Naval Fires Control System**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Primary Software Development	SS/CPAF	GDIS, Arlington, VAQ	25.517	0.000		0.000		0.000		0.000	25.517	0.000
	SS/CPAF	LM/MDS, Valley Forge, PA	19.079	0.000		0.000		0.000		0.000	19.079	0.000
	WR/WX	NSWC, Dahlgren, VA	12.655	0.856	OCT-06	0.383	NOV-07	0.435	OCT-08	CONT	CONT	0.000
	VAR	VARIOUS	1.119	0.000		0.000		0.000		0.000	1.119	0.000
	WR/WX	SSC/SD	4.809	0.198	OCT-06	0.177	NOV-07	0.171	OCT-08	CONT	CONT	0.000
Systems Engineering	WR	SSC/SD	2.951	0.000		0.000		0.000		0.000	2.951	0.000
	WR/WX	NSWC, Dahlgren, VA	18.248	0.100	OCT-06	0.100	NOV-07	0.100	OCT-08	CONT	CONT	0.000
	SS/CP	VITRO/BAE	0.670	0.000		0.000		0.000		0.000	0.670	0.000
	VAR	VARIOUS	1.304	0.000		0.000		0.000		0.000	1.304	0.000
Ancillary Hardware Development	WR/WX	NUWC, Keyport Division	11.058	0.000		0.000		0.000		0.000	11.058	0.000
	WR/WX	NSWC, PT HUE., CA	5.535	0.200	OCT-06	0.000		0.000		CONT	CONT	0.000
	VAR	PMFATDS	3.576	0.000		0.000		0.000		0.000	3.576	0.000
	SS/CPAF	JHU/APL	1.362	0.000		0.000		0.000		0.000	1.362	0.000
	SS/CPFF	JHU/APL	0.121	0.000		0.000		0.000		0.000	0.121	0.000
	WR	NSWC, Dahlgren, VA	2.236	0.000		0.000		0.000		0.000	2.236	0.000
LAM FC Hardware/Software Dev	SS/CPFF	LM/Baltimore, MD	4.181	0.000		0.000		0.000		0.000	4.181	0.000
TERMINATED	SS/CPAF	LM/MDS, Valley Forge, PA	12.131	0.000		0.000		0.000		0.000	12.131	0.000
	SS/CPFF	UDLP	0.455	0.000		0.000		0.000		0.000	0.455	0.000
	WR	NSWC, Dahlgren, VA	1.162	0.000		0.000		0.000		0.000	1.162	0.000
	WR	SSC/SD	0.486	0.000		0.000		0.000		0.000	0.486	0.000
LAM FC Systems Engineering	SS/CPFF	JHU/APL	0.386	0.000		0.000		0.000		0.000	0.386	0.000
TERMINATED	WR	NSWC, PT HUE., CA	0.361	0.000		0.000		0.000		0.000	0.361	0.000
Award Fees			3.979	0.000		0.000		0.000		0.000	3.979	0.000
Ancillary Hardware Dev	VAR	VARIOUS	1.541	0.000		0.000		0.000		0.000	1.541	0.000
Subtotal Product Development			**134.922**	**1.354**		**0.660**		**0.706**		**CONT**	**CONT**	**0.000**
Remarks:												
Software Development		NSWC, Panama City	0.049	0.000		0.000		0.000		0.000	0.049	0.000
Training Development	VAR	VARIOUS	0.487	0.000		0.000		0.000		0.000	0.487	0.000

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603795N/LAND ATTACK TECHNOLOGY**					PROJECT NUMBER AND NAME **2325/Naval Fires Control System**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Integrated Logistics Support	VAR	VARIOUS	5.205	0.150	OCT-06	0.100	NOV-07	0.100	OCT-08	CONT	CONT	0.000
Subtotal Support Costs			**5.741**	**0.150**		**0.100**		**0.100**		**CONT**	**CONT**	**0.000**
Remarks:												
Developmental Test & Eval	WR/WX	NSWC, PT HUE., CA	6.077	0.100	OCT-06	0.100	NOV-07	0.100	OCT-08	CONT	CONT	0.000
	VAR	VARIOUS	1.500	0.000		0.000		0.000		0.000	1.500	0.000
Operational Test & Eval	VAR	VARIOUS	5.508	0.000		0.000		0.200	OCT-08	0.000	5.708	0.000
Subtotal Test and Evaluation			**13.085**	**0.100**		**0.100**		**0.300**		**CONT**	**CONT**	**0.000**
Remarks:												
Program Management Spt	VAR	VARIOUS	5.133	0.100	OCT-06	0.100	NOV-07	0.106	OCT-08	CONT	CONT	0.000
TRAVEL	PD	NAVSEA HQ	0.485	0.030	OCT-06	0.030	NOV-07	0.030	OCT-08	CONT	CONT	0.000
			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Subtotal Management Services			**5.618**	**0.130**		**0.130**		**0.136**		**CONT**	**CONT**	**0.000**
Remarks:												
Total Cost			**159.366**	**1.734**		**0.990**		**1.242**		**CONT**	**CONT**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603795N/LAND ATTACK TECHNOLOGY**	PROJECT NUMBER AND NAME **2325/Naval Fires Control System**

D. (U) Schedule Profile:



CLASSIFICATION:	UNCLASSIFIED					
EXHIBIT R-4a, SCHEDULE DETAIL					DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603795N/LAND ATTACK TECHNOLOGY**			PROJECT NUMBER AND NAME **2325/Naval Fires Control System**		
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Naval Fires Control System (NSCS) Phase I/II							
FOT&E #1 (TLDHS & PFED)		2Q-3Q					
FOT&E #2 (ERM)					3Q-4Q		
Software Development & Testing B/L 3.5	1Q-3Q						
Software Development & Testing B/L 4.0	4Q	1Q-4Q					
Software Development & Testing B/L 5.0			1Q-4Q	1Q-2Q			

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603795N/LAND ATTACK TECHNOLOGY**	PROJECT NUMBER AND NAME **9999/Congressional Add**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
9999 Congressional Adds	0.000	20.668	0.000
RDT&E Articles Quantity	0	0	0

Affordable Weapon System (The money will be executed out of NAVAIR), Modular Advanced Ultra Light Weapons System Prototype Mount, 76mm Super Rapid Medium Caliber Gun system Explosives Safety Review.

	FY 2007	FY 2008	FY 2009
9051C Advanced Medium Gun Demonstrator	1.071	0.000	0.000
RDT&E Articles Quantity	0	0	0

The Advanced Medium Caliber Gun System is a demonstration to investigate an advanced gun design encompassing modularity, scalability, compactness, and long range. The program is intended to provide a versatile gun test platform for the U.S. military to further explore advanced gun technology in the areas of materials (barrel coatings and liners), interior and exterior ballistics and advanced projectiles. Tasks to be completed include conduct of Limited Performance Elevated Test, fabricate and integrate horizontal propellant characterization test fixture and recoil mechanism and elevatable test stand.

	FY 2007	FY 2008	FY 2009
9052C Ballistic Trajectory Extended Range Munition Program (BTERM)	11.699	0.000	0.000
RDT&E Articles Quantity	0	0	0

BTERM is a 5" gun-launched projectile employing a ballistic trajectory enroute to the target. BTERM utilizes rocket assisted propulsion to achieve extended ranges and a coupled GPS/INS guidance system for improved accuracy over current 5" ballistic ammunition.

	FY 2007	FY 2008	FY 2009
9362C Millennium Gun System	1.992	0.000	0.000
RDT&E Articles Quantity	0	0	0

The Millennium Gun System provides 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.

	FY 2007	FY 2008	FY 2009
9542C Mk57mm gun/ammo transition and start-up	0.000	0.000	0.000
RDT&E Articles Quantity	0	0	0

The 57mm Gun System is being procured and installed on US Coast Guard WMSL Cutters and LCS (flight 0 and DDG1000). Funds are provided for the completion of qualification of the 57mm MK110 MOD0 Gun and associated ammunition. Additional efforts include physical configuration audits of the gun parts, gun preparation, assembly and firing of the guns, drawing updates, and technical manual and training preparation.

CLASSIFICATION:	UNCLASSIFIED		
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)			DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603795N/LAND ATTACK TECHNOLOGY**	PROJECT NUMBER AND NAME **9999/Congressional Add**	

	FY 2007	FY 2008	FY 2009
9829C 76mm Super Rapid Medium Caliber Gun	1.774	0.000	0.000
RDT&E Articles Quantity	0	0	0

The 76mm Super Rapid Gun Mount (SRGM) supports the investigation of a medium caliber gun and associated ammunition. This effort includes support for safety reviews, test documentation and drawings, barrel studies, and test equipment required for gun and ammunition evaluation.

	FY 2007	FY 2008	FY 2009
9A22N Automated Explosive Safety Assessment Tools	0.971	0.000	0.000
RDT&E Articles Quantity	0	0	0

Automated Explosives Safety Assessment Tool funding will be used for developing quantitative risk-based explosives safety assessment tools and criteria, and applying these methods as decision-making aids. The research goal is a risk-based explosives safety decision-making strategy and implementation process, for all aspects of DoN explosives safety management initially at the headquarters level with a far reaching vision to implement at the operation Fleet and Field Activity levels.

	FY 2007	FY 2008	FY 2009
9A23N EX 171 Extended Range Munitions (ERGM) EMD	2.136	0.000	0.000
RDT&E Articles Quantity	0	0	0

Perform additional component level reliability tests in FY07. Perform flight test planning and test set-up activities.

	FY 2007	FY 2008	FY 2009
9A24N Projectile Common Guidance	2.147	0.000	0.000
RDT&E Articles Quantity	0	0	0

Investigate the integration of a lower cost Guidance Electronics Unit (GEU) in ERGM.

	FY 2007	FY 2008	FY 2009
9359C Affordable Weapon System	15.302	0.000	0.000
RDT&E Articles Quantity	0	0	0

Affordable Weapon System (This money is being executed out of NAVAIR) - Conduct research with a Phase I study for Affordable Weapons System(s) (AWS) to include mission concept analysis, mission analysis, system architecture analysis, fly-away cost analysis with life cycle cost impacts, and system engineering for a sea-based land attack and strike mission AWS(s) which will operate from ships, with potential sea-based Naval, Navy/Marine Corp, aircraft launch capability, will be capable of defeating targets at standoff ranges, and can rapidly complete the engagement phase consistent with making the kill chain short. the potential AWS(s) will not exceed $250K fly away cost. The Navy awarded four fixed price study contracts in 2007 ($13.827M in FY06 funds and $7.787M in FY07 funds). Remaining FY07 funds reimbursable to support government engineering/management services.

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4 Demonstration and Validation**	PROGRAM ELEMENT (PE) NAME AND NO. **0603851M Non-Lethal Warfare Demonstration and Validation**							
COST ($ in Millions)		FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost		**45.126**	**47.876**	**46.902**	**47.617**	**48.585**	**49.325**	**50.355**
C2319 Non-Lethal Weapons		**41.726**	**45.292**	**46.902**	**47.617**	**48.585**	**49.325**	**50.355**
C9999 Congressional Adds		**3.400**	**2.584**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Quantity of RDT&E Articles								

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

This program develops non-lethal weapon (NLW) systems that by their design, provide a new non-lethal capability to minimize fatal or permanent injuries and undesired damage to property and the environment. 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.

1. Received $0 in FY07 GWOT.
2. Received $0 in FY08 from the 2008 Consolidated Appropriation.
3. FY08 funding totals do not include $8M previously requested for current FY08 GWOT requirements.

B. PROGRAM CHANGE SUMMARY

	FY2007	FY2008	FY2009
(U) FY 2008 President's Budget:	**49.129**	**45.892**	**46.625**
(U) Adjustments from the President's Budget:			
(U) Congressional/OSD Program Reductions			
(U) Congressional Increases		2.600	
(U) Congressional Rescissions			
(U) Congressional Undistributed Rescissions/Reductions		-0.308	
(U) Reprogrammings	-2.834		
(U) SBIR/STTR Transfer	-1.169	-0.308	
(U) Minor Affordability Adjustment		0.000	0.277
(U) FY 2009 President's Budget:	**45.126**	**47.876**	**46.902**

CHANGE SUMMARY EXPLANATION:

(U) Funding: See Above.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
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 2007	FY 2008	FY 2009	FY2010	FY2011	FY2012	FY2013
Project Cost		**41.726**	**45.292**	**46.902**	**47.617**	**48.585**	**49.325**	**50.355**
RDT&E Articles Qty								

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

This project develops non-lethal weapon (NLW) systems that by their design, provide a new non-lethal capability to minimize fatal or permanent injuries and undesired damage to property and the environment. 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 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost		**2.382**	**2.625**	**2.764**
RDT&E Articles Qty				

Execution oversight, administration and support of the Joint NLW Program and technologies database.

COST ($ in Millions)		FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost		**0.775**	**1.125**	**1.254**
RDT&E Articles Qty				

Evaluation of NLWs by Service warfighting laboratories and Joint Forces Command (JFCOM) for direct user feedback of various non-lethal (NL) technologies and munitions.

COST ($ in Millions)		FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost		**1.438**	**1.655**	**1.784**
RDT&E Articles Qty				

Modeling and simulation (M&S) of NLWs in warfighter training/war gaming models and performance effects data collection/population to demonstrate/analyze NL effects and optimize training.

COST ($ in Millions)		FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost		**1.075**	**1.000**	**1.075**
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 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost		**2.300**	**2.345**	**3.000**
RDT&E Articles Qty				

Airburst Non-Lethal Munition (formerly known as Objective Individual Combat Weapons (OICW)) – Continue development of NL munitions for the "next generation" 25mm combat weapon to exploit air-burst munitions with NL payloads at longer ranges with existing systems.

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008
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 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost		**2.340**	**2.400**	**2.450**
RDT&E Articles Qty				

Program support for each service's coordination and participation in the Joint NLW Program.

COST ($ in Millions)		FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost		**0.756**	**0.770**	**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 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost		**5.000**	**0.000**	**0.000**
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 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost		**0.000**	**4.000**	**5.054**
RDT&E Articles Qty				

Active Denial Transition - Jointly sponsored effort that will transition the Active Denial System capability from an ACTD to an acquisition program of record.

COST ($ in Millions)		FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost		**0.000**	**0.000**	**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 Non-Lethal Weapons.

COST ($ in Millions)		FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost		**0.000**	**0.000**	**0.000**
RDT&E Articles Qty				

Mobility Denial System (MDS) - Joint evaluation, analysis and testing of anti-traction material and delivery methods/volumes.

COST ($ in Millions)		FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost		**5.687**	**6.045**	**6.120**
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 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost		**7.100**	**9.918**	**10.608**
RDT&E Articles Qty				

The advanced development of emerging technologies into the acquisition process to satisfy critical joint mission tasks.

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2008	
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 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost		**7.961**	**7.925**	**8.054**
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 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost		**1.458**	**1.579**	**1.937**
RDT&E Articles Qty				
Develop/expand the NATO Measures of Effectives (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 component commander (COCOM) staffs to identify emerging NLW capabilities and their utility in theater operations and Homeland Security missions.				
COST ($ in Millions)		FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost		**1.000**	**0.000**	**0.000**
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				
COST ($ in Millions)		FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost		**0.950**	**2.000**	**2.000**
RDT&E Articles Qty				
Mission Payload Module Non Lethal Weapon System (formerly TUGV) - Development of a tube launched NL munition for integration on HUMMWVs, tactical vehicles, boats and ships, with a range of 30-150 meters (T) and 10 - 500 meters (O).				
COST ($ in Millions)		FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost		**0.856**	**1.105**	**0.000**
RDT&E Articles Qty				
Vehicle Lightweight Arresting Device (VLAD) - Accelerated development and acquisition of a man-portable, pre-emplaced spiked net vehicle stopper.				
COST ($ in Millions)		FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost		**0.648**	**0.800**	**0.800**
RDT&E Articles Qty				
Joint Integration Program (JIP) - Select and test newly developed commercial products that may meet the Joint Services' requirements for specific NL capability set common items.				
(U) Total $		**41.726**	**45.292**	**46.902**

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
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) PROJECT CHANGE SUMMARY:	**FY 2007**	**FY 2008**	**FY 2009**
(U) FY 2008 President's Budget:	**44.646**	**45.892**	**46.625**
(U) Adjustments from the President's Budget:			
(U) Congressional Program Reductions			
(U) Congressional Rescissions			
(U) Congressional Increases			
(U) Congressional Undistributed Rescissions/Reductions		-0.292	
(U) Reprogrammings	-1.838		
(U) SBIR/STTR Transfer	-1.082	-0.308	
(U) Minor Affordability Adjustments			0.277
(U) FY 2009 President's Budget:	**41.726**	**45.292**	**46.902**

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 2007**	**FY 2008**	**FY 2009**	**FY 2010**	**FY 2011**	**FY 2012**	**FY 2013**	**To Compl**	**Total Cost**

(U) Related RDT&E: Not Applicable.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
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) 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:

FY08-FY09 - The Air Force and Army will continue to transition the Active Denial System (ADS) Advanced Concept Technology Demonstration (ACTD) to a joint acquisition program.

(U) SCHEDULE PROFILE: Not Applicable.

Exhibit R-3 Cost Analysis | DATE: February 2008

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 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Compl	Total Cost	Target Value of Contract
Product Development	MIPR	ARDEC, Picatinny, NJ	14.195	5.618	10/06	5.567	10/07	5.108	10/08	Cont	Cont	
Product Development	MIPR	SOCOM, McDill AFB, FL	8.856	0.000	12/06	0.000		0.000		Cont	Cont	
Product Development	WR	NSWC, Various	9.612	1.265	Various	0.936	Various	0.876	Various	Cont	Cont	
Product Development	MIPR	Kirtland AFB, NM	13.061	5.000	12/06	5.000	12/07	5.371	12/08	Cont	Cont	
Product Development	MIPR	JWCF, Ft. Monroe, VA	8.961	0.775	02/07	1.112	02/08	1.309	02/09	Cont	Cont	
Product Development	MIPR	Brooks AFB, TX	13.534	6.210	02/07	6.120	02/08	6.220	02/09	Cont	Cont	
Product Development	WR/RCP	MCSC, Quantico,VA	12.282	1.782	11/06	1.976	11/07	2.100	11/08	Cont	Cont	
Product Development	MIPR	NSMA,Arlington, VA	11.556	3.240	01/07	3.202	01/08	4.000	01/09	Cont	Cont	
Product Development	CPFF	MCLB, Albany,GA	8.316	0.000	01/07	0.000	01/08	0.000	01/09	Cont	Cont	
Product Development	MIPR	Various - M&S	9.623	1.438	Various	1.730	Various	1.851	Various	Cont	Cont	
Product Development	MIPR	Various - JIP	8.964	0.648	Various	0.800	Various	0.800	Various	Cont	Cont	
Product Development	MIPR	Var (Uniformed Services)	20.694	11.725	Various	14.700	Various	14.878	Various	Cont	Cont	
										Cont	Cont	
Subtotal Product Dev			**139.654**	**37.701**		**41.143**		**42.513**		**Cont**	**Cont**	

Remarks:

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Compl	Total Cost	Target Value of Contract
Support Cost	WR	MCSC, Quantico, VA	8.766	0.450	11/06	0.500	11/07	0.500	11/08	Cont	Cont	
Support Cost	WR	NSWC, Dahlgren, VA	8.756	0.440	10/06	0.470	10/07	0.710	10/08	Cont	Cont	
Support Cost	Various	MCSC, Quantico, VA	8.906	0.635	12/06	0.679	12/07	0.679	12/08	Cont	Cont	
Support Cost	Various	Various	10.566	2.500	Various	2.500	Various	2.500	Various	Cont	Cont	
										Cont	Cont	
Subtotal Support			**36.994**	**4.025**		**4.149**		**4.389**		**Cont**	**Cont**	

Remarks:

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Compl	Total Cost	Target Value of Contract
T&E Cost										Cont	Cont	
										Cont	Cont	
Subtotal T&E			**0.000**	**0.000**		**0.000**		**0.000**		**Cont**	**Cont**	

Remarks:

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Compl	Total Cost	Target Value of Contract
Management												
Subtotal Management			**0.000**	**0.000**		**0.000**		**0.000**		**Cont**	**Cont**	

Remarks:

Total Cost			**176.648**	**41.726**		**45.292**		**46.902**		**Cont**	**Cont**	

Exhibit R-4-4a Project Schedule/Detail		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NUMBER AND NAME
RDT&E, N /BA-4 Adv Comp Dev & Prototypes	**0603851M Non-Lethal Warfare DEM/VAL**	**C2319 Non-Lethal Weapons Program**

(U) D. SCHEDULE PROFILE:

Airburst Non-Lethal Munition (ANLM)

Milestone A:	3rd Qtr, FY2003	Contract Award:	1st Qtr, FY 2009
Milestone B:	3rd Qtr, FY2007	IOC:	3rd Qtr, FY 2009
DT / OT:	4th Qtr, FY 2008	FOC:	1st Qtr, FY 2011
Milestone C:	1st Qtr, FY 2009		

Active Denial System (ADS) ACTD

ACTD Approved:	3rd Qtr, FY2002	Contract Award:	1st Qtr, FY 2009 (for SD&D)
Milestone B:	1st Qtr, FY 2008	IOC:	4th Qtr, FY 2012
DT / OT:	4th Qtr, FY2010	FOC:	4th Qtr, FY 2014
Milestone C:	2nd Qtr, FY2012		

The development of new technology NLW systems are in various stages of acquisition and the acquisition strategy for each weapon system is largely dependent on lead service.

Program Funding Summary (APPN, BLI #, NOMEN)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
(U) RDT&E,N	41.726	45.292	46.902	47.617	48.585	49.325	50.355	Cont	Cont

EXHIBIT R-2a, RDT&E Project Justification

DATE: **February 2008**

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-4 Demonstration and Validation	**0603851M Non-Lethal Warfare Dem/Val**	**C9999 Congressional Adds**

COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 20010	FY2011	FY2012	FY2013
C9999 Congressional Adds	**3.400**	**2.584**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
RDT&E Articles Qty							

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

(U) B. ACCOMPLISHMENTS/PLANNED PROGRAM:

COST ($ in Millions)		FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost		**1.262**	**0.000**	**0.000**
RDT&E Articles Qty				

Boat Trap System for Port Security/Craft Interdiction 9878A: This Congressional plus-up is intended to advance technology to broaden the boat trap system effectiveness against several threat water-crafts.

COST ($ in Millions)		FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost		**2.138**	**0.000**	**0.000**
RDT&E Articles Qty				

Non-Lethal Defense Technology Research 9A26: 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 Non-Lethal Weapons.

COST ($ in Millions)		FY 2007	FY 2008	FY 2009
Accomplishment/Effort Subtotal Cost			**2.584**	**0.000**
RDT&E Articles Qty				

Undistributed 9999: This Congressional plus-up funds two Congressional interest items. The first, High Power Microwave System for Vehicle Mobilization ($.993M), is intended to assist in the test and evaluation of existing commercial-Off-The-Shelf High Power Microwave sources for their ability to disrupt/neutralize vehicle engine electrical components which will cause the engine to stall and thus stop. The second, Spherical Airship Research and Development ($1.591M) is a program managed by the USAF and the funds will be realigned to them.

(U) Total $	**3.400**	**2.584**	**0.000**

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-4 Demonstration and Validation	**0603851M Non-Lethal Warfare Dem/Val**	**C9999 Congressional Adds**

(U) PROJECT CHANGE SUMMARY:	**FY 2007**	**FY 2008**	**FY 2009**
(U) FY 2008 President's Budget:	**4.483**	**0.000**	**0.000**
(U) Adjustments from the President's Budget:			
(U) Congressional Program Reductions			
(U) Congressional Rescissions			
(U) Congressional Increases		2.600	
(U) Reprogrammings	-0.996		
(U) SBIR/STTR Transfer	-0.087		
(U) Minor Affordability Adjustment		-0.016	
(U) FY FY2009 President's Budget:	**3.400**	**2.584**	**0.000**

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 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
(U) Related RDT&E:									
(U) RDT&E PE 0603851M, Project C2319, NL Warfare Dem/Val	41.726	45.292	46.902	47.617	48.585	49.325	50.355	Cont	Cont

(U) D. ACQUISITION STRATEGY:

(U) E. MAJOR PERFORMERS:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4						R-1 ITEM NOMENCLATURE 0603860N, JPALS	
COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	32.594	69.298	99.929	106.407	104.397	113.033	86.543
2329 JOINT PRECISION APPROACH	32.594	69.298	99.929	106.407	104.397	113.033	86.543

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element provides for the development, integration, and testing of the Joint Precision Approach and Landing System (JPALS), which will be applicable to Department of Defense (DoD) Ground systems, DoD aircraft, and Navy and Coast Guard air capable surface ships. JPALS will provide a rapidly deployable, adverse weather, adverse terrain, day-night precision approach and landing capability. Operating environments include fixed or permanent ground facilities, tactical facilities, and shipboard. JPALS will be interoperable with civil landing systems. The JPALS program was established in response to the Joint Mission Need Statement (MNS) for Precision Approach and Landing Capability (PALC), which was approved by the Chief of Naval Operations on 28 July 1994 and the Chief of Staff of the Air Force on 8 August 1994. The PALC MNS was validated by the Joint Requirements Oversight Council (JROC) on 29 August 1995. Army Joint Service participation was included in the 28 May 1996 Principal Deputy Under Secretary of Defense (Acquisition and Technology) Milestone 0 Acquisition Decision Memorandum (ADM), which also designated the Air Force as the Lead Service. In March 2004, the JPALS Overarching Integrated Program Team (OIPT) determined that the MNS should be converted to an Initial Capabilities Document (ICD). The JPALS ICD was approved by the JROC on 19 September 2005. On 21 July 2007 JROCM approved the JPALS Capability Development Document (CDD) and designated the Navy as the Lead Service. The Analysis of Alternatives (AoA) was finalized in 3Q FY 2007.

Several JPALS Land and Ship based Engineering Development Model (EDM) test articles will be delivered in FY 2010 through FY 2012 to support system development and demonstration; the first EDM will be shipped in place in FY 2010 for contractor use for system development and component testing. A total of nine ship system EDMs will be procured for SDD and will support testing at land and sea based installations. Two of the ship system EDMs will be installed on CVNs and two will be installed on LHAs to support integrated test at sea. A total of four RDT&E Low Rate Initial Production (LRIP) systems will be delivered in FY 2013 in support of operational testing. The four LRIP systems will support testing at sea and at Carrier Air Wing (CVW) deployment shore stations.

B. PROGRAM CHANGE SUMMARY

Funding:	FY 2007	FY 2008	FY 2009
Previous President's Budget:	33.116	70.811	84.934
Current BES	32.594	69.298	99.929
Total Adjustments	-0.522	-1.513	14.995

Summary of Adjustments			
Congressional Reductions			
Congressional Rescissions			
Congressional Undistributed Reductions	-0.432	-0.452	
Congressional Increases			
Economic Assumptions			-0.086
Miscellaneous Adjustments	-0.090	-1.061	15.081
Subtotal	-0.522	-1.513	14.995

Schedule:
JPALS Milestone B was moved from February 2008 to March 2008 due to a conflict in scheduling with OSD. SDD contract award moved to March 2008 to accomodate change in Defense Acquisition Board schedule.

Technical:
PR-09 add reflects change to JPALS technical baseline to include an additional data link radio to support early Joint Strike Fighter (JSF) block for CVN aircraft

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603860N, JPALS	PROJECT NUMBER AND NAME 2329, JOINT PRECISION APPROACH

COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	
2329 JOINT PRECISION APPROACH	32.594	69.298	99.929	106.407	104.397	113.033	86.543	
RDT&E Articles Qty				1	5	3	4	

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element provides for the development, integration, and testing of the Joint Precision Approach and Landing System (JPALS), which will be applicable to Department of Defense (DoD) Ground systems, DoD aircraft, and Navy and Coast Guard air capable surface ships. JPALS will provide a rapidly deployable, adverse weather, adverse terrain, day-night precision approach and landing capability. Operating environments include fixed or permanent ground facilities, tactical facilities, and shipboard. JPALS will be interoperable with civil landing systems. The JPALS program was established in response to the Joint Mission Need Statement (MNS) for Precision Approach and Landing Capability (PALC), which was approved by the Chief of Naval Operations on 28 July 1994 and the Chief of Staff of the Air Force on 8 August 1994. The PALC MNS was validated by the Joint Requirements Oversight Council (JROC) on 29 August 1995. Army Joint Service participation was included in the 28 May 1996 Principal Deputy Under Secretary of Defense (Acquisition and Technology) Milestone 0 Acquisition Decision Memorandum (ADM), which also designated the Air Force as the Lead Service. In March 2004, the JPALS Overarching Integrated Program Team (OIPT) determined that the MNS should be converted to an Initial Capabilities Document (ICD). The JPALS ICD was approved by the JROC on 19 September 2005. On 21 July 2007 JROCM approved the JPALS Capability Development Document (CDD) and designated the Navy as Lead Service. The Analysis of Alternatives (AoA) was finalized in 3Q FY 2007.

Several JPALS Land and Ship based Engineering Development Model (EDM) test articles will be delivered in FY 2010 through FY 2012 to support system development and demonstration; the first EDM will be shipped in place in FY 2010 for contractor use for system development and component testing. A total of nine ship system EDMs will be procured for SDD and will support testing at land and sea based installations. Two of the ship system EDMs will be installed on CVNs and two will be installed on LHAs to support integrated test at sea. A total of four RDT&E Low Rate Initial Production (LRIP) systems will be delivered in FY 2013 in support of operational testing. The four LRIP systems will support testing at sea and at Carrier Air Wing (CVW) deployment shore stations.

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

Technology Development Phase	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	32.594	23.891	
RDT&E Articles Qty			

Complete technology maturation and risk reduction tasks via use of Broad Area Announcements (BAA) contracts in support of Technology Development (TD) phase. Tasks include supporting documentation and presentation requirements in support of the pre-Milestone B Technology Readiness Assessment process, and pre-SDD ship and aircraft integration studies and reports. Additionally, funding supports preparing documentation to support Milestone B, developing a SDD contract solicitation package for release to industry (including the System Requirement Document), and supporting all NAVAIR pre-contract solicitation reviews and boards.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603860N, JPALS	PROJECT NUMBER AND NAME 2329, JOINT PRECISION APPROACH

System Development and Demonstration Phase	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost		45.407	99.929
RDT&E Articles Qty			

Award JPALS Sea based Increment 1 SDD contract in 2Q FY08. Commence preparations for Systems Functional Review (SFR) and post-contract award Systems Requirements Review (SRR). Fund integration studies for JPALS avionics capability retrofits to CVN 21 based aircraft (F/A-18E/F, E/A-18G, E-2C/D, C-2A, and MH-60R/S). Support modemization of Air Wing platform avionics enabling a GPS precision approach capability to JPALS equipped CVN 21. Develop the interim ground station capability in support of the Joint Strike Fighter (JSF UHF Data Broadcast).

C. OTHER PROGRAM FUNDING SUMMARY:	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
P-1 Line Item 57, Shipboard Air Traffic Control							1.500	Continuing	Continuing

D. ACQUISITION STRATEGY: TD phase development is being conducted jointly by NAVAIRSYSCOM (PMA213), USAF Electronic Systems Command (Global Air) and multiple industry partners. This effort will provide the concept of operations, performance specifications and technology readiness levels necessary to provide the foundation from which to launch the Increment 1 SDD phase development. In March 2007, overall joint program leadership transferred from the USAF to the USN. SDD phase development will consist of seabased JPALS, related ship and airborne reference systems, end-to-end software algorithms, necessary ship installation hardware, test equipment, system simulation software, and other RDT&E deliverable products to the joint team. The SDD contact will be decided by a full and open competition. Future procurement of airborne systems will consist of modifications to Original Equipment Manufacture (OEM) aircraft integration and to existing avionics. Seabased JPALS will be developed by the Navy 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. Air Force POM 08 results defers Air Force funding and development of land based Increment 2 to POM 10. As Lead Service, the Navy will manage the Joint Program to develop all JPALS increments.

Exhibit R-3 Cost Analysis (page 1)											DATE: February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4		PROGRAM ELEMENT 0603860N, JPALS				PROJECT NUMBER AND NAME 2329, JOINT PRECISION APPROACH						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Value of Contrac
PRODUCT DEVELOPMENT												
Aircraft Integration	C-CPFF	BOEING COMPANY, THE, HERNDON, VA						1.692	Dec 2008	Continuing	Continuing	
Aircraft Integration	VAR	VARIOUS				.300	Dec 2007	.282	Dec 2008	Continuing	Continuing	
Primary HW Development - Tech Maturation	C-CPFF	NORTHROP GRUMMAN CORPORATION, SAN DIEGO, CA		1.010	Feb 2007						1.010	1.010
Primary HW Development - Tech Maturation	C-CPFF	RAYTHEON COMPANY, FULLERTON, CA		6.768	Jan 2007						6.768	6.768
Primary HW Development - Tech Maturation	C-CPFF	HONEYWELL INTERNATIONAL INC, ALBUQUERQUE, NM	6.550	4.231	Feb 2007						10.781	10.781
Aircraft Integration - MMHC	C-CPFF	LOCKHEED MARTIN CORPORATION, MANASSAS, VA						1.880	Dec 2008	Continuing	Continuing	
Aircraft Integration - E2C	C-CPFF	NORTHROP GRUMMAN SYSTEMS CORPORATION, ANNAPOLIS, MD						5.545	Dec 2008	Continuing	Continuing	
Primary Hardware Development	WR	NAWCAD	31.706								31.706	
Primary Hardware Development - Spec Dev	C-CPFF	ARINC ENGINEERING SERVICES, LLC, ANNAPOLIS, MD	50.896								50.896	50.896
Primary Hardware Development - SDD	C-CPAF	TBD				45.407	Mar 2008	69.658	Dec 2008	Continuing	Continuing	
Ship Integration	WR	VARIOUS	4.110	.952	Dec 2006	.896	Dec 2007	.682	Dec 2008	Continuing	Continuing	
SUBTOTAL PRODUCT DEVELOPMENT			93.262	12.961		46.603		79.739		Continuing	Continuing	

Remarks: Completes technology development phase. Conducts non-recurring engineering efforts under the SDD contract including requirements identification and decomposition. Conducts System Requirements Review, System Functional Review, Preliminary Design Review and Integrated Baseline Review under the SDD Contract. Begins airwing integration to support CVN-21 efforts.

SUPPORT												
Development Support - ARINC	C-CPFF	ARINC ENGINEERING SERVICES, LLC, ANNAPOLIS, MD	4.126	2.558	Dec 2006	2.410	Dec 2007	1.921	Dec 2008	Continuing	Continuing	
Development Support - Misc.	C-CPFF	L-3 COMMUNICATIONS TITAN CORPORATION, MARLTON, NJ	2.200	2.143	Dec 2006	2.018	Dec 2007	1.562	Dec 2008	Continuing	Continuing	
Development Support - Misc. Contracts	VAR	VARIOUS	.200	1.023	Dec 2006	.962	Dec 2007	.757	Dec 2008	Continuing	Continuing	
ETS (non-FFRDC)	VAR	VARIOUS	.786	.382	Jun 2007	.360	Dec 2007	.274	Dec 2008	Continuing	Continuing	
Integrated Logistics Support	WR	NAWCAD, PATUXENT RIVER, MD	.856	1.061	Dec 2006	.998	Dec 2007	.760	Dec 2008	Continuing	Continuing	
SUBTOTAL SUPPORT			8.168	7.167		6.748		5.274		Continuing	Continuing	

Remarks: Tasking supports completion of Technology Development phase activities. Support includes development of Milestone-B documentation, development of SDD RFP Documentation, completion of TD phase test and demonstration efforts and systems engineering support.

TEST & EVALUATION												
Dev. T&E - NAWCAD	WR	NAWCAD, PATUXENT RIVER MD	2.100	3.114	Dec 2006	2.929	Dec 2007	2.327	Dec 2008	Continuing	Continuing	
ETS (non-FFRDC)	WR	OPER T & E FOR CD 30, NORFOLK VA	.100	.100	Dec 2006	.100	Dec 2007	.100	Dec 2008	Continuing	Continuing	
SUBTOTAL TEST & EVALUATION			2.200	3.214		3.029		2.427		Continuing	Continuing	

Remarks: Completion of TD phase demonstrations. DT focus on SDD phase test documentation planning and test range coordination. Develop DT test cases. Monitoring of SDD contractor system integration build up. Operational test activities include test and evaluation master plan requirements flow into test cases.

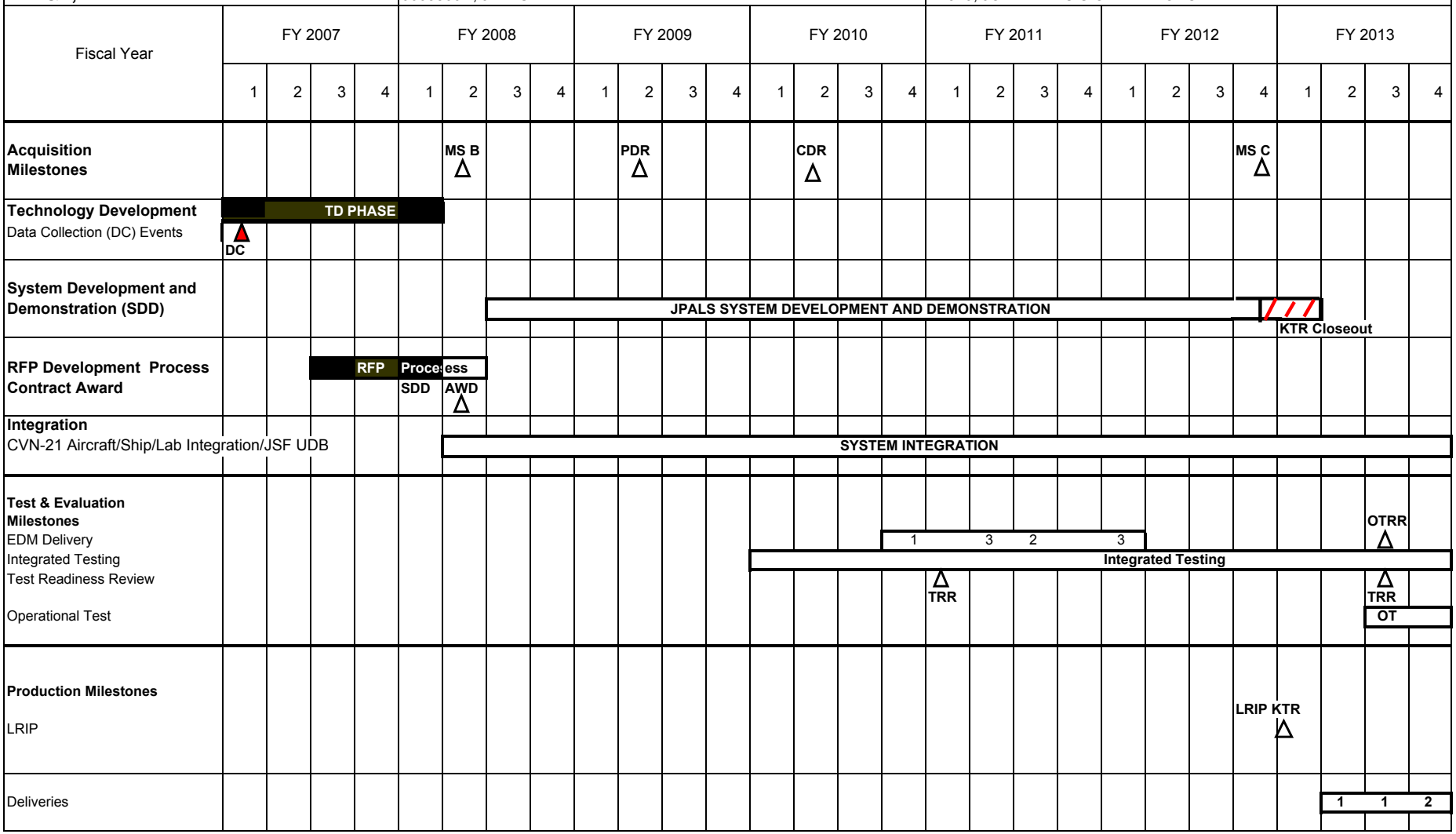
MANAGEMENT												
Government Eng. Support - NAWCAD	WR	NAWCAD, PATUXENT RIVER MD	6.808	4.885	Dec 2006	9.978	Dec 2007	10.055	Dec 2008	Continuing	Continuing	
PM Support MSS (Non-FFRDC)	C-CPFF	AMERICAN ELECTRONICS INC, CALIFORNIA, MD	.750	1.295	Dec 2006	1.220	Dec 2007	.964	Dec 2008	Continuing	Continuing	
Program Mgmt Support-Cost Analysis	WR	NAWCAD, PATUXENT RIVER MD	3.135	2.872	Dec 2006	1.246	Dec 2007	.987	Dec 2008	Continuing	Continuing	
Travel	WR	TRAVEL VENDOR 1001 1003 1050, LEXINGTON PARK, MD	.200	.200	Dec 2006	.474	Dec 2007	.483	Dec 2008	Continuing	Continuing	
SUBTOTAL MANAGEMENT			10.893	9.252		12.918		12.489		Continuing	Continuing	

Remarks: Tasking includes execution of SDD contract activities, coordination of Prime Mission Product and support contractor activities, coordination with other USN aircraft and ship program offices, development of ship installation drawings, and non-recurring engineering support.

Total Cost			114.523	32.594		69.298		99.929		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R4, Schedule Profile			DATE: **February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603860N, JPALS	PROJECT NUMBER AND NAME E2329, JOINT PRECISION APPROACH	



CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2008**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N BA-4**	PROGRAM ELEMENT 0603860N, JPALS			PROJECT NUMBER AND NAME E2329, JOINT PRECISION APPROACH			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Technology Development	1Q-4Q	1Q					
Data Collection Points	1Q						
RFP Development Process	3Q-4Q	1Q-2Q					
Milestone B (MS B)		2Q					
SDD Contract Award		2Q					
System Development & Demonstration		3Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	
SDD Contract closeout						4Q	1Q
Aircraft Integration		2Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Ship Integration		2Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Lab Integration		2Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Preliminary Design Review (PDR)			2Q				
Critical Design Review (CDR)				2Q			
Test Article Delivery (EDM)				4Q	1Q-4Q	1Q	
Integrated Testing				1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Test Readiness Review (TRR)					1Q		3Q
Milestone C (MS C)						4Q	
LRIP KTR Award							1Q
LRIP Deliveries							2Q-4Q
Operational Test Readiness Review							3Q
Operational Test							3Q-4Q

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	R-1 ITEM NOMENCLATURE **0603879N/SINGLE INT. AIR PICTURE (SIAP) SYS ENG**						
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	40.374	45.456	41.807	42.875	26.520	23.605	15.858
3031 / Single Integrated Air Picture Sys Eng	38.772	45.456	41.807	42.875	26.520	23.605	15.858
9999 / CONGRESSIONAL ADDS	1.602	0.000	0.000	0.000	0.000	0.000	0.000

A. MISSION DESCRIPTION:

At the direction of the Office of the Secretary of Defense and working in conjunction with the SIAP Joint Program Office (JPO), the Navy mission is to support the design, development, testing and fielding of a SIAP capability which satisfies requirements mandated by the Global Information Grid (GIG), Theater Air and Missile Defense (TAMD) and Combat Identification (CID) Mission Area Initial Capabilities Documents (MA-ICD). The Undersecretary of Defense Acquisition Memorandum of 3 May 06 validated the requirement for a SIAP capability and concurs with the Navy-designated Pathfinder programs identified for SIAP implementation. VCNO for Resources, Requirements, and Assessments (N8) SIAP implementation guidance of 14 March 06 directs the Navy to implement the SIAP program product, Integrated Architecture Behavior Model (IABM), in the following Navy pathfinder programs: Aegis Cruisers and Destroyers, Hawkeye Aircraft (E-2), and Ship Self Defense System (SSDS) platforms. On 24 September 2007, the Joint Requirements Oversight Council (JROC) approved the Capability Development Document (CDD) establishing official requirements for the SIAP program.

The SIAP capability will provide the Navy warfighter with the ability to better understand the joint battlespace and employ weapons to the full extent of their designed capabilities. The SIAP will support the spectrum of offensive and defensive operations by US, allied, and coalition partners in the airspace within a theater of operations (e.g., attack operations, suppression of enemy air defenses, air and missile defense, intelligence preparation of the battlefield). The SIAP is accomplished through a combination of materiel and nonmateriel improvements. This effort through the application of disciplined System Engineering processes, policies, products and services will enable delivery of an integrated, interoperable, reliable, and maintainable Joint SIAP capability in Navy warfare systems/platforms, in support of Joint and Navy Mission Capabilities.

SIAP capability is being introduced through a series of improvements called Capability Drops, targeted at eliminating specific interoperability issues, providing Command, Control, Communications, Computers, & Intelligence (C4I) enhancements, and delivering an executable integrated architecture. The engineering specifications and requirements developed by the engineering efforts will be incorporated into the successive versions of the Joint IABM developed within a two year spiral capability improvement process. The delivered IABM will be used to develop the successive versions of the platform specific applications to be implemented in Navy combat systems requiring the Joint SIAP capability. The IABM will also be used as a standard against which to assess performance of the Navy combat systems in terms of Joint Force interoperability. The Navy is investing in the Open Architecture (OA) construct for many reasons, one of which is to create the combat system computing architecture which will permit the most rapid and least expensive implementation of the IABM and other Joint applications. To that end, this effort also provides some resources to the OA system engineering process. To aid in development of the IABM, Automated Test and Re-Test (ATRT) technology will be used to significantly reduce the test time needed for each platform to validate the IABM functionality.

Implementation of a platform specific application in the Navy Pathfinder combat systems (E-2, Aegis, and SSDS), will reduce risk of fratricide to US/coalition forces caused by incorrect correlation and ID association and enable warfighters to exploit the full kinematic range of their weapons through better Joint Force integration.

This PE provides the resources for the Navy system engineering support to the Joint effort to develop SIAP capability, system engineering support to Navy Pathfinder Programs of Record (E-2, Aegis, SSDS) for integration of the Joint solution, and funding for the implementation in the Aegis combat system leveraging the Guided Missile Destroyer (DDG) Modernization program.

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
FY08 President's Budget	41.491	46.450	42.708
President's Budget FY09 DON Submit:	40.374	45.456	41.807
Total Adjustments	-1.117	-0.994	-0.901
Summary of Adjustments			
Congressional Adjustments			
General Rescissions	-0.050	-0.994	
SBIR	-1.067		
BTR/Programmatic Changes	0.000	0.000	-0.901
Subtotal	-1.117	-0.994	-0.901

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
PE 0603327A Air and Missile Defense Systems Engineering	34.854	35.220	18.137	0.000	0.000	0.000	0.000	0.000	116.439
PE 0604307N 1447 DDG Modernization	0.000	32.611	46.660	45.405	25.570	0.000	0.000	0.000	150.246

D. ACQUISITION STRATEGY:

The Navy's implementation of SIAP will use the four-level SE approach. Level 1 SE includes activities such as the Navy's participation in SIAP Operational Test and Evaluation. For Level 2, Navy Subject-Matter Experts (SME) will participate in IABM-related Integrated Product Teams (IPT) and Interface Control Working Groups (ICWG) to define the IABM and its capabilities, requirements, architectures, boundaries, and interfaces. For Level 3, consistent implementation of the SIAP Capability is a Navy Enterprise-level responsibility. The Enterprise level will focus on common Navy requirements and adaptive layer development. This Enterprise-level approach will significantly

reduce cost by enabling reuse of SIAP capability extension and adaptation layers across multiple host platforms. The Navy will focus resources across Pathfinder programs at key platform technical reviews to ensure consistent integration. The Navy will leverage risk reduction and Open Architecture (OA) initiatives to reduce risk and costs associated with IABM integration. Level 4 will concentrate on individual platform integration issues and SE efforts using each program's Systems Engineering Management Plan (SEMP).

E. 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

Lockheed Martin Corporation, Moorestown NJ

Raytheon Corporation, St. Petersburg, FL and San Diego, CA

John Hopkins University Applied Physics Laboratory, Laurel MD

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603879N/SINGLE INT. AIR PICTURE (SIAP) SYS ENG**				PROJECT NUMBER AND NAME **3031/Single Integrated Air Picture Sys Eng**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	38.772	45.456	41.807	42.875	26.520	23.605	15.858
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

At the direction of the Office of the Secretary of Defense and working in conjunction with the SIAP Joint Program Office (JPO), the Navy mission is to support the design, development, testing and fielding of a SIAP capability which satisfies requirements mandated by the Global Information Grid (GIG), Theater Air and Missile Defense (TAMD) and Combat Identification (CID) Mission Area Initial Capabilities Documents (MA-ICD). The Undersecretary of Defense Acquisition Memorandum of 3 May 06 validated the requirement for a SIAP capability and concurs with the Navy-designated Pathfinder programs identified for SIAP implementation. VCNO for Resources, Requirements, and Assessments (N8) SIAP implementation guidance of 14 March 06 directs the Navy to implement the SIAP program product, Integrated Architecture Behavior Model (IABM), in the following Navy pathfinder programs: Aegis Cruisers and Destroyers, Hawkeye Aircraft (E-2), and Ship Self Defense System (SSDS) platforms. On 24 September 2007, the Joint Requirements Oversight Council (JROC) approved the Capability Description Document (CDD) establishing official requirements for the SIAP program.

The SIAP capability will provide the Navy warfighter with the ability to better understand the battlespace and employ weapons to the full extent of their designed capabilities. The SIAP will support the spectrum of offensive and defensive operations by US, allied, and coalition partners in the airspace within a theater of operations (e.g., attack operations, suppression of enemy air defenses, air and missile defense, intelligence preparation of the battlefield). The SIAP is accomplished through a combination of materiel and nonmateriel improvements. This effort through the application of disciplined System Engineering processes, policies, products and services will enable the delivery of an integrated, interoperable, reliable, and maintainable Joint SIAP capability in Navy warfare systems/platforms, in support of Joint and Navy Mission Capabilities.

SIAP capability is being introduced through a series of improvements called Capability Drops, targeted at eliminating specific interoperability issues, providing Command, Control, Communications, Computers, & Intelligence (C4I) enhancements, and delivering an executable integrated architecture. The engineering specifications and requirements developed by the engineering efforts will be incorporated into the successive versions of the Joint IABM. The delivered IABM will be used to develop the successive versions of the platform specific applications to be implemented in Navy combat systems requiring the Joint SIAP capability. The IABM will also be used as a standard against which to assess performance of the Navy combat systems in terms of Joint Force interoperability. The Navy is investing in the Open Architecture (OA) construct for many reasons, one of which is to create the combat system computing architecture which will permit the most rapid and least expensive implementation of the IABM and other Joint applications. To that end, this effort also provides some resources to the OA system engineering process. To aid in development of the IABM, Automated Test and Re-Test (ATRT) technology will be used to significantly reduce the test time needed for each platform to validate the IABM functionality.

Implementation of a platform specific application in the Navy Pathfinder combat systems (E-2, Aegis, and SSDS), will reduce the risk of fratricide to US/coalition forces caused by incorrect correlation and ID association and enable our combatant commanders to exploit the full kinematic range of our weapons through better Joint Force integration.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603879N/SINGLE INT. AIR PICTURE (SIAP) SYS ENG**	PROJECT NUMBER AND NAME **3031/Single Integrated Air Picture Sys Eng**

This PE provides the resources for the Navy system engineering support to the Joint effort to develop SIAP capability, system engineering support to Navy Pathfinder Programs of Record (E-2, Aegis, SSDS) for integration of the Joint solution, and funding for the implementation in the Aegis combat system leveraging the Guided Missile Destroyer (DDG) Modernization program.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603879N/SINGLE INT. AIR PICTURE (SIAP) SYS ENG**	PROJECT NUMBER AND NAME **3031/Single Integrated Air Picture Sys Eng**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
SIAP Engineering Requirements	0.400	1.781	0.897
RDT&E Articles Quantity	0	0	0

(U) FY2007 PLAN: Completed System Requirements definition by refining System Requirements listing and verified requirements are satisfied in completing the IABM CD-1 System Requirements Review (SRR) in the 2nd quarter.

(U) FY2008 PLAN: Complete CD-1 System development and support System Engineering Review Process for IABM and DDG Modernization program to include DDG Modernization program System Design Review (SDR). Continue to refine the SIAP systems requirements baseline for IABM and support the Aegis Command and Decision (C&D) IABM technical product review. Finalize interface specifications in support of adaptation and interface development for the IABM and host systems. Initiate IABM CD-1 follow-on System Engineering Process to support two significant design reviews - System Requirements Review (SRR) and System Functional Review (SFR). Develop pathfinder's adaptation layer phasing plans (phasing and mapping of the Derived System Requirements) and complete associated Host Interface Description Documents.

(U) FY2009 PLAN: Continue to support System Engineering Review Process for DDG Modernization program to include CD-1 Preliminary Design Review (PDR). Continue System development and support System Engineering Review Process for SIAP Capability Drop 1 follow-on IABM spirals and DDG Modernization program including IABM CD-1 follow-on PDR.

	FY 2007	FY 2008	FY 2009
Architecture Alignment	1.106	0.991	0.971
RDT&E Articles Quantity	0	0	0

(U) FY2007 PLAN: Continued development of Joint architecture for the track manager, external communications, common services, and C2 interfaces and components. Developed or modified architecture artifacts required to support alignment and system integration of the IABM. Completed the IABM CD-1 System Functional Review (SFR) and achieved functional allocation/alignment of Pathfinder Programs of Record (E2, Aegis, SSDS) modernization and IABM design. Provided Navy participation for the JAWG.

(U) FY2008 PLAN: Finalize Joint architecture for IABM Capability Drop 1 Preliminary Design Review (PDR) and CD-1 delivery. Complete CD-1 related platform interface specifications for SIAP pathfinder programs. Initiate CD-1 follow-on Joint architecture modifications (via the JAWG) to address revised requirements baseline and functional alignment of Pathfinder Programs of Record (E2, Aegis, SSDS) and IABM design. Develop or modify architecture artifacts required to support future spiral alignment and system integration of the IABM.

(U) FY2009 PLAN: Complete architecture artifacts and monitor alignment as required for legacy and future systems. Provide Navy participation for the JAWG.

	FY 2007	FY 2008	FY 2009
SIAP System Development	20.329	15.444	10.913
RDT&E Articles Quantity	0	0	0

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603879N/SINGLE INT. AIR PICTURE (SIAP) SYS ENG**	PROJECT NUMBER AND NAME **3031/Single Integrated Air Picture Sys Eng**

(U) FY2007 PLAN: Supported modeling and incorporation of composite tracking capability combat ID, data recording, CEC interoperability, TDL to TDL forwarding, P2P to TDL forwarding, Automated Battle Management Aids (ABMA), and system status and control functionality in the SIAP IABM. Developed prototype adaptation layers for AN/SPY-1, UXP-29, SPQ-9B, Data Distribution System (DDS), AN/APS-145 and OL-483/AP. Developed host service interfaces for C2, communications terminals, navigation, time, and position inputs and corrections in preparation for the Common Network Interface (CNI) At-Sea Demonstration. Completed Aegis C&D software partitioning and migration to Open Architecture. Integrated early IABM iterations and developed prototype adaptation layers and interfaces to support land based lab demonstrations for Aegis and E-2 and an At-Sea demo for the CNI program. Defined interface (IDD/IDS) specifications for IABM sensors, host Command and Control (C2), external communications, and common services (Navigation, Time, Data Extraction, etc.).

(U) FY2008 PLAN: Support modeling development and incorporation of improved composite tracking capability, combat ID, track management, CEC Interoperability, Tactical Data Link (TDL) to TDL forwarding, P2P to TDL forwarding and system control functionality in the SIAP IABM for Capability Drop 1. Continue Adaptive Layer development of Sensor, Incoming Friend or Foe (IFF), TDL, DDS, and interface development for Host Command and Control, Common Services (Navigation, Time, Data Extraction, etc) required for Aegis and E-2.

(U) FY2009 PLAN: Integrate early CD-1 builds into platform specific implementations in Aegis and E-2 Hawkeye 2000 program to support JCHE Phase 5, E-2 Integrated Lab Demonstration, Aegis Integration & Test, and Joint Collaborative Test events. Support modeling and incorporation of improved composite tracking capability, combat ID, track management, CEC Interoperability, TDL to TDL forwarding, P2P to TDL forwarding and system control functionality in the SIAP IABM for CD-1 follow-on. Continue production-level Sensor, IFF, TDL, DDS, Adaptation Layer development and interface development for Host Command and Control, Common Services (Navigation, Time, Data Extraction, etc) required for Aegis and E-2. Begin development of ALQ-217, Shipboard Advanced Radar Target Identification System (SARTIS), and SLQ-32 Adaptive Layers for Host Command and Control, Common Services (Navigation, Time, Data Extraction, etc) required for Aegis and E-2.

	FY 2007	FY 2008	FY 2009
SIAP Test Planning and Execution	6.337	9.215	8.229
RDT&E Articles Quantity	0	0	0

(U) FY2007 PLAN: As necessary, updated SIAP TEMP and monitored execution. Planned and executed Engineering Assessments of the IABM focused on delivery of the IABM to support implementation of SIAP Capability Drop 1. Continued Alpha and Beta product testing and provided feedback and TOR to the SIAP JPO. Conducted assessments during the planned land-based and CNI At-Sea demo. Conducted Joint Combined Hardware-in-the-loop Evaluation (JCHE) Phase 4. Conducted analysis and prepare test reports for this event.

(U) FY2008 PLAN: Finalize the SIAP TEMP in support of the SIAP Milestone B DAB. Conduct planning for Navy SIAP IV&V and Navy participation in Joint Combined Hardware-in-the-loop Evaluation (JCHE) phase 5 event for IABM Capability Drop 1 . Continue Joint collaborative testing. Conduct E-2 and Aegis Integration & Test events of the IABM to mitigate implementation risk of IABM Capability Drop 1. Coordinate required assets in preparation for formal Navy SIAP Developmental Testing (DT) to begin in FY2009.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603879N/SINGLE INT. AIR PICTURE (SIAP) SYS ENG**	PROJECT NUMBER AND NAME **3031/Single Integrated Air Picture Sys Eng**

(U) FY2009 PLAN: As necessary, update SIAP TEMP for IABM CD-1 and follow-on efforts and monitor execution. Complete planning and conduct Navy SIAP IV&V and Navy participation in Joint Combined Hardware-in-the-loop Evaluation (JCHE) phase 5 event for IABM Capability Drop 1. Support Joint Level Test Readiness Review and Joint Interoperability Test Command (JITC) conformance testing of IABM CD-1 and related DT/OT events. Plan and execute Engineering Assessments of the IABM focused on delivery of the IABM to support implementation of SIAP CD-1 follow-on.

	FY 2007	FY 2008	FY 2009
SIAP Integration Coordination and Planning	0.600	2.379	1.747
RDT&E Articles Quantity	0	0	0

(U) FY2007 PLAN: Monitor and support execution of the Navy IABM Integration Plan. Continued preparations for Milestone B DAB. Maintained Navy IABM Implementation Plan and SIAP Acquisition Strategy to support other Navy future and legacy platforms. Conducted planning for Risk Mitigation and configuration management activities. Capability Development Document (CDD) approved by JROC.

(U) FY2008 PLAN: Complete preparations and update documentation (Cost Analysis Requirements Document (CARD), Program Life Cycle Cost Estimate (PLCCE), System Engineering Plan (SEP), Acquisition Strategy (AS), Capability Development Document (CDD), Acquisition Program Baseline (APB)) to support the SIAP Milestone B DAB. Begin preparation of required documentation (Capability Production Document (CPD), Program Protection Plan (PPP), and information Support Plan (ISP)) in support of a SIAP Milestone C DAB in FY09. Maintain Navy IABM Implementation Plan and SIAP Acquisition Strategy to support other Navy future and legacy platforms. Conduct planning for Risk Mitigation and configuration management activities. Monitor and support execution of the Navy IABM Integration Plan.

(U) FY2009 PLAN: Complete preparations and update documentation (Capability Development Document (CDD), Acquisition Program Baseline (APB), Initial Capabilities Document (ICD), Capability Production Document (CPD), Program Protection Plan (PPP), Information Support Plan (ISP), and update CARD, PLCCE, SEP, and AS) to support the SIAP Milestone C DAB. Conduct planning for Risk Mitigation and configuration management activities. Monitor and support execution of the Navy IABM Integration Plan.

	FY 2007	FY 2008	FY 2009
DDG Mod Platform Specific Model	10.000	15.646	19.050
RDT&E Articles Quantity	0	0	0

(U) FY2007 PLAN: Develop requirements and system definition documents in support of planned FY08 development of the Platform Specific Model (PSM) for integration of SIAP capability into Aegis C&D computer program. Specific tasks include identifying modifications required for existing computer program.

(U) FY2008 PLAN: Begin translation of the IABM Platform Independent Model (PIM) at the component level and develop Platform Specific Model (PSM) and Platform Specific Implementation (PSI) in conjunction with Aegis Modernization (AMOD) Commercial Off-The-Shelf (COTS) Refresh Three (CR3) development and testing to support fielding in FY13. Aegis is required to integrate all of the applicable functionality provided by the IABM CD-1 and required partitioning of existing AMOD software and modify existing applications required for successful integration.

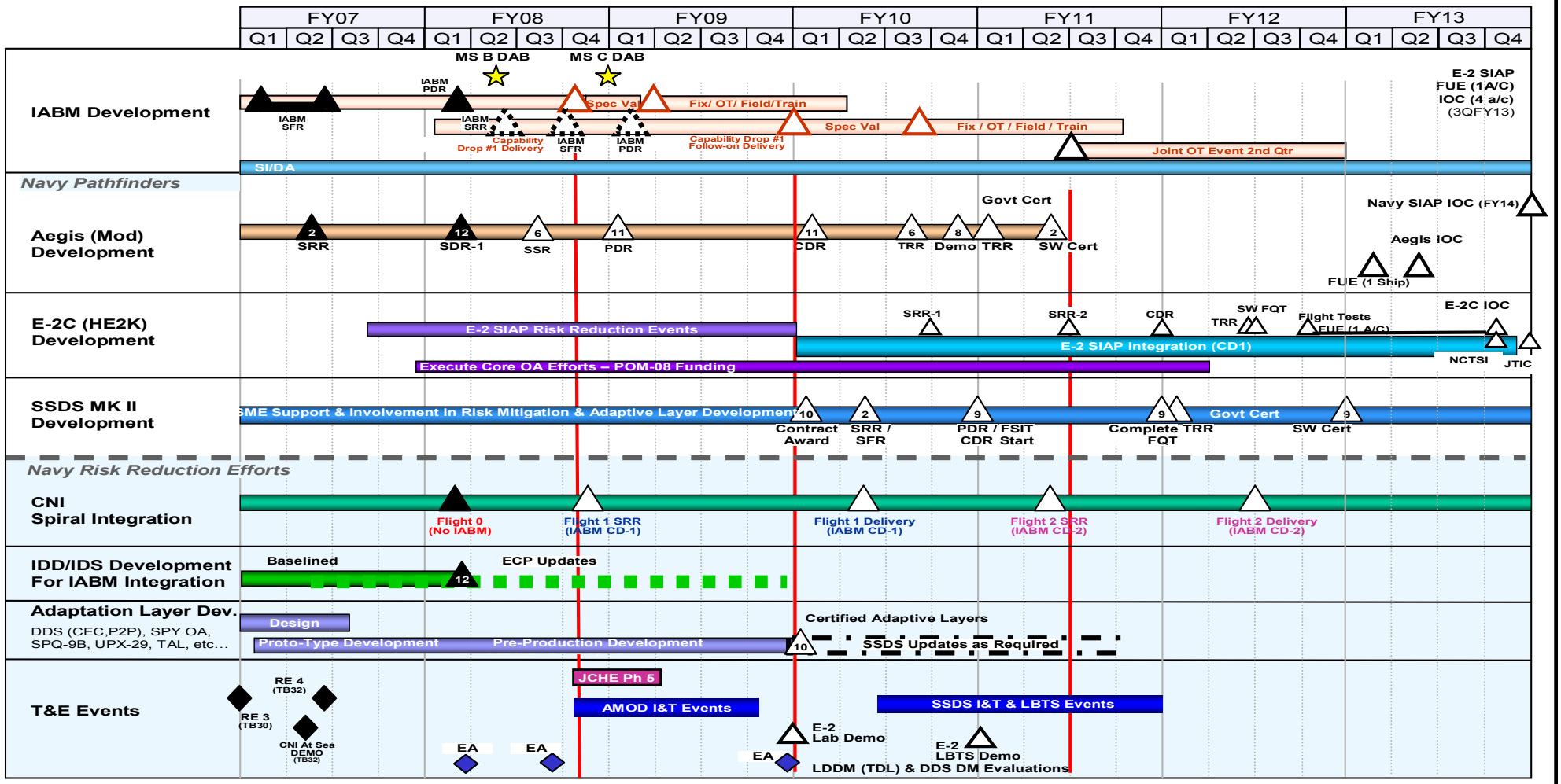
CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603879N/SINGLE INT. AIR PICTURE (SIAP) SYS ENG**	PROJECT NUMBER AND NAME **3031/Single Integrated Air Picture Sys Eng**

(U) FY2009 PLAN: Continue translation of the IABM Platform Independent Model (PIM) at the component level and develop Platform Specific Model (PSM) and Platform Specific Implementation (PSI) in conjunction with Aegis Modernization (AMOD) Commercial Off-The-Shelf (COTS) Refresh Three (CR3) development and testing to support fielding in FY13. Continue with the required partitioning of the AMOD computer program and application modification for IABM integration. Prepare for any architecture related changes required to accommodate future integration of IABM CD-1 follow-on.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603879N/SINGLE INT. AIR PICTURE (SIAP) SYS ENG**					PROJECT NUMBER AND NAME **3031/Single Integrated Air Picture Sys Eng**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
	VAR	NAVSEA, Washington DC	1.501	0.000		0.000		0.000	TBD	CONT	CONT	0.000
	VAR	PEOIWS, Washington DC	1.556	0.100		1.076	NOV-07	0.550	TBD	CONT	CONT	0.000
	VAR/WR	PEO(T), Pax River, MD	1.398	0.200		0.491	NOV-07	0.242	TBD	CONT	CONT	0.000
	VAR	PEO(C4I), San Diego, CA	0.607	0.100		0.214	NOV-07	0.105	TBD	CONT	CONT	0.000
Subtotal Engineering Requirements			**5.062**	**0.400**		**1.781**		**0.897**		**CONT**	**CONT**	**0.000**
Remarks:												
	VAR	NAVSEA, Washington DC	0.402	0.000		0.000		0.000	TBD	CONT	CONT	0.000
	VAR	PEO IWS, Washington DC	1.609	0.601		0.575	NOV-07	0.563	TBD	CONT	CONT	0.000
	VAR/WR	PEO(T), Pax River, MD	0.607	0.305		0.173	NOV-07	0.170	TBD	CONT	CONT	0.000
	VAR	PEO(C4I), San Diego, CA	0.849	0.200		0.243	NOV-07	0.238	TBD	CONT	CONT	0.000
Subtotal Architecture Alignment			**3.467**	**1.106**		**0.991**		**0.971**		**CONT**	**CONT**	**0.000**
Remarks:												
	VAR	NAVSEA, Washington DC	6.243	0.000		0.000		0.000	TBD	CONT	CONT	0.000
	VAR	PEO IWS	2.472	18.048		11.903	NOV-07	8.488	TBD	CONT	CONT	0.000
	VAR/WR	PEO(T), Pax River, MD	2.096	1.530		2.832	NOV-07	1.940	TBD	CONT	CONT	0.000
	VAR	POE(C4I), San Diego, CA	0.524	0.751		0.709	NOV-07	0.485	TBD	CONT	CONT	0.000
Subtotal System Development			**11.335**	**20.329**		**15.444**		**10.913**		**CONT**	**CONT**	**0.000**
Remarks:												
	VAR	NAVSEA, Washington DC	2.070	0.000		0.000		0.000	TBD	CONT	CONT	0.000
	VAR	PEO IWS, Washington DC	2.614	3.145		5.579	NOV-07	4.972	TBD	CONT	CONT	0.000
	VAR/WR	PEO(T), Pax River, MD	1.938	2.746		2.309	NOV-07	2.068	TBD	CONT	CONT	0.000
	WR	PEO(C4I), San Diego, CA	1.115	0.446		1.328	NOV-07	1.189	TBD	CONT	CONT	0.000
Subtotal Test & Execution			**7.737**	**6.337**		**9.216**		**8.229**		**CONT**	**CONT**	**0.000**
Remarks:												
	VAR	NAVSEA, Washington, DC	1.095	0.000		0.000		0.000	TBD	CONT	CONT	0.000

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603879N/SINGLE INT. AIR PICTURE (SIAP) SYS ENG**					PROJECT NUMBER AND NAME **3031/Single Integrated Air Picture Sys Eng**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
	VAR	PEO IWS, Washington, DC	0.704	0.200		1.244	NOV-07	0.914	TBD	CONT	CONT	0.000
	VAR/WR	PEO(T), Pax River, MD	0.814	0.250		0.563	NOV-07	0.413	TBD	CONT	CONT	0.000
	WR	PEO(C4I), San Diego CA	0.826	0.050		0.572	NOV-07	0.419	TBD	CONT	CONT	0.000
Subtotal Integration Planning			**3.439**	**0.600**		**2.379**		**1.746**		**CONT**	**CONT**	**0.000**
Remarks:												
	VAR	Lockheed Martin	3.534	10.000	NOV-06	15.645	NOV-07	19.051	TBD	CONT	CONT	0.000
Subtotal DDG MOD PSM			**3.534**	**10.000**		**15.645**		**19.051**		**CONT**	**CONT**	**0.000**
Remarks:												
	VAR	Various industry, SBIR Phase III	0.000	0.000		0.000		0.000		CONT	CONT	0.000
Subtotal Open Architecture Automated Test & Retest			**0.000**	**0.000**		**0.000**		**0.000**		**CONT**	**CONT**	**0.000**
Remarks:												
Total Cost			**34.574**	**38.772**		**45.456**		**41.807**		**CONT**	**CONT**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603879N/SINGLE INT. AIR PICTURE (SIAP) SYS ENG**	PROJECT NUMBER AND NAME **3031/Single Integrated Air Picture Sys Eng**



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL							DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603879N/SINGLE INT. AIR PICTURE (SIAP) SYS ENG**			PROJECT NUMBER AND NAME **3031/Single Integrated Air Picture Sys Eng**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
IABM PDR		Q1					
Milestone B DAB		Q2					
Capability Drop 1 Delivered		Q4					
IABM SFR	Q1						
Milestone C DAB			Q1				
Capability Drop 1 Follow-on Delivered			Q4				
Joint Operational Testing Begins					Q3		
AMOD PDR			Q1				
AMOD CDR				Q1			
AMOD Demo				Q4			
AMOD SW Certification					Q2		
Final AMOD Certification							Q2
E-2 CDR					Q4		
E-2 IOC							Q4
SSDS CDR				Q4			
SSDS SW Certification						Q4	
CNI Flight 1 Delivered				Q2			
CNI Flight 2 Delivered						Q2	
Adaptation Layer Certification				Q1			
CNI At-Sea Demo	Q2						
E-2 Lab Demo			Q4				
E-2 Flight Demo					Q1		

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603879N/SINGLE INT. AIR PICTURE (SIAP) SYS ENG**	PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Open Architecture Automated Test and Retest	1.602	0.000	0.000
RDT&E Articles Quantity	0	0	0

(U) FY2007 PLAN: Initiated Development of Open Architecture Automated Test and Retest test equipment and prototype. Specific tasks included development of program of record Test Harness, IABM Test Harness, and prototype demonstration.

(U) FY2008 PLAN: N/A

(U) FY2009 PLAN: N/A

CLASSIFICATION:	UNCLASSIFIED

EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION	DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	R-1 ITEM NOMENCLATURE **0603889N/COUNTERDRUG RDT&E PROJECTS**

COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	76.137	7.939	0.000	0.000	0.000	0.000	0.000
2219 / Counterdrug RDTE Support	74.000	0.000	0.000	0.000	0.000	0.000	0.000
9999 / Congressional Add	2.137	7.939	0.000	0.000	0.000	0.000	0.000

A. MISSION DESCRIPTION:

The Counterdrug RDT&E Projects Program mission is to develop and deploy technology that disrupts, deters, and denies the flow of drugs, people, information, money and weapons related to narcoterrorism.

Project Unit 9999 is comprised of Congressional Adds

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008
FY 2008 President's Budget Controls	40.914	7.939
FY 2009 OSD Controls	40.212	0.000
Total Adjustments:	-0.702	7.939
SBIR assessment	-0.702	0.000
Congressional adds		8.000
Undistributed reductions/recissions/program adjustments		-0.610
Subtotal	-0.702	7.939

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603889N/COUNTERDRUG RDT&E PROJECTS**				PROJECT NUMBER AND NAME **2219/Counterdrug RDTE Support**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	74.000	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Counterdrug RDT&E mission is to develop and deploy technology that disrupts, deters, and denies the flow of drugs, people, information, money and weapons related to narcoterrorism.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS											DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603889N/COUNTERDRUG RDT&E PROJECTS**					PROJECT NUMBER AND NAME **2219/Counterdrug RDTE Support**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Developmental Test & Evaluation	MIPR	US ARMY	0.000	51.128	VAR	0.000		0.000		0.000	51.128	0.000
Developmental Test & Evaluation	MIPR	US AIR FORCE	0.000	16.420	VAR	0.000		0.000		0.000	16.420	0.000
Developmental Test & Evaluation	WR	NRL	0.000	2.080	VAR	0.000		0.000		0.000	2.080	0.000
Developmental Test & Evaluation	WR	NPS, MONTEREY	0.000	0.246	MAY-07	0.000		0.000		0.000	0.246	0.000
Developmental Test & Evaluation	MIPR	JTF, FT WASHINGTON	0.000	0.012	MAR-07	0.000		0.000		0.000	0.012	0.000
Developmental Test & Evaluation	WR	NUWC, KEYPORT	0.000	2.022	VAR	0.000		0.000		0.000	2.022	0.000
Developmental Test & Evaluation	WR	DOE	0.000	0.692	VAR	0.000		0.000		0.000	0.692	0.000
Subtotal Test and Evaluation			**0.000**	**72.600**		**0.000**		**0.000**		**0.000**	**72.600**	**0.000**
Remarks: Various/VAR - is used for lines with associated funding because multiple activities are being funded for these Cost Categories and there are different award dates for the different activities.												
Program Management Support	WR	NSWC, DAHLGREN	0.000	1.400	FEB-07	0.000		0.000		0.000	1.400	0.000
Subtotal PROGRAM MANAGEMENT SUPPORT			**0.000**	**1.400**		**0.000**		**0.000**		**0.000**	**1.400**	**0.000**
Remarks:												
Total Cost			**0.000**	**74.000**		**0.000**		**0.000**		**0.000**	**74.000**	**0.000**

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL							DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603889N/COUNTERDRUG RDT&E PROJECTS**			PROJECT NUMBER AND NAME **2219/Counterdrug RDTE Support**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Development Test & Evaluation	2Q-4Q						

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603889N/COUNTERDRUG RDT&E PROJECTS**	PROJECT NUMBER AND NAME **9999/Congressional Add**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.000	1.588	0.000
RDT&E Articles Quantity	0	0	0

9999 GLOBAL PERSONAL LOCATOR BEACON FOR COUNTER-NARCOTERRORISM

The Global Personal Locator Beacon (GPLB) is a bidirectional search rescue and alerting beacon capable of communicating emergency information to individuals anywhere in the world. The system is intended to help track "at risk" individuals and interact with a wide variety of information sources to help improve response time to emergencies and improve individuals chances of survival. This system can also be integrated into local monitoring systems, sensors and line of sight communications to provide additional monitoring and safety capabilities.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	2.137	6.351	0.000
RDT&E Articles Quantity	0	0	0

980C PROJECT ATHENA

The Athena All-Domain Awareness Fusion Center (ADAFC) test bed provides a "system of systems" approach for the integration, processing, fusion and situational display of world-wide sensor and data systems information. Athena's open architecture permits the rapid integration of sensors and data, and structured as a Command, Control Intelligence, Surveillance, and Reconnaissance (C2ISR) node, allows it to collect, process, exploit and disseminate information across a wide array of information systems. Athena's spiral development process will continue to enhance its' capabilities and will involve field deployments to refine the system and assess the effectiveness in support of the counter narco-terrorism mission. Lessons learned from these deployments are then used to direct the spiral development process.

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION							DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**			R-1 ITEM NOMENCLATURE **0603925N/DIRECTED ENERGY AND ELECTRIC WEAPONS SYSTEMS**				
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	26.641	1.987	0.000	0.000	0.000	0.000	0.000
9183C / Electromagnetic launcher (rail gun)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9357C / Transportable laser induced plasma channel	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9531C / Lasers for Navy applications	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9579C / Deployable Ultra-Short Pulse Laser Development	2.439	0.000	0.000	0.000	0.000	0.000	0.000
9823C / Lasers For Navy Applications	3.124	0.000	0.000	0.000	0.000	0.000	0.000
9824C / Optical Line Replcble Units (O-LRUs)-Hi Energy Las	0.976	0.000	0.000	0.000	0.000	0.000	0.000
9824N / Optical line replaceable units	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9A01N / Prototype Instrumentation System For MUTC	1.075	0.000	0.000	0.000	0.000	0.000	0.000
9A28N / Directed Energy Research	19.027	0.000	0.000	0.000	0.000	0.000	0.000
9999 / Congressional Add	0.000	1.987	0.000	0.000	0.000	0.000	0.000

A. MISSION DESCRIPTION:

In accordance with NAVSEA Notice 5400, Ser 09B/240, Subj: ESTABLISHMENT OF THE NAVY DIRECTED ENERGY WEAPONS PROGRAM OFFICE (PMS 405), dated 4 Jan 02 and NAVSEA Instruction 5400.101, Ser SEA 06/058, Subj: DIRECTED ENERGY AND ELECTRIC WEAPONS PROGRAM OFFICE (PMS 405) CHARTER, dated 21 Jul 04 - COMNAVSEASYSCOM (PMS 405) was assigned as the Point of Contact for matters related to Directed Energy and Electric Weapons development and acquisition initiation for the Navy and for those matters being coordinated with other Federal agencies and military services. The Naval Directed Energy and Electric Weapon Systems Program Office's (PMS 405) mission is to change the way the Navy fights in the 21st century by transitioning Directed Energy and Electric weapon technology, providing the war fighter with additional tools to fight today's and tomorrow's wars. In order to meet Navy requirements, we must effectively manage the transition of 6.3 advanced technology development initiatives through early 6.4 development, demonstration, and validation. PMS 405 will manage development of Directed Energy and Electric Weapon Systems onboard future naval surface ships that incorporate: Weapons Grade High Energy Lasers, Free Electron Lasers (Megawatt class), Electromagnetic Rail Gun (EMRG), High Power Microwave Weapons and Sensor Systems, and other systems.

In FY07, Congressional Adds were provided for Lasers for Navy Applications; Optical Line Replaceable Units (OLRUs); Deployable Ultra-Short Pulse Laser Development; Prototype Instrumentation System for Muscatatuck Urban Training Center (MUTC); and Directed Energy Research.

In FY08, Project Unit 9999 provides a Congressional Add for Lasers for Navy Applications.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	R-1 ITEM NOMENCLATURE **0603925N/DIRECTED ENERGY AND ELECTRIC WEAPONS SYSTEMS**	

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
Previous President's Budget: (FY 08 Pres Controls	27.197	0.000	0.000
Current BES/President's Budget (FY 09 Pres Controls	26.641	1.987	0.000
Total Adjustments	-0.556	1.987	0.000
Summary of Adjustments	-0.556	1.987	0.000
Congressional Increases	0.000	1.987	0.000
Miscellaneous Changes	0.000	0.000	0.000
SBIR Reduction	-0.556	0.000	0.000
Subtotal	-0.556	1.987	0.000

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603925N/DIRECTED ENERGY AND ELECTRIC WEAPONS SYSTEM**				PROJECT NUMBER AND NAME **579C/Deployable Ultra-Short Pulse Laser Developr**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	2.439	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Joint Vision 2020 requires the assessment and demonstration of the complementary nature of High Energy Laser (HEL) Weapon Systems, coupled with missiles/guns for ship self-defense. This funding supported the accomplishment of the requisite engineering, design, assessment, test, and demonstration of a deployable Ultra-Short Pulse Laser.

Low to moderate power HEL systems offer the potential for complementing ship self-defensive weapon systems at tactically significant ranges. The ability to damage or disable electronic and optical components has been demonstrated. Critical to employment of this capability is the accomplishment of the system engineering and design, and the analysis of the resultant engagement effects. This effort is vital to the Navy's effort to develop and field a deployable laser that will meet near and mid term Navy requirements.

The current world threat environment mandates an urgency in providing the most up-to-date technology based solutions to counter littoral and asymmetric threats. Funds are required to engineer, design, test, and demonstrate weapon-grade laser capabilities that can be deployed in the near and mid term that will counter the requisite threats.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603925N/DIRECTED ENERGY AND ELECTRIC WEAPONS SY**	PROJECT NUMBER AND NAME **9579C/Deployable Ultra-Short Pulse Laser Development**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	2.439	0.000	0.000
RDT&E Articles Quantity	0	0	0

FY 07 funding was provided for the system engineering, system design, and prototype development/demonstration of a deployable ultra-short pulse laser.

C. OTHER PROGRAM FUNDING SUMMARY:

D. ACQUISITION STRATEGY:

E. MAJOR PERFORMERS:

Raydiance/Penn State

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603925N/DIRECTED ENERGY AND ELECTRIC WEAPONS SYSTEM**				PROJECT NUMBER AND NAME **823C/Lasers For Navy Applications**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	3.124	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This funding supported the accomplishment of the requisite engineering, assessment, test, and demonstration of a near term High Energy Laser (HEL) Weapon Systems (HELWS) capability against littoral and asymmetric threats. Joint Vision 2020 requires the assessment and demonstration of the complementary nature of HELWS, coupled with defensive missiles/guns for ship self-defense. Mission survivability is required of our surface ships. High Energy Lasers offer the potential for complementing ship self-defensive weapon systems at tactically significant ranges. Critical to demonstrating this capability are accomplishment of the system engineering and analyses associated with laser development and analysis of engagement effects. This effort is vital to the Navy's plan to develop and field a naval laser to meet future Navy requirements.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603925N/DIRECTED ENERGY AND ELECTRIC WEAPONS SY**	PROJECT NUMBER AND NAME **9823C/Lasers For Navy Applications**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	3.124	0.000	0.000
RDT&E Articles Quantity	0	0	0

FY 07 funding was provided for the system engineering and application of the beam conversion technology, procured and developed with FY 05/06 funding, to accomplish beam combining of the two lasers to provide and demonstrate a 30kW laser weapon capability at significantly longer ranges.

C. OTHER PROGRAM FUNDING SUMMARY:

D. ACQUISITION STRATEGY:

E. MAJOR PERFORMERS:

Northrop Grumman/Penn State

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603925N/DIRECTED ENERGY AND ELECTRIC WEAPONS SYSTEM**				PROJECT NUMBER AND NAME **824C/Optical Line Replcble Units (O-LRUs)-Hi Ener**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	0.976	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The FY 07 Plus up supported the detailed design and development of a prototype, and tested multifunction, low power laser OLRUs. This prototype is referred to as the Integrated Reconnaissance/targeting and Intervention Sensor (IRIS) OLRU.

Current operational environments dictate that precision micromachining technology, which does not introduce residual thermal or mechanical stress in materials, e.g., circuit boards, semiconductor materials, fuel injectors, be developed and utilized to increase reliability in deployed tactical equipment/systems. Optical Line Replaceable Units (OLRUs) will minimize equipment/system volume, weight, cooling, and electrical requirements, in addition to increasing reliability. The potential for advanced electronics and semiconductor manufacturing improvements in accuracy and efficiency drives the urgency to deploy ultra short pulse laser micromachining into the entire Department of Defense (DoD) industrial base in support of ongoing operations.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603925N/DIRECTED ENERGY AND ELECTRIC WEAPONS SY**	PROJECT NUMBER AND NAME **9824C/Optical Line Replcble Units (O-LRUs)-Hi Energy Las**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.976	0.000	0.000
RDT&E Articles Quantity	0	0	0

This funding allowed for the continuing implementation of ultra short pulse laser micromachining processes for ceramic circuit board development and continued development of advanced processing techniques in support of semiconductor and dialectric processing.

C. OTHER PROGRAM FUNDING SUMMARY:

D. ACQUISITION STRATEGY:

E. MAJOR PERFORMERS:
BOEING

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603925N/DIRECTED ENERGY AND ELECTRIC WEAPONS SYSTEM**				PROJECT NUMBER AND NAME **A01N/Prototype Instrumentation System For MUTC**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	1.075	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

FY 07 funding was provided for the design and build of a prototype capability for Multi-Service and Special Operations Forces to train in an urban environment. This project meets the need for a computer enhanced urban training site that allows for live/virtual/constructive training to be integrated with advanced technology. The project identified deficiencies in the existing infrastructure at Muscatatuck and identified the respective solutions that could be solved through a phased installation approach of equipment, instrumentation, wireless-connectivity, and enhanced computer capabilities. The site was then able to provide the urban training environment necessary to all services.

The Joint Forces Command has established the need for sites that have the capability to conduct mission rehearsals, planning, and exercises within an urban environment. These sites need to provide a venue for joint intergovernmental, interagency, and special operations training. More specifically, training infrastructures need to be put in place that will allow today's armed forces to meet the need for Military Operations on Urban Terrain (MOUT) and the Military Utility Assessment Range (MUAR). This project will allow such capabilities to be put in place at the Muscatatuck Urban Training Center. Urban training comprises one of the most actively studied issues in the armed forces today, with a substantial amount of investment for range infrastructure being planned in the near to midterm to improve MOUT. This push towards urban training is based on the changing demographics in world population towards major urban centers vice rural areas. Current military operations show that it is increasingly likely that forces will engage in the midst of urban populations as opposed to the open field.

The current world threat situation mandates an urgency in providing the most up-to-date technology-based solutions. It is imperative that our forces train in similar environments to what they will actually face. The training strategy being developed by U.S. Forces focuses on progressively more complex training, beginning with individual and team training on an Urban Assault Course, more advanced training in a live-fire shoot house, and finally company, battalion, and brigade training in a Combined Arms Collective Training Facility. Crowd control and separation of antagonists from civilians is another area that requires specialized training and equipment. The Indiana National Guard is developing the Muscatatuck Urban Training Center to become a full-immersion contemporary urban operating environment for doctrinal training events that can be used as a MUAR for advanced technology.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603925N/DIRECTED ENERGY AND ELECTRIC WEAPONS SY**	PROJECT NUMBER AND NAME **9A01N/Prototype Instrumentation System For MUTC**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	1.075	0.000	0.000
RDT&E Articles Quantity	0	0	0

FY 07 funding was provided to design and build a prototype capability for Multi-Service and Special Operations Forces to train in an urban environment.

C. OTHER PROGRAM FUNDING SUMMARY:

D. ACQUISITION STRATEGY:

E. MAJOR PERFORMERS:

SAIC

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603925N/DIRECTED ENERGY AND ELECTRIC WEAPONS SYSTEM**				PROJECT NUMBER AND NAME **A28N/Directed Energy Research**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	19.027	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This funding was utilized to accelerate development of Directed Energy and Electric Weapon Systems for the U.S. Navy. Funding was used for advanced component and prototype development of the following technology areas associated with Directed Energy and Electric Weapon Systems research:

o Lethality/Vulnerability research, analysis, and engineering
o Electromagnetic Rail Gun Weapon System (EMRG WS) research and engineering
o Free Electron Laser (FEL) research and analysis
o High Energy Laser (HEL) research, engineering, analysis, and design.

Joint Vision 2020 highlights the emerging asymmetric threat facing the United States today and in the future. This includes conflict involving conventional weapons against traditional threats, it also includes those "ambiguous situations residing between peace and war, such as peacekeeping and peace enforcement operations, as well as noncombatant humanitarian relief operations and support to domestic authorities."

The current world threat situation mandates an urgency in providing the most up-to-date technology-based solutions to our war fighters. It is imperative that our forces maintain technical superiority. With the Navy's programmed introduction of ship integrated power systems, the foundation has been established for fielding shipboard directed energy and electric weapon systems. Laser systems provide for the speed of light engagements, with cost savings realized through the reduction or elimination of defensive missiles and guns/magazines required by current self protection missile and gun systems. Lasers also provide a force protection capability that has low collateral damage with graded lethality. The rail gun will provide the Navy with persistent fire power that will accelerate projectiles to hypervelocity without the aid of propellant charges to provide higher velocity warheads, reduced flight times, and increased range while eliminating the hazards of propellant charges and unexploded munitions.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603925N/DIRECTED ENERGY AND ELECTRIC WEAPONS SY**	PROJECT NUMBER AND NAME **9A28N/Directed Energy Research**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	19.027	0.000	0.000
RDT&E Articles Quantity	0	0	0

This funding was utilized to accelerate development of Directed Energy and Electric Weapon Systems for the U.S. Navy. Funding was used for advanced component and prototype development of the following technology areas associated with Directed Energy and Electric Weapon Systems research:

o Lethality/Vulnerability research, analysis, and engineering
o Electromagnetic Rail Gun Weapon System (EMRG WS) research and engineering
o Free Electron Laser (FEL) research and analysis
o High Energy Laser (HEL) research, engineering, analysis, and design.

C. OTHER PROGRAM FUNDING SUMMARY:

D. ACQUISITION STRATEGY:

E. MAJOR PERFORMERS:

NSWC Dahlgren; JLAB; JHU/APL; William & Mary

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603925N/DIRECTED ENERGY AND ELECTRIC WEAPONS SY**	PROJECT NUMBER AND NAME **9999/Congressional Add**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.000	1.987	0.000
RDT&E Articles Quantity	0	0	0

FY 08 funding will provide the system engineering and application of laser beam conversion technology, procured and developed with FY 05/06/07 funding, to accomplish beam combining of the two lasers, procured previously, to provide and demonstrate a 30kW laser weapon capability at significantly longer ranges.

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4						R-1 ITEM NOMENCLATURE 0604272N, TADIRCM	
COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	92.490	32.552	63.244	64.668	61.092	49.206	44.182
3040 ANTI-MISSILE TECHNOLOGY (TADIRCM)	11.590	26.988	63.244	64.668	61.092	49.206	44.182
3166 CH-53 DIRCM TAP	80.900						
9999 Congressional Add		5.564					

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This element includes development of electronic warfare systems for the United States Navy (USN) and United States Marine Corps (USMC) (in coordination with United States Army tactical aircraft efforts) USMC helicopters, surface combatants, data link vulnerability assessments, precision targeting, USN and USMC communications and non-communications jammers and development and testing of electronic warfare devices for emerging threats and emergency contingencies are supported.

B. PROGRAM CHANGE SUMMARY

Funding:	FY 2007	FY 2008	FY 2009
FY2008 President's Budget:	98.361	27.569	52.566
FY2009 President's Budget:	92.490	32.552	63.244
Total Adjustments	-5.871	4.983	10.678

Summary of Adjustments			
Congressional Reductions			
Congressional Rescissions			
Congressional Undistributed Reductions	-2.371	-0.211	
Congressional Increases		5.600	
Economic Assumptions			-0.006
Program Phasing			11.130
Miscellaneous Adjustments	-3.500	-0.406	-0.446
Subtotal	-5.871	4.983	10.678

1. FY2007 funding total includes $80.900 received in GWOT supplemental.

Schedule:

As a result of the revised acquisition strategy, all Strike efforts have been removed from the schedule.

Technical:

The acquisition strategy has been revised to field a DIRCM capability for Assault aircraft. An evolutionary approach will be implemented in fielding this Assault DIRCM capability. The capability will be fielded in two increments, with the first increment being a Missile Warning System (MWS) capability, designated as the Joint and Allied Threat Awareness System (JATAS) by N88, is planned for FY 2008 with an IOC for this increment planned for FY 20013. The second increment, DIRCM, for Assault aircraft is planned for MS B for FY 2009 with an IOC of FY 2015. OPNAV (N88) is in the process of evaluating the need for an IRCM capability for Strike Aircraft and the Acquisition Strategy for Strike aircraft will be determined upon the completion of this assessment.

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0604272N, TADIRCM			PROJECT NUMBER AND NAME 3040, ANTI-MISSILE TECHNOLOGY (TADIRCM)			
COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
3040 ANTI-MISSILE TECHNOLOGY (TADIRCM)*	11.590	26.988	63.244	64.668	61.092	49.206	44.182
RDT&E Articles Qty Not Applicable							

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Tactical Aircraft Direct Infrared Countermeasures (TADIRCM) system provides the warfighter with protection against surface and air-to-air missiles. This project looks at the InfraRed (IR) Man Portable Air Defense (MANPAD) and surface-to-air (SAM) threat. The Early Operational Assessment (EOA) project to flight test was funded by an FY 2005 Congressional Add and anticipates Initial Operational Capability (IOC) for Strike DIRCM FY 2017. IOC for Assault DIRCM improved missile warning system is anticipated in FY 2013 and IOC for the DIRCM will be in FY 2015

Strike DIRCM is designed for fixed wing aircraft that is needed for protection against surface-to-air and air-to-air IR threats. Strike DIRCM regains airspace below 20K feet and neutralizes the IR threat

Assault DIRCM is an advanced capability against the IR SAM threat directed at rotary wing aircraft

B. ACCOMPLISHMENTS / PLANNED

EOA Flight Test and Report	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	1.170		
RDT&E Articles Qty Not Applicable			

Completed design and build of a podded DIRCM system, incorporating missile warning sensors, system processor and pointer/tracker, and flight test of the pod to provide an assessment of the advance technology in simulated flight conditions. EOA was completed in June 2007. OPNAV will provide the final EOA report to congress 4th quarter of FY07

DIRCM Pre-MS B, Risk Reduction, SDD Effort	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	10.420	26.988	63.244
RDT&E Articles Qty Not Applicable			

Fund efforts to support Milestone B decision for the first increment(Joint and Allied Threat Awareness System) of the Assault DIRCM program. Requirements development and contracting efforts for the System Design and Development (SDD) of the JATAS contract. Development of applicable modeling and simulation models began in FY 2007. Risk reduction efforts on the second increment(DIRCM pointer tracker) of the Assault DIRCM program DIRCM Pointer Tracker System began in FY 2007 and will continue through FY 2009. The MSB for the second increment(DIRCM) of Assault DIRCM is planned for the 4th quarter of FY 2009 The Assault SDD contract is scheduled for the 2nd quarter of FY 2009. Award Assault SDD contract in FY 2008 after the Milestone B decision.

C. OTHER PROGRAM FUNDING SUMMARY:	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
APN-5, Line 51, Common ECM, OSIP 005-08, 057600		29.448	25.759	2.793	43.842	44.667	45.470	1,910.599	2,102.578

D. ACQUISITION STRATEGY:

The acquisition strategy for TADIRCM has changed due to new guidance from OPNAV. Analysis of Alternatives (AoA) were conducted by N88 to asses the need for a IRCM capability for Strike and Assault aircra against surface-to air threats. Conclusions from the AOAs determined there was an immediate need for a DIRCM capability for Assault (Rotary Wing) aircraft, however, additional analysis was required to evaluate what level of IRCM is required for Strike aircraft. As a result of the AOAs and guidance from OPNAV, PMA-272 was requested to revised the acquisition strategy for TADIRCM. The Assault DIRCM system consist of two key components. A Missile Warning System (MWS) used to detect the InfraRed (IR) threat and a Directed InfraRed Countermeasure (DIRCM). The DIRCM sends directed laser energy to th incoming IR threat (once detected by the missile warning system). N88 completed an Analysis of Alternative (AoA) in March 2007 to address the need for an Assault DIRCM capability for Assault (Rotary Wing platforms. As a result of the AoA, it was determined that technology for the missile warning component of Assault DIRCM was ready to proceed into capability will be fielded via an evolutionary approach. This approac will accelerate development, however, DIRCM technology required maturation to support the size and weight constraints of USN/USMC Assault platforms. Per guidance of the AoA and N88, the Assault DIRCM the timeline to provide capability to the warfigher. The first increment of Assault DIRCM is the missile warning component designated by N88 as the Joint and Allied Threat Awareness System (JATAS). The JATA is scheduled for a MS B decision in the 4th quarter of FY 2008 with contract award in the 1st quarter FY 2009. JATAS IOC is planned for FY 2013. The second increment, DIRCM, is scheduled for MSB in FY2009 and IO

Exhibit R-3 Cost Analysis (page 1)									DATE: February 2008			
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4		PROGRAM ELEMENT 0604272N, TADIRCM				PROJECT NUMBER AND NAME 3040, ANTI-MISSILE TECHNOLOGY (TADIRCM)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
PRODUCT DEVELOPMENT												
Aircraft Integration	TBD	TBD				.800	Jan 2008	2.900	Dec 2008	25.774	29.474	
Aircraft Integration	CPIF	DCMA, Lockheed Martin, Owego, NY		1.500	Dec 2007						1.500	1.500
Aircraft Integration	CPIF	DCMA, Sikorsky, Stratford, CT		.992	Dec 2007						.992	.992
Ancillary Hdw Development	TBD	TBD				.400	Jan 2008	5.203	Dec 2008	7.543	13.146	
EMD Support	TBD	TBD						.200	TBD	2.400	2.600	
Modeling/Simulation	WX	VARIOUS		.300	Nov 2006	.300	Feb 2008	.400	Dec 2008	1.000	2.000	
Primary Hdw Development	CPIF	GALAXY SCIENTIFIC, EGGHARBOR WA	5.301	2.627	Dec 2007	13.098	TBD	35.935	TBD	93.723	150.684	150.684
Systems Engineering	CPFF	TEKLA, WOODBRIDGE VA	2.496	.400	May 2007	1.300	TBD	1.300	TBD	10.000	15.496	15.496
Systems Engineering	CPFF	SCIENCE APPLICATIONS		.075	May 2007						.075	.075
Systems Engineering (Gov't)	VARIOUS	VARIOUS		.889	Jan 2007						.889	
Systems Engineering (Gov't)	MP	NRL, WASHINGTON DC	1.243	.200	Jan 2007						1.443	
SUBTOTAL PRODUCT DEVELOPMENT			9.040	6.983		15.898		45.938		140.440	218.299	

Remarks:

SUPPORT												
Configuration Management	WX	VARIOUS				.100	Nov 2007	.100	Nov 2008	.400	.600	
Development Support	WX	NAWCWD, PT MUGU CA		.350	Oct 2006			.475	Nov 2008	1.000	1.825	
Integrated Logistics	WX	VARIOUS	.040	.180	Oct 2006	1.451	Nov 2007	2.392	Nov 2008	9.565	13.628	
Software Development	WX	VARIOUS	.050	.200	Oct 2006	1.600	Nov 2007	2.800	Nov 2008	18.078	22.728	
Studies and Analysis	WX	VARIOUS	2.320								2.320	
Technical Data	TBD	TBD				.200	TBD	1.800	TBD	3.700	5.700	
SUBTOTAL SUPPORT			2.410	.730		3.351		7.567		32.743	46.801	

Remarks:

TEST & EVALUATION												
Developmental T&E	WX	NRL, WASHINGTON DC	.372			2.759	Dec 2007	2.000	Dec 2008	7.098	12.229	
ENG & Evaluation	CPFF	VARIOUS	2.768			.400	Nov 2007				3.168	3.168
ENG & Evaluation Government	WX	VARIOUS	1.262	.745	Nov 2006	.700	Nov 2007	.500	Nov 2008	10.647	13.854	
Live Fire Support	VARIOUS	VARIOUS						4.350	VARIOUS	3.700	8.050	
Operational Test & Evaluation	VARIOUS	VARIOUS	.162			.400	Feb 2008			6.000	6.562	
Technical Maturation	VARIOUS	VARIOUS	2.540								2.540	
Test Assets	WX	NAWCWD, CHINA LAKE CA								6.152	6.152	
SUBTOTAL TEST & EVALUATION			7.104	.745		4.259		6.850		33.597	52.555	

Remarks:

MANAGEMENT												
Direct Support Costs	WX	VARIOUS	.195	.167	VARIOUS	.045	VARIOUS	.052	VARIOUS	.278	.737	
Eng & Tech Spt	CPFF	VARIOUS	1.248	1.168	Nov 2006	.500	Nov 2007	.500	Nov 2008	2.000	5.416	5.416
Government Engineering Support	WX	VARIOUS	.946	.816	Nov 2006	1.650	Nov 2007	1.392	Nov 2008	6.900	11.704	
Mgt & Prof Suppt Srvc	CPFF	VARIOUS	.331	.590	Nov 2006	.700	Nov 2007	.750	Nov 2008	.800	3.171	3.171
NAWCAD/Pax Support	WX	NAWCAD, PATUXENT RIVER MD	.231	.312	Nov 2006	.400	Nov 2007			1.600	2.543	
Transportation	MP	DEFENSE INTELLIGENCE AGENCY	.007	.008	Mar 2007						.015	
Travel	TO	NAVAIR	.216	.072	Oct 2006	.185	Oct 2007	.195	Oct 2008	.790	1.458	
SUBTOTAL MANAGEMENT			3.174	3.132		3.480		2.889		12.368	25.043	

Remarks: Totals may not add due to rounding.

Total Cost			21.728	11.590		26.988		63.244		219.148	342.698	

Remarks: Totals may not add due to rounding.

CLASSIFICATION:

UNCLASSIFIED

EXHIBIT R4, Schedule Profile	DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROJECT NUMBER AND NAME 3040, ANTI-MISSILE TECHNOLOGY (TADIRCM)

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	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 Assault △																MS C Assault △	Assault FRP Decision Review △				
Assault AoA EOA Report	▬	▬	▬	▲																								
SDD Contract Assault							△																					
PDR										△																		
CDR													△															
Test & Evaluation Milestones																												
EOA Flight Test	▬	▬	▬																									
DT/OT													△	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	△				

Note: N88 has approved AoA recommendation for a separate JATAS and DIRCM acquisiton strategy. ASN(RDA)'s approval of JATAS CDD and ACAT Designation will result in schedule change.

Exhibit R-4, Schedule Profile

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**				PROJECT NUMBER AND NAME 3040, ANTI-MISSILE TECHNOLOGY (TADIRCM)			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
MS B Assault		3Q					
MS C Assault						3Q	
Assault FRP Decision Review							1Q
Assault AoA	1Q-3Q						
EOA Report	4Q						
SDD Contract Assault		3Q					
PDR			2Q				
CDR				1Q			
EOA Flight Test	1Q-3Q						
DT/OT				1Q-4Q	1Q-4Q	1Q-4Q	

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0604272N, TADIRCM			PROJECT NUMBER AND NAME 3166 CH-53 DIRCM TAP			
COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
3166 CH-53 DIRCM TAP	80.900						
RDT&E Articles Qty Not Applicable							

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This supplemental helps to accelerate the fielding of an advanced InfraRed Countermeasure (IRCM) capability for United States Navy (USN)/ United States Marine Corps (USMC) rotary wing platforms. This capability will significantly increase platform survivability against Man Portable Air Defense (MANPADs) and is required to defeat advanced threats expected to be encountered in the Global War on Terrorism (GWOT) theaters. Without this capability USN / USMC rotary wing platform will be limited in their ability to engage/complete mission in support of GWOT. This effort will entail the qualification and tests required to field an advanced IRCM capability on the CH-53E, in addition to the nonrecurring engineering costs necessary to address the limitation of the current Assault Support Equipment (ASE) Missile Warning Sensor (MWS) capability on forward deployed USN / USMC rotary wing platforms.

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

Qualification Tests	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	80.900		
RDT&E Articles Qty Not Applicable			

This funding will accomplish the qualification tests required to field an advanced IRCM capability on the CH-53E and the non recurring engineering costs necessary to address limitations of the current ASE MWS capability on forward deployed USN / USMC rotary wing platforms. The advanced IRCM capability requires system integration and engineering manufacturing development to existing hardware and software configuration of the CH-53 platform. Ancillary hardware development is required to support optimal utilization of IRCM detecting, tracking and targeting of the sensors and lasers. Modeling and simulation will support development of software and operability testing. The MWS will be integrated on multiple forward deployed USN / USMC rotary wing platforms. Additional ancillary hardware development is required to support A Kit development for the MWS.

C. OTHER PROGRAM FUNDING SUMMARY: Not Applicable

D. ACQUISITION STRATEGY:

Initial Qualification of the CH-53 DIRCM capability for operational use occurred in FY 2006 and FY 2007. Contract execution of this effort began in the 3rd quarter of FY 2007 to procure initial DIRCM test assets. Upon completion of validation the CH-53 DIRCM, the system will be identified suitable and effective for operational use. An Engineering Change Proposal will be executed in FY 2008 followed by a contract award for the procurement of additional DIRCM A/B-KITS. In addition, a contract award will be executed to modify several USN/USMC platforms to accommodate an enhanced MWS capability. This strategy is a rapid response to provide a capability in support of GWOT.

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0604272N, TADIRCM			PROJECT NUMBER AND NAME 9999, CONGRESSIONAL ADD			
COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
9999, CONGRESSIONAL ADD		5.564					
RDT&E Articles Qty							

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Congressional Add.

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

Assault Directed Infrared Countermeasure	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost		3.964	
RDT&E Articles Qty Not Applicable			

This congressional add will be used to support risk reduction efforts to accelerate the fielding of a laser based DIRCM capability for small to medium sized rotary wing platforms. This funding will also be used to validate and demonstrate to the Assault DIRCM open archietecture concept.

High Power Fiber Laser (HPFL)	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost		1.600	
RDT&E Articles Qty Not Applicable			

This funding will accomplish the evaluation of laser based DIRCM technology by demonstrating the maturity of the technology through HWIL SIL testing and some limited flight test events. Systems open architecture will be performed be developing open system standards for an Assault DIRCM capability and validating these open standards by demonstrating the interchangeability and performance of Assault DIRCM WRAs in a system integration lab.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification		DATE: **February 2008**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-4**	R-1 ITEM NOMENCLATURE **PE 0604327N - Hard & Deeply Buried Target Defeat System Program**	

COST ($ in Millions)	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013
Total PE Cost	19.421	0.000	0.000	0.000	0.000	0.000	0.000
J9611 - Advanced Conventional Strike Capability (CTM)	19.421	0.000	0.000	0.000	0.000	0.000	0.000

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

The Nuclear Posture Review (NPR), Quadrennial Defense Review (QDR), and Defense Planning Guidance (DPG) all describe a future military that will be able to respond rapidly, anywhere around the world, with the required flexibility to meet a variety of contingencies. National security will depend on the ability of the U.S. military to respond within a complex and uncertain security environment which is characterized more and more by asymmetric threats. Strategic Strike, specifically Prompt Global Strike (PGS), describes a concept for conducting a strike globally, precisely, and rapidly with kinetic effects against high payoff and time sensitive targets.

The efforts herein support the ability to produce affordable solutions (i.e. ballistic missiles from an underwater environment) to answer the PGS need. Projects 9611 support both Advanced Strike Capability Demonstrations contracted in FYs 2005 and 2006 (which will demonstrate the feasibility of producing intermediate size low-cost rockets) and the development in FY 2007of a modification to the TRIDENT II (D5) strategic weapon system (SWS) known as the Conventional TRIDENT Modification (CTM) which will allow it to carry conventional payloads. Program is cancelled in FY08 Appropriations Bill and funding was realigned to a defense-wide account to investigate all prompt global strike alternatives and technologies.

B. (U) Program Change Summary:

	FY 2007	FY 2008	FY 2009
FY 2008 President's Budget	19.921	126.434	20.000
FY2009 President's Budget	19.421	0.000	0.000
Total Adjustments	-0.500	-126.434	-20.000
Summary of Adjustments			
SBIR	-0.500		
Deletion of Conventional Trident Modification		-126.434	-20.000

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2008**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-4**					PROJECT NUMBER AND NAME **Advanced Conventional Strike Capability J9611**			
COST ($ in Millions)		FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013
Project Cost J9611 Advanced Conventional Strike Capability		19.421	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty		0.000	0.000	0.000	0.000	0.000	0.000	0.000

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

This project supports efforts for both Advanced Strike Capability which will demonstrate the feasibility of producing intermediate size low cost rockets, and the development of a modification to the TRIDENT II (D5) strategic weapon system (SWS) to allow it to carry conventional payloads (Conventional TRIDENT Modification (CTM)).

The Conventional TRIDENT Modification (CTM) will adapt the TRIDENT II (D5) missile to carry conventional payloads. SSP intends to modify the existing D5 SWS to carry conventional payloads as an affordable approach to providing Combatant Commanders near term kinetic Precision Global Strike (PGS) capability. This strategy leverages an established program and its personnel, contractor base, and infrastructure to rapidly field a desired capability. This new capability is needed to defeat a diverse set of unpredictable threats, such as Weapons of Mass Destruction and Effect (WMD/E), on short notice without the requirement for a forward-deployed or visible presence and without risk to the U.S. forces and with little or no warning prior to strike. CTM will complement nuclear weapons in their deterrent role and is an evolution of deterrence away from the complete dependence on nuclear weapons.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification	DATE: **February 2008**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-4**	PROJECT NUMBER AND NAME: **J9611 Advanced Conventional Strike Capability Demonstration**

B. (U) Accomplishments/Planned Program

		FY 2007	FY 2008	FY 2009
Advanced Conventional Strike Demo		19.421	0.000	0.000
RDT&E Articles Quantity		0.000	0.000	0.000

(U) FY 2007 PLAN ($19.421)
- (U) Risk reduction efforts in support of Prompt Global Strike concepts.
- (U) Demonstrate Flechette payload design concept at hypersonic speeds.
- (U) Support NAS study on Prompt Global Strike
- (U) Study common technologies, components, and interfaces for warhead, guidance, and package design.

(U) FY 2008 PLAN ($0)
- (U) Program Deletion.

(U) FY 2009 PLAN ($0)
- (U) Program Deletion.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification	DATE: **February 2008**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-4**	PROJECT NUMBER AND NAME: **J9611 Advanced Conventional Strike Capaiblity Demonstration**

C. (U) Other Program Funding Summary: (Dollars in Thousands)

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Complete	Total Cost
WPN/BA1/1250/PE 0101228N	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OPN/BA4/5358/PE 0101221N	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. (U) Acquisition Strategy:

Sole Source Contracts

E. (U) Major Performers:

- LMMS/CA - Conventional Strike - Missile Trade Study
- APL/MD - Conventional Strike - Rocket Motor performance assessment
- AERO/CA - Conventional Strike - Rocket Motor Ground tests
- DOE/NM - Conventional TRIDENT Modification - Reentry Body materials
- LMMS/CA - Conventional TRIDENT Modification - SRIMU development
- CSDL/MA - Conventional TRIDENT Modification - Guidance Interface

CLASSIFICATION:

EXHIBIT R-3, Cost Analysis

DATE: **February 2008**

APPROPRIATION/BUDGET ACTIVITY
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-4

PROGRAM ELEMENT
PE 0604327N Hard & Deeply Buried Target Defeat System

Project Number and Name
J9611 - Advanced Conventional Strike Capability Demonstration

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost			FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Support & Management														
Conventional Strike	SS-CPFF	LMSS (CA)	9.3			0.000		0.000		0.000		Cont.	Cont.	TBD
Conventional Strike	PD	APL	0.200			0.200	3-07	0.000		0.000		Cont.	Cont.	TBD
Conventional Strike	SS-CPFF	AERO (CA)	0.100			0.000		0.000		0.000		Cont.	Cont.	TBD
Conventional Strike (CTM)	MIPR	DOE (NM)	0.000			0.000		0.000		0.000		Cont.	Cont.	TBD
Conventional Strike (CTM)	SS-CPFF	LMSS (CA)	0.000			0.500	4-07	0.000		0.000		Cont.	Cont.	TBD
Conventional Strike (CTM)	SS-CPFF	CSDL (MA)	0.000			0.200	4-07	0.000		0.000		Cont.	Cont.	TBD
Conventional Strike (CTM)	VARIOUS	VARIOUS	0.000			2.000	3-07	0.000		0.000		Cont.	Cont.	TBD
Development and Development												Cont.	Cont.	
Conventional Strike	SS-CPFF	LMSS (CA)	0.000			0.000		0.000		0.000		Cont.	Cont.	TBD
Conventional Strike	PD	APL	0.000			0.000		0.000		0.000		Cont.	Cont.	TBD
Conventional Strike	SS-CPFF	AERO (CA)	0.000			0.000		0.000		0.000		Cont.	Cont.	TBD
Conventional Strike (CTM)	MIPR	DOE (NM)	0.000			8.500	12-06	0.000		0.000		Cont.	Cont.	TBD
Conventional Strike (CTM)	SS-CPFF	LMSS (CA)	0.000			2.800	4-07	0.000		0.000		Cont.	Cont.	TBD
Conventional Strike (CTM)	SS-CPFF	CSDL (MA)	0.000			2.221	4-07	0.000		0.000		Cont.	Cont.	TBD
Conventional Strike (CTM)	VARIOUS	VARIOUS	0.000			0.000		0.000		0.000		Cont.	Cont.	TBD
Test and Evaluation												Cont.	Cont.	
Conventional Strike	SS-CPFF	LMSS (CA)	0.000			0.000		0.000		0.000		Cont.	Cont.	TBD
Conventional Strike	PD	APL	0.000			0.000		0.000		0.000		Cont.	Cont.	TBD
Conventional Strike	SS-CPFF	AERO (CA)	0.000			0.000		0.000		0.000		Cont.	Cont.	TBD
Conventional Strike (CTM)	MIPR	DOE (NM)	0.000			3.000	12-06	0.000		0.000		Cont.	Cont.	TBD
Conventional Strike (CTM)	SS-CPFF	LMSS (CA)	0.000			0.000		0.000		0.000		Cont.	Cont.	TBD
Conventional Strike (CTM)	SS-CPFF	CSDL (MA)	0.000			0.000		0.000		0.000		Cont.	Cont.	TBD
Conventional Strike (CTM)	VARIOUS	VARIOUS	0.000			0.000		0.000		0.000		Cont.	Cont.	TBD
Subtotal Product Development			9.600			19.421		0.000		0.000			29.021	TBD
Remarks:														
Total Cost			9.600	0.000		19.421		0.000		0.000		Cont.	Cont.	
Remarks:														

R-1 SHOPPING LIST - Item No. 77 - 5 of 7

CLASSIFICATION:

EXHIBIT R-4, Schedule Profile			DATE: **February 2008**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-4**	PROGRAM ELEMENT NUMBER AND NAME: **PE 0604327N Hard & Deeply Buried Target Defeat System**	Project Number and Name **J9611 - Advanced Conventional Strike Capability Demonstration**	

Fiscal Year	CY-2007				2008				2009				2010				2011				2012				2013			
	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
Contract Go-ahead and Milestones																												
Common Technology, Component, and Interface studies (Tech Dev Phase)																												
System Development & Demonstration Phase																												
Systems Engineering Reviews																												
System Integration Test - Mock-up																												
Systems Integration Test - Engineering Development Units																												
Long Lead Items																												
Systems Integration Test - Production Proofing Units Including LRIP																												
Production and Deployment Phase																												
System Flight Test IOC DASO (Not scheduled, platform dependent)																												

CLASSIFICATION:

EXHIBIT R-4a, Schedule Detail							DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-4**			PROGRAM ELEMENT NUMBER AND NAME: **PE 0604327N Hard & Deeply Buried Target Defeat System**		Project Number and Name **J9611 - Advanced Conventional Strike Capability Demonstration**		
Fiscal Year	**CY-2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Contract Award -ahead and Milestones							
Common Technology, Component, and Interface studies	**1-4Q**						
System Development & Demonstration							
Initial Production Baseline							
Production and Deployment							
Systems Engineering Reviews							
System Integration Test - Mock-up							
Systems Integration Test - Engineering Development Units							
Systems Integration Test - Production Proofing Units							
System Flight Test IOC DASO (Not scheduled, platform dependent)							

EXHIBIT R-2, RDT&E Budget Item Justification						DATE: February 2008	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4					R-1 ITEM NOMENCLATURE 0604450N, JOINT AIR TO GROUND MISSILE		
COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost		14.680					
2211 JOINT AIR TO GROUND MISSILE		14.680					

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) JOINT AIR TO GROUND MISSILE (JAGM): FY09 through completion funded under R-1 #132, PE: 0605450N, Project Unit 2211. JAGM is an Army-led close-air-support missile program that will utilize tri-mode seeker technology and be employed against land and maritime stationaryand moving targets. Navy platform integrations will occur on the F/A-18E/F, AH-1Z and MH-60R platforms.

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
Previous President's Budget:		15.000	
Current President's Budget :		14.680	
Total Adjustments		-0.320	
Summary of Adjustments			
Congressional Reductions			
Congressional Rescissions			
Congressional Undistributed Reductions		-0.095	
Congressional Increases			
Economic Assumptions			
Miscellaneous Adjustments		-0.225	
Subtotal		-0.320	

Schedule: Schedule has been updated to reflect an OSD directed 27 month competitive contractor downselect (Phase 1) followed by a 4 year SDD period (Phase 2). Navy efforts will be focused on the F/A-18E/F, AH-1Z and MH-60R integrations. The milestone reviews and IOCs have been updated to reflect the revised Acquisition Strategy. The F/A-18E/F and AH-1Z IOCs are currently planned for FY16 and the MH-60R IOC is currently planned for FY17.

Technical: Not Applicable.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0604450N, JOINT AIR TO GROUND MISSILE	PROJECT NUMBER AND NAME 2211, JOINT AIR TO GROUND MISSILE

COST ($ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
2211 JOINT AIR TO GROUND MISSILE		14.680					
RDT&E Articles Qty							

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) JOINT AIR TO GROUND MISSILE (JAGM): FY09 through completion funded under R-1 # 132, PE: 0605450N, Project Unit 2211. JAGM is an Army-led close-air-support missile program that will utilize tri-mode seeker technology and be employed against land and maritime stationary and moving targets. Navy platform integrations will occur on the F/A-18E/F, AH-1Z and MH-60R platforms.

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

JOINT AIR TO GROUND MISSILE	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost		14.680	
RDT&E Articles Qty: Not Applicable.			

Funding to be used towards a 27 month competitive contractor downselect (Phase 1). Funding will be used to support the Navy source selection team's labor and travel in addition to the platform integration meetings and deliverables (i.e. ICDs, testing schedules and system engineering documentation). Navy integration efforts are focused on the following threshold platforms: F/A-18E/F, AH-1Z and MH-60R.

C. OTHER PROGRAM FUNDING SUMMARY:	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
RDT&E, NAVY P. E. 0605450N			62.324	79.880	112.951	134.159	118.589	255.208	763.111
WEAPONS PROCUREMENT, Navy BLI 224800							22.809	2,663.461	2686.270
RDT&E ARMY P. E. 0643460A		53.160							53.160
RDT&E ARMY P. E. 0655450A			119.281	130.325	134.000	132.000	94.997	108.577	719.180
Missile Procurement, ARMY P. E. (TBD)							7.300	3423.300	3430.600

D. ACQUISITION STRATEGY:

(U) JOINT AIR TO GROUND MISSILE (JAGM): Pre-Decisional Information (Awaiting Acquisition Strategy approval and OSD signature). Final RFP will be issued NLT 30 days after final Acquisition strategy signature.

Exhibit R-3 Cost Analysis										DATE: February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4		PROGRAM ELEMENT 0604450N, JOINT AIR TO GROUND MISSILE				PROJECT NUMBER AND NAME 2211, JOINT AIR TO GROUND MISSILE						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
PRODUCT DEVELOPMENT												
Aircraft Integration	Various	Various				1.480	01/08				1.480	
Systems Eng - WD	Various	Various				5.388	01/08				5.388	
Pre-Milestone B Activities	TBD	TBD				1.500	06/08				1.500	1.500
SUBTOTAL PRODUCT DEVELOPMENT						8.368					8.368	

Remarks:

SUPPORT												
Logistics	Various	Various				.154	02/08				.154	
SUBTOTAL SUPPORT						.154					.154	

Remarks:

TEST & EVALUATION												
Dev T&E (NAWCAD)	Various	Various				4.450	02/08				4.450	
SUBTOTAL TEST & EVALUATION						4.450					4.450	

Remarks:

MANAGEMENT												
Contr Eng Sup - ETS (NON-FFRDC)	TBD	TBD				.175	02/08				.175	
Contractor Eng Supt - Other	TBD	TBD				.275	02/08				.275	
Government Eng Sup	WX	NAWCAD, PATUXENT RIVER MD				.958	01/08				.958	
Program Mgmt Sup	Various	Various				.230	01/08				.230	
Travel - Internal	TO	NAVAIR, PAXTUXENT RIVER MD				.065	01/08				.065	
Travel - Other	MIPR	USA MISSILE CMD, REDSTONE ARS AL				.005	01/08				.005	
SUBTOTAL MANAGEMENT						1.708					1.708	

Remarks:

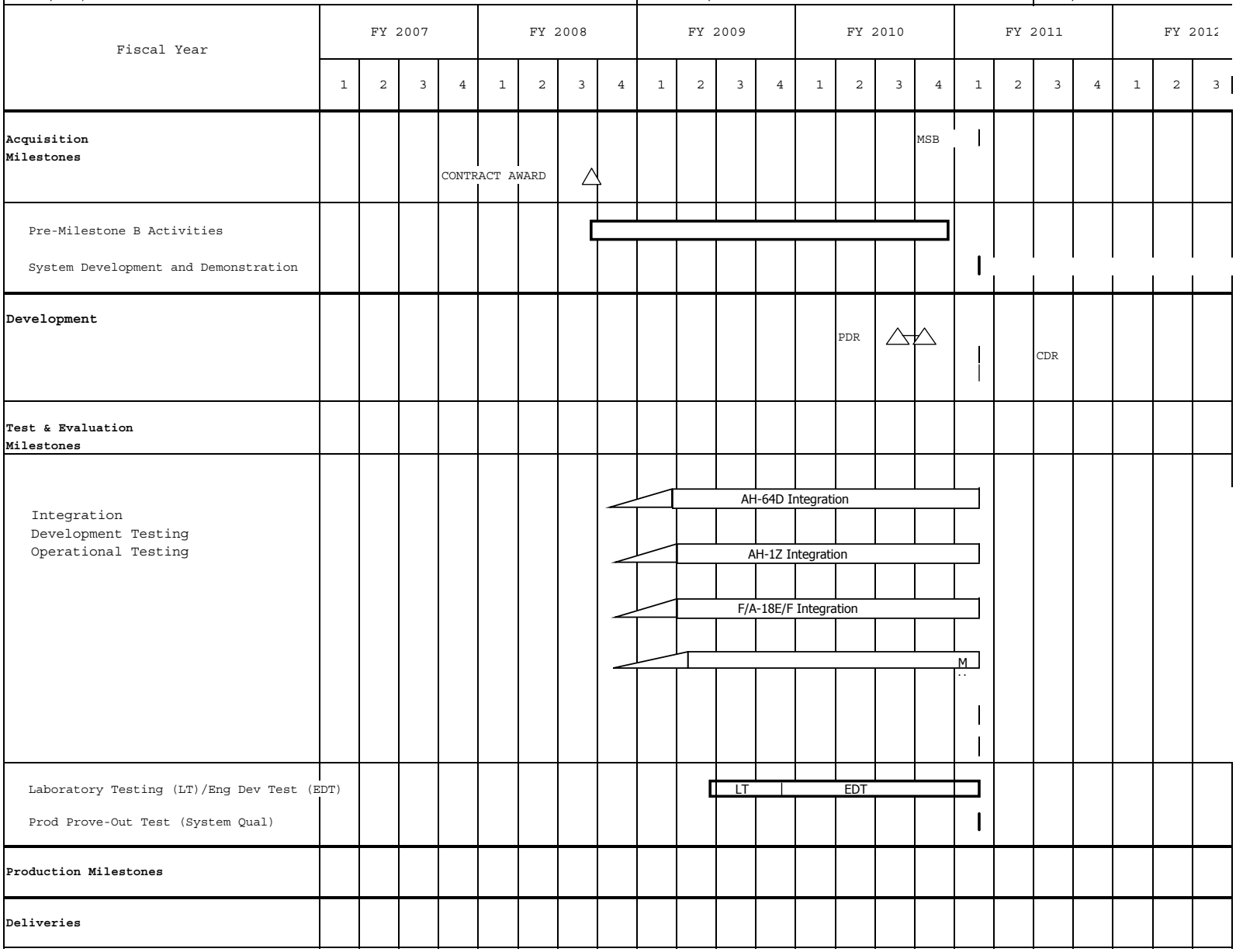
Total Cost						14.680					14.680	

Remarks: FY08 FUNDED UNDER PE: 0604450N, BA-4. FY09 THRU COMPLETION FUNDED UNDER 0605450N, BA-5.

EXHIBIT R4, Schedule Profile

DATE: Febru

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAM
RDT&E,N / BA-4	0604450N, JOINT AIR TO GROUND MISSILE	2211, JOINT AIR TO GRO



Note: FY08 funded under PE: 0604450N, BA-4. FY09 thru completion funded under PE: 0605450N, BA-5.

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT 0604450N, JOINT AIR TO GROUND MISSILE				PROJECT NUMBER AND NAME 2211, JOINT AIR TO GROUND MISSILE		
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Milestone B					1Q		
Contract Award		3Q					
Pre-Milestone B Activities		3Q-4Q	1Q-4Q	1Q-4Q			
SD&D					1Q-4Q	1Q-4Q	1Q-4Q
AH-64D Integration		4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-3Q
AH-64D DT Shots							3Q-4Q
AH-1Z Integration		4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-3Q
AH-1Z DT Shots							3Q-4Q
F/A-18 E/F Integration		4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-3Q
F/A-18 E/F DT Shots							4Q
MH-60R Integration		4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
ERMP Integration						2Q-4Q	1Q-4Q
ARH Integration						2Q-4Q	1Q-4Q
Program Decision Review				3Q-4Q			
Critical Design Review					4Q	1Q	
Design Readiness Review							2Q
Laboratory Test			2Q-4Q				
Engineering Design Test			4Q	1Q-4Q	1Q		
Prod Prove-Out Test (System Qual)							1Q-4Q

Note: FY08 FUNDED UNDER PE: 0604450N, BA-4. FY09 thru completion funded under PE: 0605450N, BA-5.

FY 2009 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2008
Exhibit R-2

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

COST: (Dollars in Thousands)

Project Number & Title	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
Total PE	45,355	41,592	47,518	51,231	59,916	64,894	66,835
0798 OTH TARGETING	1,998	2,070	1,901	1,924	2,114	2,151	2,190
2144 SPACE AND ELECTRONIC WARFARE ENGINEERING	13,319	6,217	14,650	8,562	9,445	11,580	12,472
2357 MARITIME BATTLE CENTER	30,038	33,305	30,967	40,745	48,357	51,163	52,173

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 MBC project (2357) focuses on Fleet experimentation in order to eliminate warfighting gaps and validate Navy Concept of Operations (CONOPS) and Doctrine coordinated by the Navy Warfare Development Command (NWDC). The MBC also manages US Fleet Forces Command's (USFFC) Sea Trial program of Fleet experimentation that is administered by the Sea Trial Executive Steering Group (STESG). Both MBC and Sea Trial integrate emergent concepts and technologies through experiments/analysis/modeling and simulation to support warfighting capability development. Sea Trial experimentation is dedicated to providing solutions to near term (within the Fiscal Year Defense Plan) warfighting gaps through focused Operational Agent (Commander Second Fleet, Commander Third Fleet and Commander Naval Network Warfare Command) led experimentation. The USFFC chaired Flag level Sea Trial Executive Steering Group prioritizes proposed Sea Trial experiments annually. The MBC will also serve as the Navy representative to the Joint Battle Center and the Battle Labs of other services.

The OTH-T and SEW Engineering projects (0798 and 2144 respectively) are systems engineering non-acquisition programs with the objectives of developing, testing, implementing Technical Authority, and validating Naval Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR)

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

architectures to support naval missions in the Joint and Coalition Theater. The mission of these projects are carried out by multiple tasks that are used to ensure Naval C4ISR Command and Control Warfare (C2W) components of SEW are effectively integrated into service-oriented architecture delivering net centric warfare capability. Additionally, these projects ensure that (1) the composite operational capabilities of SEW systems (not the individual component systems) conform to the Naval C4ISR architecture and enhance warfighting capability as related to the objectives of National Defense Strategy and evolving joint visions and direction, such as Joint Vision 2020 (JV 2020), "Sea Power 21" and "Net-Centric Capability" and are guided by warfighter requirements; and (2) that SEW systems and systems integration efforts involve 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, warfighter effectiveness, flexible reconfiguration, as well as reduce costs; and (3) that SEW systems integration efforts promote the delivery of FORCEnet and the Navy's contribution to the Global Information Grid (GIG).

The SEW Engineering project (2144) also includes efforts supporting the Maritime Domain Awareness (MDA) program. MDA is "the effective understanding of anything associated with the global maritime domain that could impact the security, safety, economy, or environment of the United States." MDA can only be achieved through the combined efforts of federal, state, and local government agencies, international governments, and commercial and private enterprise. MDA is a key enabler for maritime security; as well as counter-piracy, counter-drug, freedom of navigation, counter-terrorism, humanitarian assistance and disaster relief, stability, and major combat operations.

Due to the number of efforts in this PE, the programs described herein are representative of the work included in this PE.

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

B. PROGRAM CHANGE SUMMARY:

	FY 2007	FY 2008	FY 2009
FY 2008/FY 2009 President's Budget Submission	43,676	42,295	39,021
Congressional Undistributed Reductions/Rescissions	0	-323	0
Execution Adjustments	2,500	0	0
Program Adjustments	0	0	8,395
Rate Adjustments	0	0	102
SBIR Assessment	-821	-380	0
FY 2009 President's Budget Submission	45,355	41,592	47,518

PROGRAM CHANGE SUMMARY EXPLANATION:
Technical: Not applicable

Schedule: Not applicable

C. OTHER PROGRAM FUNDING SUMMARY:
Not applicable.

D. ACQUISITION STRATEGY:
Not applicable

E. PERFORMANCE METRICS:
Maritime Battle Center:
- Refine concepts and identify key performance levels necessary for implementation.
- Demonstrate feasibility and discriminate among competing concepts and implementation alternatives.
- Understand potential military effectiveness and risk.
- Evaluate how much of the new capability and attendant force structure is needed.
- Learn how to operate the new force and combine it with the legacy force.
- Develop recommended Doctrine, Organization, Training, Materiel, Leadership, and Personnel (DOTMLP) changes.
- Develop fleet warfighting requirements for submission to the OPNAV Navy Capabilities Development Process

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0604707N
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(NCDP) to inform Navy acquisition decisions.
• Integrate emergent concepts and technologies, leading to rapid introduction of needed warfighting capabilities in the fleet.
• Rapidly mature Sea Shield, Sea Strike, Sea Basing, and FORCEnet concepts, technologies, and doctrine.
• Focus on near, mid and long term warfighting challenges to realize increased warfighting effectiveness.

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

COST: (Dollars in Thousands)

Project Number & Title	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
0798 OTH TARGETING	1,998	2,070	1,901	1,924	2,114	2,151	2,190

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The OTH-T/Allied Interoperability program provides a virtual, global systems integration and test facility for C4ISR technology that supports the collection, transmission, correlation, and display of track data into Common Operational and Tactical Pictures (COTP) in support of warfighting requirements. The common view of the battle space applies across the spectrum of warfare missions. However, technology and doctrine has changed radically. The first objective of the OTH-T/Allied Interoperability program is to transition the Joint/Navy architectures and systems to state-of-the-art COTS and GOTS products that support Network Centric Warfare. The second objective is to support development, integration, and joint interoperability of all National Security System (NSS), Information Technology (IT), and C4I systems into warfighting capabilities. This support includes providing technical expertise afloat and ashore via a cadre of highly trained Fleet Systems Engineers in order to integrate, validate, and evaluate new OTH-T/Allied Interoperability capabilities during major Fleet exercises and demonstrations. The OTH-T/Allied Interoperability program integration and testing in support of warfighting capabilities includes joint and coalition interoperability testing for C4ISR equipment. Coalition and joint interoperability is an important issue for future naval operations, especially with the Navy initiative to expand Internet Protocol (IP) networking throughout the Fleet Navy Marine Corps Intranet/Base Level Information Infrastructure (NMCI/BLII) with the GIG. Currently, IP connectivity with Coalition forces is limited, requiring extensive backhaul through ashore infrastructure. Funding allows for development of solutions for emerging Coalition and joint interoperability requirements. Data throughput needs to be increased for the exchange of large size files within the limitations of high frequency (HF) and ultra-high frequency (UHF) mediums in support of, for example, Collaboration at Sea (CAS) and Maritime Domain Awareness (MDA). Funding allows for further development of potential solutions for merging improved transmission control protocol/internet protocol (TCP/IP) capability with advance digital network systems (ADNS) and existing international standards (e.g. Standardization Agreement 5066). Funding will also allow for development of Subnet Relay and other tactical networking technologies and protocols as well as automatic link establishment standards, which provides for a significant improvement within, and between, battle groups.

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
ADVANCED RELAY/WIRELESS/ANTENNA TECHNOLOGIES	730	731	778

FY 2007 Accomplishments:

Designed, fabricated, and tested Generation 3 Spatially Aware Wireless Network (SPAWN) prototype antennas in brassboard form. Field tested over both land paths and sea paths of point-to-point electronically-steerable wireless links and demonstrated tracking. The performance shown confirmed that the technology is ready for demonstration in Trident Warrior 2008.

FY 2008 Plans:

Design, fabricate, and test Generation 4 SPAWN prototype antennas in seaworthy brassboard form with wireless network equipment. Perform a line-of-sight (LOS) field demonstration of SPAWN in Trident Warrior 2008.

FY 2009 Plans:

Design, fabricate and test Generation 5 SPAWN antennas in integrated form with wireless network equipment. Perform an Over-the-Horizon (OTH) field demonstration of SPAWN in Trident Warrior 2009.

	FY 2007	FY 2008	FY 2009
SUBNET RELAY	197	194	209

FY 2007 Accomplishments:

Tested and demonstrated Subnet Relay allied interoperability in Trident Warrior 07, with reuse of TW06 equipment and installation documentation. Investigated improvements to Subnet Relay protocols and demonstrated better integration with ARC-210 radios. Transitioned Subnet Relay to Program of Record in 2007.

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

FY 2008 Plans:

Continue to refine Subnet Relay allied interoperability in concert with Chief of Naval Operations for Communication Networks. Venues of opportunity will be exploited to validate and evaluate developed portions of Subnet Relay configurations through testing, trials, and demonstrations. Investigate airborne deployment of Subnet Relay.

FY 2009 Plans:

Continue to refine Subnet Relay allied interoperability in concert with the Office of the Chief of Naval Operations. Venues of opportunity will be exploited to validate and evaluate developed portions of Subnet Relay configurations through testing, trials, and demonstrations. Complete field demonstration of Subnet Relay airborne deployment.

	FY 2007	FY 2008	FY 2009
SYSTEMS INTEGRATION & INTEROPERABILITY TESTING	494	528	419

FY 2007 Accomplishments:

Conducted/participated in five overall Joint/Navy integration and interoperability tests; facilitated two planning reviews for Joint Test and Evaluations; participated in Joint Users Interoperability Communications Exercise (JUICE) and other joint test events.

FY 2008 Plans:

Continue to conduct/participate in five overall Joint/Navy integration and interoperability tests as available; facilitate two planning reviews for Joint Test and Evaluations as available; participate in JUICE, Joint Distributed Engineering Plant (JDEP), and other joint test events.

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

FY 2009 Plans:

Continue to conduct/participate in five overall Joint/Navy integration and interoperability tests as available; facilitate two planning reviews for Joint Test and Evaluations as available; participate in JUICE, JDEP, and other joint test events.

	FY 2007	FY 2008	FY 2009
INTEROPERABILITY VALIDATION	172	184	152

FY 2007 Accomplishments:

Used the Reconfigurable Land Based Test Sites (RLBTS) and OTH-T resources to validate Global Information Grid (GIG) technologies prior to shipboard installation, supported ten Net Ready-Key Performance Parameters (NR-KPP) Migration Plan Developments and four joint interoperability C4ISR certifications to ensure interoperability requirements between sensors, weapon systems and information systems were met.

FY 2008 Plans:

Continue to use the RLBTS and OTH-T resources to validate GIG technologies prior to shipboard installation, support ten NR-KPP Migration Plan Developments and four joint interoperability C4ISR certifications to ensure interoperability requirements between sensors, weapon systems and information systems are met.

FY 2009 Plans:

Continue to use the RLBTS and OTH-T resources to validate GIG technologies prior to shipboard installation, support ten NR-KPP Migration Plan Developments and four joint interoperability C4ISR certifications to ensure interoperability requirements between sensors, weapon systems and information systems are met.

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

	FY 2007	FY 2008	FY 2009
TESTING OTH-T SYSTEMS	405	433	343

FY 2007 Accomplishments:

Conducted five developmental, integration, and certification tests of Over-The-Horizon Targeting (OTH-T) and combat systems with tactical data exchanged over Common Operational Picture (COP) Common Synchronization Tools (CST) networks and other networks; three integration test events for Joint Command and Control, Combat Decision Systems, and Collaboration technologies within the Global Information Grid (GIG). Testing was also done to address issues of Fleet essential capabilities and emerging mission essential needs both for new, legacy, and technology refreshed systems.

FY 2008 Plans:

Continue to conduct six developmental, integration, and certification tests of OTH-T and combat systems with tactical data exchanged over COP CST networks and other networks; three integration test events for Joint Command and Control, Combat Decision Systems, and Collaboration technologies within the GIG. Testing to also address issues of Fleet essential capabilities and emerging mission essential needs both for new, legacy, and technology refreshed systems. This includes developmental testing between Joint C2 systems and combat systems.

FY 2009 Plans:

Continue to conduct six developmental, integration, and certification tests of OTH-T and combat systems with tactical data exchanged over COP CST networks and other networks; three integration test events for Joint Command and Control, Combat Decision Systems, and Collaboration technologies within the GIG. Testing to also address issues of Fleet essential capabilities and emerging mission essential needs both for new, legacy, and technology refreshed systems. This includes developmental testing between Joint C2 systems and combat systems.

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

C. OTHER PROGRAM FUNDING SUMMARY - NAVY RELATED RDT&E:
Not applicable.

OTHER PROGRAM FUNDING SUMMARY - NON-NAVY RELATED RDT&E::
Not applicable.

D. ACQUISITION STRATEGY:
Not applicable.

FY 2009 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2008
Exhibit R-3

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

Exhibit R-3 Cost Analysis												Date: February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA 04												PROJECT NAME AND NUMBER: OTH Targeting 0798		
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY-07 Cost	FY-07 Award Date	FY-08 Cost	FY-08 Award Date	FY-09 Cost	FY-09 Award Date			CostToComp	Total Cost	Target Value of Contract
Advanced Relay/ Wireless / Antenna Technologies	Various	Various	4243	730	Various	731	Various	778	Various			CONT	CONT	
Interoperability Requirements	Various	Various	3266										3266	
T & E Tools Development	Various	Various	429										429	
Systems Int. & Interop. Testing (LBTN)	Various	Various	2575	494	Various	528	Various	419	Various			CONT	CONT	
Interoperability Validation	Various	Various	2293	172	Various	184	Various	152	Various			CONT	CONT	
Joint Interoperability	Various	Various	1174										1174	
Testing OTH-T Systems	Various	Various	2017	405	Various	433	Various	343	Various			CONT	CONT	
Subtotal T&E			15997	1801		1876		1692				CONT	CONT	
Remarks														
Contractor Engineering Support													0	
Subnet Relay	Various	Various	4311	197	Various	194	Various	209	Various			CONT	CONT	
Program Management Support	Various	Various	1468										1468	
Travel													0	
Transportation													0	
Subtotal Management			5779	197		194		209				CONT	CONT	
Remarks														
Total Cost			21776	1998		2070		1901				CONT	CONT	

FY 2009 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2008
Exhibit R-2a

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

Project Number & Title	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
2144 SPACE AND ELECTRONIC WARFARE ENGINEERING	13,319	6,217	14,650	8,562	9,445	11,580	12,472

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: OPNAVINST 3050.23 defines the policy to fuse validated/approved Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) architectures and interoperability requirements with Joint requirements, milestones and program decisions. C4ISR integrated architectures/requirements are the underpinnings for all C4ISR mission areas and capabilities and, as such, requirements and acquisition processes have been reengineered to use these Integrated Architectures for decisional purposes and strategic planning. Furthermore, Office of the Secretary of Defense (OSD) has defined key programs/efforts Global Information Grid (GIG) Baseline Extension (BE), Transformational Satellite (TSAT), Joint Tactical Radio System (JTRS), Network Centric Enterprise Services (NCES), Information Assurance (IA) and standards that will drive and change the Navy's C4ISR integrated architectures and associated business processes for requirements, budgets and acquisition. To that end, the SEW provides two main functions: 1) Development of C4ISR Integrated Architecture Products and 2) Supporting C4ISR Systems Engineering processes and standards. The integrated architecture products are used to support the Navy's C4ISR budget process by providing the critical core architecture and enabling capabilities to the Warfighter. The C4ISR systems engineering processes and standards provide the construct for distributed C2 interoperability requirements analyses to identify capability shortfalls/gaps and for systems engineering to compare/test alternatives in a joint end-to-end environment while identifying associated Navy wide C4ISR implications. This includes Human Systems Integration (HSI) that provides a mission-centered orientation to ensure effective operational employment of fielded capability. As joint concepts and OSD driving efforts/programs are matured/defined the Navy's C4ISR integrated architectures are refined and the supporting C4ISR Systems Engineering processes and standards work to engineer and enact C4ISR implementations Navy wide across all C4ISR mission areas.

The SEW Engineering project supports the Maritime Domain Awareness (MDA) program. MDA is "the effective understanding of anything associated with the global maritime domain that could impact the security, safety, economy, or environment of the United States." MDA can only be achieved through the combined efforts of federal, state, and local government agencies, international governments, and commercial and private enterprise. MDA is a key enabler for maritime security; as well as for counter-piracy, counter-drug, freedom

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

of navigation, counter-terrorism, humanitarian assistance and disaster relief, stability, and major combat operations.

Products provided:

1) C4ISR Integrated Architectures

-Integrated Architectures and Standards - Architecture Views (Operational Views, Service Views, Technical Views, System Views)
-Migration Roadmaps to the target Architectures
-Architecture technical authority, studies, interpretation assistance, and white papers

2) Supporting C4ISR Systems Engineering processes

-Distributed C2 Interoperability Requirement Analysis – Gaps Analysis, Overlap Analysis, System Priority Lists, C4ISR Metrics and Models, Analysis of Alternatives, Requirements Database, Assessment Repository, Resource Implications Studies, Baseline Performance Models, Mission Task Analysis, Human Systems Integration (HSI) assessments.
-End-to-End Systems Engineering and Integrated Design – Operational feasibility studies, technical feasibility studies, technical roadmap engineering validations, Architectures and Assessment traceability matrices.
-Joint and Coalition interoperability trials – Joint end-to-end prototyping trials, and Joint/Coalition interoperability demonstrations, Interoperability assessments and metrics, Interoperability studies via the Coalition Warrior Interoperability Demonstration (CWID) and the Joint Rapid Architecture Experimentation (JRAE) Process. Chairman of the Joint Chiefs of Staff Instruction 6260.01B (CJCSINST 6260.01B) directs the USN to provide $1.7 million to the general CWID operating budget and to participate by operating a US Navy demonstration site.

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
MARITIME DOMAIN AWARENESS (MDA)	2,500	0	7,059

FY 2007 Accomplishments:

-Defined MDA project including scope, risks, mitigations and strategy.
-Supported MDA Spiral One prototype technology down seleaction and fielding.
-Performed site surveys to determine availability of infrastructure and connectivity to support the Spiral One canidate technologies.

FY 2009 Plans:

Provide systems engineering support for the MDA acceleration initiative to include:
-Architecture Development
-Risk reduction, data collection and analysis
-Requirements generation and validation
-Capability demonstrations (CWID, JRAE, JCTD, ACTD)
-Fleet experimentation
-Fielding of prototypes and transition of successful prototypes to programs.

	FY 2007	FY 2008	FY 2009
SYSTEMS ENGINEERING STANDARDS AND PROCESSES	0	0	2,886

FY 2009 Plans:

-Develop prototypes and excursions of emerging C4ISR systems for use in potential product enhancements.
-Integrate existing technologies in novel ways to substantially increase systems capabilities at low risk.
-Combine existing stovepiped data systems into integrated operational pictures across programs of record.
-Enable excursions from existing ISR systems to use existing sensors to solve non-traditional problems.
-Reduce network bandwidth overhead and inefficiencies.

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

	FY 2007	FY 2008	FY 2009
SYSTEMS ENGINEERING AND INTEGRATION REVITALIZATION	0	0	1,114

FY 2009 Plans:

-Develop and improve systems engineering models, tools, and databases to improve the quality of C4ISR products.
-Develop the Systems Engineering Technical Review database.
-Initiate the systems engineering plan e-Builder.
-Initiate the measurement repository and analysis database.

	FY 2007	FY 2008	FY 2009
COALITION WARRIOR INTEROPERABILITY DEMONSTRATION (CWID)	2,778	2,504	2,000

FY 2007 Accomplishments:

European Command (EUCOM) was the host Combatant Commander (COCOM) for CWID 07, investigating technologies for Coalition/Homeland Security/Interagency Interoperability. Funding supported the US Navy site in San Diego, which funded coalition and US trials based on the CWID Federal Business Opportunity letter published in May 2006. CWID trials provided the Fleet with three separate evaluations: 1) evaluation provided by National Security Agency (NSA) for proper security procedures; 2) evaluation provided by Joint Interoperability Test Command (JITC) for technical issues; and 3) evaluation provided by warfighters to verify usability. These evaluations were provided to OPNAV and the Systems Commands for acquisition consideration.

FY 2008 Plans:

CWID will continue to investigate solutions for known capability gaps. While the COCOM executive agent for CWID 2008/2009 has not been identified, it is clear that both Allied Interoperability and Homeland Defense (HLD)/Homeland Security (HLS) inter-governmental agency interoperability will remain cornerstones of the CWID charter. SPAWARSYSCOM expects to remain the USN site and to continue to host both Coalition and HLD/HLS venues.

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FY 2009 Plans:

CWID will continue to investigate solutions for known capability gaps. While the COCOM executive agent for CWID 2009 has not been identified, it is clear that both Allied Interoperability and Homeland Defense (HLD)/Homeland Security (HLS) inter-governmental agency interoperability will remain cornerstones of the CWID charter. Chairman of the Joint Chiefs of Staff Instruction 6260.01B requires each Service to provide $1.7 million for CWID participation. The remaining $300K is required for SPAWARSYSCOM representation to the Coalition portion of the CWID 09 venue.

	FY 2007	FY 2008	FY 2009
JOINT RAPID ARCHITECTURE EXPERIMENTATION (JRAE)	1,825	300	300

FY 2007 Accomplishments:

Joint Rapid Architecture Experimentation (JRAE) efforts examined Joint Forces Command (JFCOM) interoperability risk areas at the horizontal (tactical) level as identified by JFCOM Joint Architecture efforts. The JRAE process was used to prototype the “to be” joint integrated Service Oriented Architectures (SOA). This was integrated and collaboratively tested with the Marine Corps, Army and Air Force to promote joint interoperability between the services’ next generation tactical Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) architectures.

FY 2008 Plans:

JRAE 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. The JRAE process will be used to prototype the “to be” joint integrated architectures and integrate and collaboratively test with the Army and the Air Force to promote joint interoperability between the services’ next generation tactical C4ISR architectures.

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FY 2009 Plans:

Navy will continue to provide representation to JRAE activities and will collaborate with the Joint Community and Defense Agencies in identifying interoperability risk areas for Service Oriented Architectures.

	FY 2007	FY 2008	FY 2009
DISTRIBUTED C2 INTEROPERABILITY REQUIREMENTS ANALYSIS	2,980	2,178	995

FY 2007 Accomplishments:

Used Modeling and Simulation tools to support the Naval Capabilities Development Process (NCDP) and Capability Based Assessments (CBAs). Initiated CBA for Battle Space Networking. Performed requirements analysis, collected and developed model architectures for the Campaign Analysis Modeling and Simulation effort.

2016-2022 Modeled C4ISR architectures for 3 Major Combat Operations / Mission Areas to support force level assessments for 5 POM08 analytic issues in support of the Integrated Strategic Capabilities Plan (ISCP). Specific missions studied included Surface Warfare (SW) and Anti-Submarine Warfare (ASW) of SeaShield. Mission areas were translated into architectural products that were aligned to assessment modeling tools. This work was aligned/integrated with the FORCEnet Implementation Process (FIP) to support the Sponsor Program Proposal (SPP). Supported Network Centric Warfare (NCW) Level 2 block builds. It provided linkages to the metrics assessing value of systems relevance to joint interoperable capability, functions, and associated tasks and activities.

Conducted three joint interoperability Maritime Headquarters (MHQ) with Maritime Operations Center (MOC) across Joint Operations CBAs in support of Department of Defense (DoD) Joint Command and Control (JC2), Battlespace Awareness and Joint net-centric Operations Capability Portfolio Management directives and the National Security Maritime Strategy (NSMS). CBA results were used to prepare Doctrine, Organization, Training, Materiel, Leadership, and Personnel (DOTMLP) change request package for joint interoperability MHQ for PR09/POM 10. These follow on CBA efforts to FY07 assessments expanded MHQ with MOC and joint interoperability CBAs across the full range of joint operations, Maritime Domain Awareness (MDA), interagency

operations, JC2 and Joint Net centric operations supporting National MDA implementation team (IT) efforts. All of the CBAs supported Navy, Provider and Warfighter Enterprise initiatives for capability development in support of Joint Capability Areas (JCAs) for Battlespace Awareness, Net-Centric Operations and Joint Command and Control.

Continued development of the FORCEnet Capability List (FCL) which is a web-based software system required to implement the fielding of joint interoperable capabilities from concept to shipboard installation of systems. The FCL provided the direct correlation of joint interoperable capabilities to activities, functions, and systems mapped to Mission Essential Tasks (METs). It provided linkages to metrics and assessments of value of systems relevance to joint interoperable capability, functions, and associated tasks and activities.

FY 2008 Plans:

2016-2022 Model C4ISR architectures for 3 Major Combat Operations / Mission areas in support of force level assessments for 5 Navy analytic issues / CBA. Support NCW Level 2 block builds.

FY 2009 Plans:

2020-2026 Model C4ISR architectures for 3 Major Combat Operations / Mission areas in support of force level assessments for 5 Navy analytic issues / CBA. Support NCW Level 3 block builds. FORCEnet Capability List (FCL) efforts will continue to develop a web-based software system required to implement the FCL. It will provide the direct correlation of joint interoperable capabilities to activities, functions, and systems mapped to Mission Essential Tasks (METs). It will provide linkages to the metrics assessing value of systems relevance to joint interoperable capability, functions, and associated tasks and activities.

	FY 2007	FY 2008	FY 2009
C4ISR ARCHITECTURE AND STANDARDS	2,378	523	148

FY 2007 Accomplishments:

The FY07 efforts built upon completed FY06 efforts and extended the structured data. The effort developed structured data to define the roadmap for C4ISR capability and facilitated identification of gaps and overlaps in capabilities. The effort engaged with all the Naval Power 21 pillars to collect data required to complete the architectural data set. This effort also included data integration of functions and activities with Joint

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capabilities. Services oriented architecture was formally incorporated into the architectural data set. Technical authority was established for the architecture and standards.

-Refined FORCEnet Integrated Architecture governance structure to incorporate architecture products and policies from other Naval Power 21 domains.
-Refined Maritime Headquarters operational and systems architecture data.
-Conducted spiral development of the FORCEnet Operational Views to account for changes in the Net-Centric Operations and Warfare (NCOW) Reference Model and other authoritative references.
-Developed initial Operational Views and Systems Views for Maritime Domain Awareness
-Began development of Logical Data Model (OV-7)
-Conducted technical analysis and produced initial service architecture products for the warfighting domain.
-Conducted technical analysis and produced Systems Evolution (SV-8) and Systems Technology Forecast (SV-9) data.
-Produced system architecture products as required in support of the Naval Capabilities Development Process (NCDP) analyses.
-Conducted technical analysis and updated Integrated Dictionary (AV-2).
-Conducted technical analysis and updated Systems Interface Description (SV-1).
-Conducted technical analysis and updated Systems Communications Description (SV-2).
-Conducted technical analysis and updated Systems Functionality Description (SV-4).
-Conducted technical analysis and updated Operational Activities to Systems Function Traceability Matrix (SV-5).
-Conducted technical analysis and produced initial Systems Data Exchange Matrix (SV-6).
-Conducted technical analysis and updated Technical Standard Profile and Forecast (TV-1/2).
-Conducted technical reviews of Information Support Plans assessing compliance to approved FORCEnet Integrated Architecture.
-Conducted technical analysis and provided updates to ASN RDA common architecture data elements including CSFLs, CSLs and CSNLs.

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FY 2008 Plans:

-Implement technical authority for architecture and standards across Program Executive Office C4I systems.
-Provide architecture data to support required analyses, testing, modeling and simulation.
-Update technical and system data.
-Produce system architecture products as required in support of programming decisions.
-Provide various white papers and studies as needed to develop architecture products.

FY 2009 Plans:

-Implement technical authority for architecture and standards across Program Executive Office C4I, PEO Space and PEO-IT systems.
-Conduct spiral development of the FORCEnet Integration Architecture including Operational, System, Service and Technical Views.
-Conduct technical analysis to review JCIDS documentations.

	FY 2007	FY 2008	FY 2009
END-TO-END SYSTEM ENGINEERING AND INTEGRATED DESIGN	858	712	148

FY 2007 Accomplishments:

-Provided systems engineering support to apply end-to-end integrated architectures across the Naval Enterprise.
-Supported Team SPAWAR PMs in the development of Joint Capabilities Integration and Development System (JCIDS) documents, Integrated Support Plans (ISPs) and NR-KPPs.
-Provided information exchange for Team SPAWAR personnel on how to meet interoperability certification requirements.
-Developed the Composeable Test Environment (CTE) effort with initial emphasis on linking Team SPAWAR labs and facilities.
-Worked with Assistant Secretary of the Navy for Research, Development and Acquisition (ASN RDA) on development and implementation of the Interoperability and Integration Management Plan (I&IMP).

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FY 2008 Plans:

-Provide systems engineering support to apply end-to-end integrated architectures across the Naval Enterprise.
-Support Team SPAWAR PMs in development of JCIDS documents, ISPs and NR-KPPs.
-Provide training for Team SPAWAR personnel on how to meet interoperability certification requirements.
-Continue development of the CTE effort with emphasis on linking Team SPAWAR labs and facilities to Naval Enterprise labs and facilities.
-Work with ASN RDA on implementation of the I&IMP.

FY 2009 Plans:

-Continue to provide systems engineering support to apply end-to-end integrated architectures across the Naval Enterprise.
-Support Team SPAWAR PMs in development and implementation of JCIDS documents, ISPs and NR-KPPs through the Systems Engineering Technical Review (SETR) process.
-Continue to provide training for Team SPAWAR personnel on how to meet interoperability certification requirements.
-Begin implementation of the CTE CONOPS/effort with emphasis on linking Team SPAWAR labs and facilities to Naval Enterprise labs and facilities.
-Continue to work with ASN RDA on implementation of the I&IMP.

C. OTHER PROGRAM FUNDING SUMMARY - NAVY RELATED RDT&E::
Not applicable.

OTHER PROGRAM FUNDING SUMMARY - NON-NAVY RELATED RDT&E::
Not applicable.

D. ACQUISITION STRATEGY:
Not applicable.

FY 2009 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2008

Exhibit R-3

BUDGET ACTIVITY: 04
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Exhibit R-3 Cost Analysis (page 1 of 2)												Date: February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N			PROGRAM ELEMENT 0604707N									PROJECT NAME AND NUMBER: SEW ENGINEERING 2144		
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY-07 Cost	FY-07 Award Date	FY-08 Cost	FY-08 Award Date	FY-09 Cost	FY-09 Award Date			Cost To Comp.	Total Cost	Target Value of Contract
Primary Hardware Development													0	
Ancillary Hardware Development													0	
Systems Engineering													0	
Licenses													0	
Tooling													0	
GFE													0	
Award Fees													0	
Subtotal Product Development			0	0		0						0	0	
Remarks														
Development Support	Various	Various	4554										4554	
SEW/C4I Technology Integration	Various	Various	12985										12985	
MDA Prototype SE Support	Various	Various		2500	Various			7059	Various			CONT	CONT	
Systems Engineering & Integration Revitalization	Various	Various						1114	Various			CONT	CONT	
Systems Engineering Standards & Processes	Various	Various						2886	Various			CONT	CONT	
Systems A&E and Validation	Various	Various	13188										13188	
Distributed C2 Interoperability Requirement Analysis	Various	Various	10385	2980	Various	2178	Various	995	Various			CONT	CONT	

FY 2009 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2008
Exhibit R-3

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

Exhibit R-3 Cost Analysis (page 2 of 2) Date: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, N PROGRAM ELEMENT 0604707N PROJECT NAME AND NUMBER: SEW ENGINEERING 2144

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY-07 Cost	FY-07 Award Date	FY-08 Cost	FY-08 Award Date	FY-09 Cost	FY-09 Award Date			Cost To Comp.	Total Cost	Target Value of Contract
C4ISR Architecture and Standards	Various	Various	11216	2378	Various	523	Various	148	Various			CONT	CONT	
End-to-End System Engineering and Integrated Design	Various	Various	9275	858	Various	712	Various	148	Various			CONT	CONT	
Info. Repository/Naval Architecture	Various	Various	4000										4000	
Navy Collaborative	Various	Various												
Subtotal Support			65603	8716		3413		12350					CONT	
Remarks														
SEW Eng/CWID	Various	Various	21683	2778	Various	2504	Various	2000	Various			CONT	CONT	CONT
SEW Eng/JRAE	Various	Various	13563	1825	Various	300	Various	300	Various			CONT	CONT	CONT
Subtotal T&E			35246	4603		2804		2300					CONT	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			100849	13319		6217		14650					CONT	

FY 2009 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2008
Exhibit R-2a

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

Project Number & Title	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
2357 MARITIME BATTLE CENTER	30,038	33,305	30,967	40,745	48,357	51,163	52,173

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The mission of the Maritime Battle Center (MBC) is to execute the Naval Warfare Innovation Process. MBC and Sea Trial experimentation programs integrate and validate emerging Navy Concept of Operations (CONOPS), Doctrine and technologies through experiments/analysis/modeling and simulation in order to support warfighting capability development. Sea Trial experimentation is dedicated to providing solutions to near term (within the Fiscal Year Defense Plan) warfighting gaps through focused Operational Agent (Commander Second Fleet, Commander Third Fleet and Commander Naval Network Warfare Command) led experimentation. The US Fleet Forces Command (USFFC) chaired Flag level Sea Trial Executive Steering Group (STESG) prioritizes and approves proposed experiments annually using the long range Concept Development and Experimentation (CD&E) plan as an overall experimentation guide to resolve warfighting gaps. The approved, prioritized experiments are codified in the annual Sea Trial Execution Plan (ExPlan).

The Navy Warfare Development Command (NWDC) acts as the executive agent to conduct and coordinate preliminary experiments and technology demonstrations that are focused on the advanced engineering and operational system development of systems related to all warfare areas. The MBC is essential to the evolution of combat capabilities because it is the engine, in conjunction with the operating forces, for validating new warfare CONOPS through limited objective experimentation, analysis, and modeling and simulation. The MBC is involved in several facets of concept, platform, weapons, weapon systems, 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. The MBC supports the early and sustained involvement of Joint Warfighters in refining the technologies and the tactics, techniques, and procedures need in the joint fight.

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This program historically does not meet established execution benchmarks. MBC experimentation differs from other Research, Development, Test and Evaluation (RDT&E) programs because it is based on Fleet operational availability vice independently scheduled through warfighting labs. Because Fleet experimentation frequently must occur during the spring/summer operational schedules, the overall RDT&E obligation/expenditure rates do not align with OSD practice.

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
FBE ANALYSIS AND CORE SUPPORT	30,038	33,305	30,967

Generally, the Fleet does not have RDT&E funds appropriated specifically for it to conduct Sea Trial type experimentation. As a result, due to the synergistic relationship between NWDC's Maritime Battle Center experimentation efforts and the Fleet's Sea Trial experimentation efforts, funding for both endeavors have been combined under one project, the Maritime Battle Center. The Sea Trial aspect of this project's mission is driven by the priorities of the Fleet's Operational Commanders (such as Commander Second Fleet (C2F), Commander Third Fleet (C3F), and Commander Naval Network Warfare Command). The Navy's commitment to expand the scope of experimentation efforts beyond NWDC's experimentation efforts is demonstrated by the increase to the funding profile in FY 2008 which will result in enhanced Sea Trial experimentation efforts in FY 2008 as well.

FY 2007 Accomplishments:

•Continued participation in Joint Forces Command experimentation continuum
•Continued Limited Objective Experiments
•Continued CONOPS Development Experiments
•Continued Maritime and Joint Fires Experiment
•Continued Surface Ship Periscope Detection Experiment
•Continued Fusion/Correlation Experiment
•Continued Net-Centric Environment Services/Service Oriented Architecture Experiment
•Continued Sensor Integration Experiment
•Continued C2/Collaboration Experiment
•Continued Cross Domain Solution Experiment
•Continued Information Assurance/Computer Network Defense Experiment

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

- Continued Communications at Speed and Depth Experiment
- Continued Receive While Transmit Experiment
- Continued Offensive Information Operations Experiment
- Continued Counter Maritime Improvised Explosive Device Experiment
- Continued Information Management/Knowledge Management Experiment
- Continued Battlespace Characterization w/Environmental Acoustic Recording System (EARS) Experiment
- Continued End to End Strategic Planning/Mission Execution Experiment
- Continued Electronic Warfare Improvements Experiment
- Continued Network Instrumentation/Visualization Experiment
- Continued Expeditionary Resuscitative Surgical System Experiment
- Initiated and executed Sea Trial Experiments, War Games, and Seminars
- Completed Maritime Headquarters with Maritime Operations Center Experiment
- Completed Command and Control Maritime Domain Awareness Experiment
- Completed Networking of the Maritime Operations Centers Experiment
- Completed Network Operations, Information Operations, and Space Support Experiment
- Completed Coalition Operations Experiment
- Completed Maritime Dynamic Targeting Experiment
- Completed Littoral Active Multistatic Program/Multi-static Experiment
- Completed Intelligence Surveillance Reconnaissance-High Altitude/Long Endurance Experiment
- Completed Airborne Tactical Internet Protocol Networks Experiment
- Completed Unmanned Surface Vessel Decoy and Deception Capability Experiment
- Completed Hull Survey Remotely Operating Vehicle Experiment
- Completed Littoral Combat Ship Mine Counter Measures Modular Mission Packages Experiment
- Completed Tactical Tomahawk Experiment
- Completed Naval Obscurant Experiment
- Completed High Value Unit (HVU) Masking and Augmentation Experiment
- Completed Sub-Surface Guided Missile Nuclear/Special Operations Forces CONOPS & Full Range Connectivity Experiment
- Completed Enterprise Afloat Wide Area Network Experiment
- Completed Bandwidth Optimization Experiment
- Completed Automated Identification System Experiment
- Completed Distributed Imagery Processing Experiment
- Completed Information Warfare Planning Capability 4.0/4.2 Experiment
- Completed TAPA Information Operations Anti Ship Missile Experiment

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

•Completed Valiant Shield 06 Exercise and Experiment
•Completed Valiant Shield 07 Exercise and Experiment
•Completed Next Generation Navy Satellite Communications Experiment

FY 2008 Plans:

•Continue all FY 2007 efforts less those noted as completed
•Continue participation in JFCOM experimentation continuum
•Continue Limited Objective Experiments
•Continue CONOPS Development Experiments
•Initiate and execute Sea Trial Experiments, War Games, and Seminars
•Initiate and complete Maritime Domain Awareness Experiment
•Initiate and complete Networking of Military Operations Center Experiment
•Initiate and complete Network Operations, Information Operations and Space Support Experiment
•Initiate and complete Coalition Networks Experiment
•Initiate and complete Unclassified Common Operational Picture (COP) Experiment
•Initiate and complete TAPA Electronic Warfare Anti Ship Missile Experiment
•Initiate and complete Bandwidth Optimization Experiment
•Initiate and complete Littoral Active Multistatic Program Experiment
•Initiate and complete Reliable Acoustic Path/Vertical Line Array (RAP/VLA) Experiment
•Initiate and complete Tactical IP Networks Experiment
•Initiate and complete Riptide-Lite/Expendable Mobile Anti-Submarine Warfare Training Target Experiment
•Initiate and complete MCM in Support of HLD Experiment
•Initiate and complete Tactical Tomahawk 3rd Party Targeting Experiment
•Initiate and complete SSGN/SOF CONOPS Experiment
•Initiate and complete SPIKE Small Boat Defense Experiment
•Initiate and complete Close in Weapons System 20mm Ammo Lethality Experiment
•Initiate and complete Deployable Autonomous Distributed System Experiment
•Initiate and complete NATO Sea Sparrow Missile System Electro Optical /Infrared Improvement Experiment
•Initiate and complete LCS Mine Warfare Mission Modules Experiment
•Initiate and complete Maritime Domain Awareness Analyst Tools Experiment
•Initiate and complete SPY Anti-Ship Cruise Missile Detection/Tracking Over Land Experiment
•Initiate and complete M230 Rotary Wing Surface Warfare Capability Experiment
•Initiate and complete Low Slow Flyer Experiment

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

- Initiate and complete Littoral Battle-Space Sensing, Fusion & Integration Experiment
- Initiate and complete Submarine Launched Unmanned Aerial System Experiment
- Initiate and complete Long Endurance Surveillance Experiment
- Initiate and complete Automated Weapon System/SM-2 Engagement Over Land Experiment
- Initiate and complete Non-Lethal Capabilities & Technologies Experiment
- Initiate and complete Naval Obscurant Experiment
- Initiate and complete Battlespace Characterization w/Satellite Telemetry Acoustic Recording System Experiment

FY 2009 Plans:

- Continue participation in JFCOM experimentation continuum
- Continue Limited Objective Experiments
- Continue CONOPS Development Experiments
- Initiate and execute Sea Trial Experiments, War Games, and Seminars

C. OTHER PROGRAM FUNDING SUMMARY - NAVY RELATED RDT&E:
Not applicable.

OTHER PROGRAM FUNDING SUMMARY - NON-NAVY RELATED RDT&E:
Not applicable.

D. ACQUISITION STRATEGY:
Not applicable.

FY 2009 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2008
Exhibit R-3

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

Exhibit R-3 Cost Analysis									Date: February 2008					
APPROPRIATION/BUDGET ACTIVITY RDT&E, N			PROGRAM ELEMENT 0604707N						PROJECT NAME AND NUMBER: Maritime Battle Center 2357					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY-07 Cost	FY-07 Award Date	FY-08 Cost	FY-08 Award Date	FY-09 Cost	FY-09 Award Date			Cost To Comp.	Total Cost	Target Value of Contract
System Test and Evaluation	Various	Various	145574	25533	Various	28230	Various	26329	Various			CONT	CONT	CONT
Subtotal T&E			145574	25533		28230		26329				CONT	CONT	CONT
Remarks														
Program Management	Various	Various	32096	4505	Various	5075	Various	4638	Various			CONT	CONT	CONT
Subtotal Management			32096	4505		5075		4638				CONT	CONT	CONT
Remarks														
Total Cost			177670	30038		33305		30967				CONT	CONT	CONT