CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification						DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-4**				R-1 ITEM NOMENCLATURE Advanced Submarine Systems Development/0603561N					
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Total PE Cost	**128.391**	**124.142**	**107.389**	**114.129**	**111.190**	**115.037**	**116.191**	**0.000**	**816.469**
Adv. Sub. Systems Development/S2033	**47.463**	**49.020**	**48.784**	**54.204**	**53.601**	**58.641**	**59.333**	**CONT.**	**CONT.**
Advanced Composite Sail/S2861	**0.000**	**3.965**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Enhanced Performance Metal Brush/S2756	**2.898**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Adv. Sub. Combt Sys. Dev/S0223	**67.395**	**60.651**	**58.605**	**59.925**	**57.589**	**56.396**	**56.858**	**CONT.**	**CONT.**
Conf Array Vel Sensor/S2753	**4.837**	**2.081**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
MK 48 ADCAP M M P/ARCI/S9039	**0.000**	**8.425**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Common Towed Array Prog/S2754	**5.798**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**

(U) This program supports innovative research and development in submarine technologies and the subsequent evaluation, demonstration, and validation for submarine platforms. It will increase the submarine technology base and provide subsystem design options not currently feasible.

(U) Project Unit S2033: The Advanced Submarine Research & Development Office identifies the most promising and emerging technologies for VIRGINIA Class Submarine and other submarine platform insertion and transitions them into specific demonstration/validation efforts. The program element is non-ACAT and transitions technologies developed by Navy technology bases, the private sector, and the Defense Advanced Research Projects Agency. This Program has been structured to support near term VIRGINIA Class insertion as well as core technologies in Hydrodynamics/Hydroacoustics, Affordability, and Stealth. Advanced systems developed under this program have potential for backfit into existing classes of submarines, supporting emerging requirements, and systems technology insertion into future submarine designs. Research and development investment factors used to select these technologies include: economic environment and return on investment; mission enhancement; and safety and survivability. The Program also supports two Information Exchange Programs with the United Kingdom, (one on submarine electromagnetic silencing and the second on submarine platform equipment, systems, and hull technology); operates the Large Scale Vehicle to provide at-sea test capability for propulsor, acoustic and non-acoustic signature reduction, remote vehicle R&D, and large scale hydrodynamic experimentation; operates the Hydrodynamic/Hydroacoustic Technology Center to enhance the Navy's ability to accurately, computationally predict hydrodynamic and hydroacoustic performance of submerged bodies; operates and supports the Intermediate Scale

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-4**	R-1 ITEM NOMENCLATURE Advanced Submarine Systems Development/0603561N

Measurement System; and provides life cycle support for the R&D Submarine modifications. In addition, the Program is constructing a second large scale vehicle, LSV2.

(U) Project S2861 is authorized by Congress to develop Advanced Composite Sail Technology program to address the incorporation of full-scale design features and the complete spectrum of full-scale load specifications.

(U) Project S2756 is authorized by Congress under Committee Report - Senate Rpt. 106-50 - for Advanced Metal Fiber Brush Technology. Metal Fiber electric motor brushes have the potential to significantly improve shipboard quality of life, reduce total ownership costs of ships and increase the survivability and operational reliability of electric motors and generators.

(U) Project Unit S0223: This non-acquisition (Non-ACAT) program supports the Navy Submarine Acoustic Superiority and Technology Insertion Initiatives by the application of advanced development and testing of sonar and combat control systems improvements. The program addresses technology challenges that marginalize tactical control in littoral and open ocean environments for a variety of operational missions including peacetime engagement, surveillance, battlespace preparation, deterrence, regional sea denial, precision strike, task group support, and ground warfare support. Prototype hardware / software systems are developed to demonstrate technologically promising system concepts in Laboratory and at-sea submarine environments. Specific technology areas include transducers, hull and towed arrays, monostatic and bistatic sonar signal processing, net-centric warfare, target motion analysis (TMA), multiple contact processing. Program is funded under demonstration and validation because it develops and integrates hardware for experimental test related to specific ship and aircraft applications.

(U) Projects S2753, S2754 and S9039 are authorized by Congress to develop Conformal Acoustic Velocity Sonar (CAVES) technology, to develop fiber optic towed array technology for submarine acoustic systems as potential cost and performance improvements to future operational sonar systems and MK48 ADCAP torpedo improvement.

B. Program Change Summary:	FY2001	FY 2002	FY 2003
(U) FY 2002 President's Budget:	128,082	110,766	
(U) Appropriated Value:	129,269	125,366	
(U) Adjustments to FY2001/2002 Appropriated Value/FY2002 President's Budget:	309	13,376	107,389
(U) FY 2003 Pres Budget Submit:	128,391	124,142	107,389

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APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-4**	R-1 ITEM NOMENCLATURE Advanced Submarine Systems Development/0603561N

(U) Change Summary Explanation:

(U)S2033 Funding:

FY 2001 net increase ($1,291M) is attributed 01 actuals (30 Sep 01).
FY 2002 net decrease of (-$.437M) is attributed to Management reserve.
FY 2003 net decrease of (-$1,045M) is attributed to a decrease of (-$0.152M) for BSO realignment residual issues, an increase of ($0.136M) for BSO Inc. of PBD's, a decrease of (-$0.117M) for SYSCOM Contractor Support, an increase of ($6,000m) for N77 issues, adecrease of(-$1.027M) for Carryover Spread, a decrease of (-$5.700M) for 2 F/A 18's, an increase of ($.053M) for NWCF rates, a increase of ($.005M) for Military and Civilian and a decrease of (-$.243M) for Nonpay Inflation.

(U)S0223 Funding:

FY 2001 decrease of (-$1.572M) for 01 Actuals (30 Sep 01) and (-$0.028M) for minor ajustments.
FY 2002 net decrease of (-0.658M) attributed to (-$0.541M) for Management reserves and (-$0.117M) for FFRDC.
FY 2003 net decreases of (-$0.510M) attributed to (-$0.005M) for Reimbursable funding implication, (-$0.180M) for BSO Realignment residual issues, (-$0.490M) for SYSCOM Contractor Support, an increase of ($7,000M) for N77 issues, decreases of (-$0.354M) for Carryover Spread, (-$0.015M) for NRL, (-$6.300M) for F/A-18 Aircraft Off,
(-$0.371M) for Nonpay Inflation and a net increase of ($0.004M) for Military and Civilian and ($0.201M) for NWCF Rate adjustments.

(U)S2753 Funding:

FY 2001 no change.
FY 2002 net decrease of (-$0.019M) for Management reserves.

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-4**	R-1 ITEM NOMENCLATURE Advanced Submarine Systems Development/0603561N

(U)S2754 Funding: FY2001 no change

(U)S2756 Funding: FY2001 no change

(U)S2861 Funding: FY2002 net decrease of (-$0.035M) is attributed to Management reserve.

(U)S9039 Funding: FY2002 net decrease of (-$0.075M) is attributed to Management reserves.

(U) Schedule: Not Applicable.

(U) Technical: Proceed with the advanced development of technologies as identified in Secretary of Defense Report on Nuclear Attack Submarine Procurement and Submarine Technology.

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**	PROGRAM ELEMENT NAME AND NUMBER **Advanced Submarine Dev/0603561N**				PROJECT NAME AND NUMBER Advanced Submarine Systems Development - S2033/Adv. Metal Fiber Brushes - S2756					
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost	
Adv. Submarine Systems Dev. - S2033	**47.463**	**49.020**	**48.784**	**54.204**	**53.601**	**58.641**	**59.333**	**CONT.**	**CONT.**	
. Composite Sail - S2861	**0.000**	**3.965**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**CONT.**	**CONT.**	
Adv. Metal Fiber Brushes - S2756	**2.898**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**COMP.**	**COMP.**	

A. (U) Mission Description and Budget Item Justification: This program supports innovative research and development in submarine technologies and the subsequent evaluation, demonstration, and validation for submarine platforms. It will increase the submarine technology base and provide subsystem design options not currently feasible.

(U) Project Unit S2033: The Advanced Submarine Research & Development Office identifies the most promising and emerging technologies for the VIRGINIA Class Submarine and other submarine platform insertion and transitions them into specific demonstration/validation efforts. The program element is non-ACAT and transitions technologies developed by Navy technology bases, the private sector, and the Defense Advanced Research Projects Agency. This Program has been structured to support near term Virginia Class insertion as well as core technologies in Hydrodynamics/Hydroacoustics, Affordability, and Stealth. Advanced systems developed under this program have potential for backfit into existing classes of submarines, supporting emerging requirements, and systems technology insertion into future submarine designs. Research and development investment factors used to select these technologies include: economic environment and return on investment; mission enhancement; and safety and survivability. The Program also supports two Information Exchange Programs with the United Kingdom, (one on submarine electromagnetic silencing and the second on submarine platform equipment, systems, and hull technology); operates the Large Scale Vehicle (LSV) to provide at-sea test capability for propulsor, acoustic and non-acoustic signature reduction, remote vehicle R&D, and large scale hydrodynamic experimentation; operates the Hydrodynamic/Hydroacoustic Technology Center to enhance the Navy's ability to accurately, computationally predict hydrodynamic and hydroacoustic performance of submerged bodies; operates and supports the Intermediate Scale Measurement System; and provides life cycle support for the R&D Submarine modifications. In addition, the program is constructing a second large scale vehicle, LSV2.
(U) Project S2756 is authorized by Congress under Committee Report - Senate Rpt. 106-50 - for Advanced Metal Fiber Brush Technology. Metal Fiber electric motor brushes have the potential to significantly improve shipboard quality of life, reduce total ownership costs of ships and increase the survivability and operational reliability of electric motors and generators.

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E, N/BA-4	**Advanced Submarine Sys Dev/0603561N**	Adv. Submarine Systems Dev - S2033/Adv. Metal Fiber Brushes - S2756/Comp. Sail- S286

(U) Program Accomplishments and Plans:

1. (U) FY 2001 Accomplishments:

- (U) ($15.608M) Stealth: Continued analysis and concept development of submarine portions of corporate Electric Drive. Continued development of advanced submarine propulsor technologies, internal transmission paths, Stealth Master Plan, Advanced Launchers, Advanced Electromagnetic Silencing, and hull radiation and echo formation (Adv. Coatings).
- (U) ($6.877M) Hydrodynamics/Hydroacoustics: Continued development of elements of Integrated Computational Design Environment and analysis of hydrodynamic & hydroacoustic submarine performance (Maneuvering and Control). Developed and demonstrated techniques to improve hydrodynamic performance of submarines through modification of flow and lift characteristics (Powering and Resistance). Completed Rim Driven Thruster/Main Seawater pump development. Completed Advanced Sail development. Continued Advanced Composite Sail development.
- (U) ($20.494M) Infrastructure: Continued operations and support for the Large Scale Vehicle, Hydroacoustic/Hydrodynamic Test Center(H/HTC), Intermediate Scale Measurement System (ISMS), R&D Submarine. Continued design and construction of the LSV 2 into the testing & acceptance phase. Initiated acceptance trials.
- (U) ($3.340M) Total Ownership/Affordability: Continued development of Advanced Metal Fiber Brushes ($2.898M from S2756).
- (U) ($4.042M) Continued study and initiated demonstration for Payloads in compliance with Defense Science Board Report recommendations. Continued M&FD/HM&E Conform Studies and New Technology Assessment support.

$50.361M TOTAL ($47.463M (S2033) + $2.898M (S2756)

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E, N/BA-4	**Advanced Submarine Sys Dev/0603561N**	Advanced Sub Systems Development - S2033

2. (U) FY 2002 Plan

- (U) ($18.027M) Stealth: Continue development of submarine unique portions of corporate Electric Drive, advanced submarine propulsor technologies, internal transmission paths, Stealth Master Plan, Advanced Electromagnetic Silencing, and hull radiation and echo formation (adv. coatings).
- (U) ($8.965M) Hydrodynamics/Hydroacoustics: Continue development of elements of Integrated Computational Design Environment analysis of hydrodynamic and hydroacoustic submarine performance (Maneuvering and Control). Continue Composite Sail.
- (U) ($15.018M) Infrastructure: Continue operations and support for the Large Scale Vehicle, Hydroacoustic/Hydrodynamic Test Center(H/HTC), Intermediate Scale Measurement System (ISMS), R&D Submarine. Complete acceptance trials and take delivery of LSV 2. Initiate characterization experiments and coating applications to achieve IOC.
- (U) ($2.735M) Total Ownership/Affordability: Initiate full scale land based testing of Advanced Metal Fiber Brushes.
- (U) ($8.240M) Continue study and demonstrations for Payloads in compliance with Defense Science Board Report recommendations. Continue M&FD/HM&E Conform Studies and New Technology Assessment support.

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$52.985M TOTAL ($49.020M (S2033) + $3.965M (S2861)

3. (U) FY 2003 Plan

- (U) ($16.883M) Stealth: Continue development of submarine unique portions of corporate Electric Drive, advanced submarine propulsor technologies, internal transmission paths, Stealth Master Plan, Advanced Electromagnetic Silencing, and hull radiation and echo formation (adv. coatings).
- (U) ($9.528M) Hydrodynamics/Hydroacoustics: Continue development of elements of Integrated Computational Design Environment analysis of hydrodynamic and hydroacoustic submarine performance (Maneuvering and Control). Continue Composite Sail. Re-continue Integrated Design.
- (U) ($14.953M) Infrastructure: Continue operations and support for the Large Scale Vehicle, Hydroacoustic/Hydrodynamic Test Center(H/HTC), Intermediate Scale Measurement System (ISMS), R&D Submarine.
- (U) ($1.665M) Total Ownership/Afffordability: Install on submarine a complete set of Advanced Metal Fiber Brushes on a ship service motor generator set.
- (U) ($5.755M) Continue study and demonstrations for Payloads in compliance with Defense Science Board Report recommendations. Continue M&FD/HM&E Conform Studies and New Technology Assessment support.

$48,784M TOTAL

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E, N/BA-4	**Advanced Submarine Sys Dev/0603561N**	Advanced Submarine Systems Development - S2033/Adv. Metal Fiber Brushes - S2756

B. (U) Other Program Funding Summary: additional $50M of SEALIFT National Defense Funds was appropriated in FY97, authorized in FY98 for LSV development.
(U) Related RDT&E: Not applicable.

C. (U) Acquisition Strategy: Not applicable.

D. (U) Schedule Profile:

	FY 2001	FY 2002	FY2003	FY2004	FY2005	FY2006	FY2007
PROGRAM MILESTONES	Launching of LSV 2. Complete Rim Driven Thruster/ main seawater pump development. Issue Stealth Master Plan. Terminate Flow Mgmt. Complete Adv. Sail development, transition to VIRGINIA class. Initiate lemtep launcher cost feasability study. Initiate SSTG signature dev. Initiate Composite Adv. Sail vendor selection. Peel & stick transition. Electro-magnetic Silencing reprogramming. Develop advanced hull treatment plan. Transition dynamic bulk modules measurement system.	Initiate propulsor advanced design developmnts. Initiate Advanced Maneuvering and Control development. VIRGINIA 4th generation propulsor trial LSV 1. Stealth Master Plan final report Select composite adv. Sail vendor. Initiate Alternative Stern development. Troubleshoot SEAWOLF Acoustic issues LSV 1.	Planned replacement of visualization computer server at H/HTC. Planned start for technology refresh of ISMS. Evaluate alternative Stern configurations. SEAWOLF steel sail trial, LSV 1. Complete VA 4th gen. propulsor trial. LSV 2 SSN 774 support. Demo adv. Maneuvering & control concepts on LSV 2. Electromagnetic trial. Complete Adv. Coating young modules tester.	Technology refresh of ISMS. Internal Transmission Path (ITP) mount down select. Transition propulsor component technology to VIRGINIA class. Electromagnetic accel-2 transition	Initiate next generation propulsor/hull/control surface concept development. Complete Adv. Metal Fiber Brushes, transition to PMS 392. Complete technology refresh of ISMS. Continue 2010 sub propulsor dev. LSV 2. LSV 2 SSN 774 support. Complete composite adv. Sail development, transition to VA class.	Planned replacement of classified & unclassified computer servers at H/HTC. ITP full scale ADM fabrication. Continue 2010 sub propulsor dev. LSV 2. LSV 2 SSN 774 support. Initiate external flow noise signature development. Electromagnetic Adv-1 Prog. Start.	Internal Transmission Path piping/fitting path transition to Virginia Class. ITP truss/deck (ADM) development. Distributed hull coating transition to Virginia Class. Continue 2010 sub propulsor dev. LSV 2. Coating material data base, outer decoupler material certification.
ENGINEERING MILESTONES	Initiate electric drive development. Complete upgrade/replace LSV range acoustic array. Install manuevering design analysis tool (MDAT) at H/HTC.	ITP Mount down select Initiate young modulus test rig development. Complete Control Surface Design Data Sheet.	LSV 2 RAV install Hull treatment on pressure hull. LSV 2 RAV install Hull treatment on Sail. ITP mount development.	LSV 2 RAV install, new LSV 2 battery. ITP - Test loop complete. Coating ship impact & Adv. R&D coating Report.	LSV 2 ODAS refresh. Internal transmission Path (ITP) piping flanking path design criteria. ITP - WTL Syst. model. ITP - Deck demo test.	LSV 2 RAV. Electromagnetic development. ITP - airborne review. Deck demo test comp.	ITP transition to Virginia Class. ITP - airborne test plan. Electromagnetic ADV. 1 development.

EXHIBIT R-2a, RDT&E Project Justification

February 2002

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E, N/BA-4	**Advanced Submarine Sys Dev/0603561N**	Advanced Submarine Systems Development - S2033/Adv. Metal Fiber Brushes - S2756

	FY2001	FY 2002	FY2003	FY2004	FY2005	FY2006	FY2007
ENGINEERING MILESTONES	Continue advanced mount design, mount analysis test flanking path, shock analysis. SSN 22 coating characterization. Malice report & trial peel & stick. Malice full scale mock up test. Install Propulsor Design and analysis tool at H/HTC	Conduct composite Advanced Sa vendor qualification. Begin hardware manufacture for advanced propulsor concepts.	LSV evaluation of propulsor component improvements. Complete manufacture of Advanced Propulsor concepts. Evaluate alternative stern components.	Complete VA advanced sail trails, LSV 2. Fabricate and demo full scale composite adv. Sail prototype. Initiate VIRGINIA advanced sail trials, LSV 2.	Composite adv. Sail complete design criteria and requirements document. Coating - outer decoupler material report, adv. coating demo.		
T&E MILESTONES	Intermediate scale land based testing for Advanced Metal Fiber Brushes. Complete EES warfare effectiveness analysis. If continued development is warranted, design mod to ASLF. Electro-magnetic Draft SRS. SSN 22 characterization sea- trial.	Demonstrate commutator operation for Advanced Metal Fiber Brushes - full scale. Electro-magnetic silencing US/UK sea trial - 9, prep SRS transition. Intermediate scale sea trials for brushes. Complete "no sail" trails LSV 1. Conduct LSV1 maneuvering characterization trial.	Internal transmission path (ITP) component testing of piping system. LSV 2 hydrodynamic performance trial. Adv. Propulsor concepts LSV trial. LSV 2 maneuvering characterization trial.	ITP truss/deck scaled test. External flow noise scaled trial. Hull coating ONR transition effort. Distributed hull coating scaled test. Advanced Propulsor concept LSV trials.		Hull coating large scale demo. Distributed coating demonstration.	Electro-magnetic silencing US/UK sea trial - 10 ITP mount/truss system test.
CONTRACT MILESTONES	Advanced Metal Fiber Brushes completion contract award.	Accept delivery of LSV 2 to Navy. Procure new LSV 1 battery.	Procure new LSV 2 battery.				Procure new LSV battery 2.
	50361	52985	48784	54204	53601	58641	59333

R-1 SHOPPING LIST - Item No. 58

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2002						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**		PROGRAM ELEMENT **Advanced Submarine Sys Dev/0603561N**				PROJECT NAME AND NUMBER Advanced Submarine Systems Development/S2033								
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date			Cost to Complete	Total Cost	Targ Value of Contract
Systems Engineering	S/CPFF	NNS Newport News, VA	43.450	3.300	12/00	1.000	12/01	2.580	12/02			24.200	71.950	67.800
Systems Engineering	S/CPIF	NNS Newport News, VA	14.482	3.800	12/00	1.650	12/01	4.852	12/02			59.200	83.984	80.000
Systems Engineering	S/CPFF	EB Groton, CT	48.706	1.800	12/00	3.774	12/01	3.500	12/02			CONT.	CONT.	37.300
Systems Engineering	WR	NSWC Bethesda, MD	152.062	11.643		13.000		10.488				CONT.	CONT.	
Systems Engineering	S/CPFF	ARL/PSU, State College,PA	33.397	1.600	12/00	4.213	12/01	4.000	12/02			CONT.	CONT.	
Systems Engineering	S/CPFF	APL/JHU	0.350	0.200	01/00									
Systems Engineering	WR	NUWC Newport, RI	71.292	0.800		0.775		0.790				CONT.	CONT.	
Systems Engineering	WR	NRAD San Diego, CA	0.660	0.400		0.350								
Systems Engineering	S/CPFF	KAPL Schenectady, NY	5.000	9.800		4.000		4.000				CONT.	CONT.	
Systems Engineering	S/CPFF	Cortana	3.180	0.000		0.000		0.000				CONT.	CONT.	
Systems Engineering	S/CPFF	ADI	0.000	0.300										
Program Management	CPFF	Anteon		0.138	01/01	0.140	10/01	0.028	10/01					
Program Management	CPFF	Vredenburg	0.090	0.115	01/01									
Program Management	CPFF	SPA		0.025	01/01									
Subtotal Product Development			372.669	33.921		28.902		30.238						

Remarks:

EB's PY cost is greater than total value of contract due to a new contract award.

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

Remarks: Not applicable.

Exhibit R-3 Cost Analysis (page 2)

DATE: **February 2002**

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

PROGRAM ELEMENT: **Advanced Submarine Sys Dev/0603561N**

PROJECT NAME AND NUMBER: Advanced Submarine Systems Development/S2033/S2756/S2861

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC Bethesda, MD	23.329	3.387		10.801		9.097				CONT.	CONT.	
Developmental Test & Evaluation	S/CPFF	NNS Norfolk, VA	3.480	6.100	12/00	2.257	12/01	2.149	12/02			66.800	80.786	67.800
Developmental Test & Evaluation	S/CPFF	EB Groton, CT	18.803	1.900	12/00	0.608	12/01	1.480	12/02			21.000	43.791	37.300
Developmental Test & Evaluation	S/CPFF	DARPA Fairfax, VA	3.000	0.650		3.975		3.100				0.000	10.725	3.000
Developmental Test & Evaluation	S/CPFF	NOESIS	1.711	3.340		2.735		1.600	12/02			0.000	9.386	1.200
Developmental Test & Evaluation	S/CPFF	SPA	0.957	0.600		0.515		0.700				0.000	2.772	0.600
Subtotal T&E			51.280	15.977		20.891		18.126						
Remarks:														
Contractor Engineering Support	S/CPFF	NNS Norfolk, VA	1.700			1.400							3.100	
Contractor Engineering Support	S/CPFF	EB Groton, CT	1.700			1.327							3.027	
Travel				0.125		0.090		0.100	11/02					
Government Engineering Support	WR	NSWC Bethesda, MD	1.000										CONT.	
Contractor Engineering Support		Rosenblatt	0.175	0.025	12/00								0.200	
Contractor Engineering Support		SPA	0.120	0.100	12/00				12/01					
Contractor Engineering Support		DDL Omni	0.020	0.020	12/00									
Contractor Engineering Support		EG&G	0.000	0.030	01/01									
Contractor Engineering Support		JJMA	0.120	0.013	11/00									
Contractor Engineering Support		ADI	0.105	0.050	11/00								0.155	
Contractor Engineering Support		MAC contract		0.100		0.375	12/01	0.320	12/02					
Subtotal Management			4.940	0.463		3.192		0.420				0.000	9.015	
Remarks: FY00 &01 includes congressional plus-up funds project unit S2756 for Metal Fiber Brushes in which all funds go to Noesis. FY01 & FY02 also includes project unit S2861 for Adv. Composite Sail.														
Total Cost			428.889	50.361		52.985		48.784						
Remarks:														

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**	**Advanced Submarine Dev/0603561N**				PROJECT NAME AND NUMBER Advanced Submarine Combat Systems Development/S0223				
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost	**67.395**	**60.651**	**58.605**	**59.925**	**57.589**	**56.396**	**56.858**	**CONT.**	**CONT.**
RDT&E Articles Qty									

A. (U) Mission Description and Budget Item Justification: This program supports innovative research and development in submarine technologies and the subsequent evaluation, demonstration, and validation for submarine platforms. It will increase the submarine technology base and provide subsystem design options not currently feasible.

(U) Project Unit S0223: This non-acquisition (Non-ACAT) program supports the Navy Submarine Acoustic Superiority and Technology Insertion Initiatives by the application of advanced development and testing of sonar and combat control systems improvements. The program addresses technology challenges that marginalize tactical control in littoral and open ocean environments for a variety of operational missions including peacetime engagement, surveillance, battlespace preparation, deterrence, regional sea denial, precision strike, task group support, and ground warfare support. Prototype hardware / software systems are developed to demonstrate technologically promising system concepts in Laboratory and at-sea submarine environments. Specific technology areas include transducers, hull and towed arrays, monostatic and bistatic sonar signal processing, net-centric warfare, target motion analysis (TMA), Environmental Intelligence, multiple contact processing. Program office supports twelve international information exchange agreements. Program is funded under demonstration and validation because it develops and integrates hardware for experimental test related to specific ship and aircraft applications.

(U) Program Accomplishments and Plans:
(U) FY 2001 Accomplishments (S0223):
- ($7.215) Advanced Tactical Control – Completed APB(T)-01 development which was focused on close encounter requirements. Conducted combat system performance assessment based on the defined metrics. Evaluated candidate technologies for APB(T)-02.
- ($31.443) Advanced Sonar System and Processing -Completed performance assessment and transition of APB(A)-00 to BQQ -10 project and VIRGINIA. Completed development, and intiated testing and transition of APB(A)-01 for low frequency. Completed development and intiated testing and transition of APB(A)-01 for mid and high frequency. Initiated APB(A)-02 to address inital acoustic scene management functionality including matched field techniques, new tracking, and automated passive operator search support.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **January 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**	**Advanced Submarine Dev/0603561N**				PROJECT NAME AND NUMBER Advanced Submarine Combat Systems Development/S0223				
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost	**67.395**	**60.651**	**58.605**	**59.925**	**57.589**	**56.396**	**56.858**	**CONT.**	**CONT.**
RDT&E Articles Qty									

- ($3.800) Advanced Towed Arrays- Continued 3-line array development. Conducted subsystem CITs. Fabricated 3-line array ADM. Fabricated 3-line signal processor ADM. Conducted system integration & testing.
- ($6.100) Advanced Hull Arrays- Continued development of CAVES technology - Completed installation of CAVES Patch array on USS NEWPORT NEWS (SSN 751). Conducted installation of CAVES Patch instrumentation. Conducted CAVES Patch test. Began analysis of CAVES Patch Test. Continued documentation of CAVES program. Conducted CACTISS III test. Conducted planning for installation of CAVES Large Vertical Aperture (LVA) sonar on VIRGINIA hull 05 instead of CAVES WAA. Continued Noise Audit Model for Integrated Bow Conformal (IBC) Array and LVA. Conducted modeling of CAVES LVA performance. Began modeling of Integrated Bow Conformal notional array performance. Construct ed1/4 scale bow dome for material, beamforming, and self noise testing. Conducted material testing for inner decoupler use in CAVES LVA and IBC. Continued planning for demonstration test.
- ($5.700) High Frequency Sonar Program- Continued processing improvements including PUMA, evaluation and testing of APB01 initiatives. Continued investigation of HF bow conformal requirements, design trade-offs, and planning eforts. Transitioned on-going processing developments to advance processing. Continued PUMA processing improvements into LMRS precision mapping efforts. Initiated PUMA/TEDS/MEDAL integration.
- ($9.000) Payloads/Sensors Program- Initiated a cooperative Navy/DARPA effort to identify and assess emerging technology concepts that will provide significant operational payoff within the context of current and future submarine missions consistent with Navy strategic concepts.
- ($3.637) Fiber Optic Technology Transition - Risk reduction to assure smooth transition to Submarine Program.
- ($.500) Test & Evaluation - Conducted APB(T) -01 sea tests, HF sea tests, and hull array testing.

$67,395 TOTAL

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **January 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**	**Advanced Submarine Dev/0603561N**				PROJECT NAME AND NUMBER Advanced Submarine Combat Systems Development/S0223				
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost	**67.395**	**60.651**	**58.605**	**59.925**	**57.589**	**56.396**	**56.858**	**CONT.**	**CONT.**
RDT&E Articles Qty									

FY 2002 Plan (S0223):

- ($10.000) Advanced Tactical Control – Complete APB(T)-01 Sea Test. Incorporate APB(T)-01 upgrades based on at-sea test and transition to CCS MK2 and VIRGINA Class Program for system level integration. Complete Development and initiate Sea Test planning of APB(T)-02 , focusing on high density contact management and integration of non acoustic sensors.
- ($28.451) Advanced Sonar System and Processing – Complete transition of APB(A)-01 to BQQ-10 program and VIRGINIA. Complete development and initiate transition and test of APB(A)-02 to BQQ-10 and VIRGINIA program. Initiate definition/development of APB(A)-03 for follow-on acoustic scene management functionality including active intercept, TSMS, integrated active and passive processing, torpedo DCL, ACINT 21and improvements automated alertment, contact localization and tracking and sonar tactical decision aids.
- ($.900) Advanced Towed Arrays - Conduct 3 line R/V sea test. Conduct 3 line submarine demonstration. Perform 3 line data analysis.
- ($2.500) Advanced Hull Arrays - Begin Large Vertical Array (LVA) Advanced Development Model (ADM) planning and design for installation on an SSN 688I class submarine. Complete LVA optimization study. Continue integration of CAVES technology into advanced broad frequency coverage, large horizontal and vertical aperture flank and bow sonar concept development. Continue development of noise audit model for Integrated Bow Conformal (IBC) Array. Begin 1/4 scale bow dome testing. Complete CACTISS III test data analysis and issue report. Conduct Broadband active sonar demonstation in conjunction with High Frequency Sonar Program.
- ($5.700) High Frequency Sonar Program-Transition processing improvement, including PUMA, into APB 02. Continue improvements of HF passive and LPI active. Complete investigation of HF bow conformal requirements. Continue PUMA LMRS improvements efforts. Continue PUMA/TEDS/MEDAL integration.
- ($12.600) Payloads/Sensors Program- Continue cooperative efforts to identify, define, assess and evaluate emerging sensor and payload concepts for potential to provide significant operational benefit. Determine the development and transition path to bring technologies to the future submarine combatants.
- ($.500) Test & Evaluation - Conduct APB(T) -01 sea tests, HF sea tests, and hull array testing. Conducted Towed Array APB lake test. Continued at-sea data gathering program. Initiated planning for HF APB Sea Test.

$60,651TOTAL

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**	**Advanced Submarine Dev/0603561N**				PROJECT NAME AND NUMBER Advanced Submarine Combat Systems Development/S0223				
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost	**67.395**	**60.651**	**58.605**	**59.925**	**57.589**	**56.396**	**56.858**	**CONT.**	**CONT.**
RDT&E Articles Qty									

FY 2003 Plan (S0223):

-($10.000) Advanced Tactical Control - Complete APB(T)-02 Sea Test. Development of enhancements based on APB(T)-02 Sea Test lessons learned. Complete development and initiate transition and testing of APB(T)-03. APB(T)-03 will incorporate enhancements to support Netcentric Undersea Warfare, enhanced offboard sensor exploitation, and attack center automation/workload reduction.

-($24.405) Advanced Sonar System Processing - Complete APB(A)-02 Sea Test. Development enhancements based on APB(A)-02 Sea Test lessons learned. Complete development and initiate transition testing of APB(A)-03. APB(A)-03 will incorporate enhancements to automation in tracking, detection, localization, Active Intercept, and other near term improvements.

-($7.000) Advanced Hull Arrays - Conduct detail design of Large Vertical Array (LVA) Advanced Development Model (ADM). Begin construction of LVA array. Conduct vertical noise data collection in support of Large Vertical Array (LVA) optimization. Continue integration of CAVES technology into advanced broad frequency coverage, large horizontal and vertical aperture flank and bow sonar concept development.

-($13.000) Payloads/Sensors Program - Two industry consortia (Team 2020 and the Forward Pass Consortium) are executing five demonstrations in the component development phase of this effort. Additionally the consortia will continue an industry technology incubator effort aimed at defining new start demonstrations to be selected in FY-03. The team 2020 demonstrations started late in FY-01 and complete in FY-04 are the Flexible Payload Module (FPM), Stealthy Affordable Capsule System (SACS), Processing, and Small UAV (SUAV). Team Forward Pass will execute the Broaching Universal Buoyant Launcher (BUBL) demonstration with the same schedule. For FY-03, interim testing will be conducted for all demonstrations started in FY-01.

-($.900) Multi-Line Towed Array Test & Evaluation - Conduct 3-line sea tests on Research Vehicle and submarine, perform data analysis, and initiate transition to EDM development.

- ($2.800) High Frequency Sonar Program-Transition processing improvement, including PUMA, into APB 02. Continue improvements of HF passive and LPI active. Complete investigation of HF bow conformal requirements. Continue PUMA LMRS improvements efforts.

-($.500) Test & Evaluation - Conduct APB (Acoustic and Tactical)-03 sea tests, MF and HF sea tests, sphere and hull array testing. Conduct Towed arrays, high frequency sail array, active intercept sensors. and Sonar Tactical Decision Aids (STDA). Initiate the incorporation of Weapons (W) to improve the Combat Control systems.

$58,605 TOTAL
$58,605 TOTAL

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**	**Advanced Submarine Dev/0603561N**				PROJECT NAME AND NUMBER Advanced Submarine Combat Systems Development/S0223				
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost	**67.395**	**60.651**	**58.605**	**59.925**	**57.589**	**56.396**	**56.858**	**CONT.**	**CONT.**
RDT&E Articles Qty									

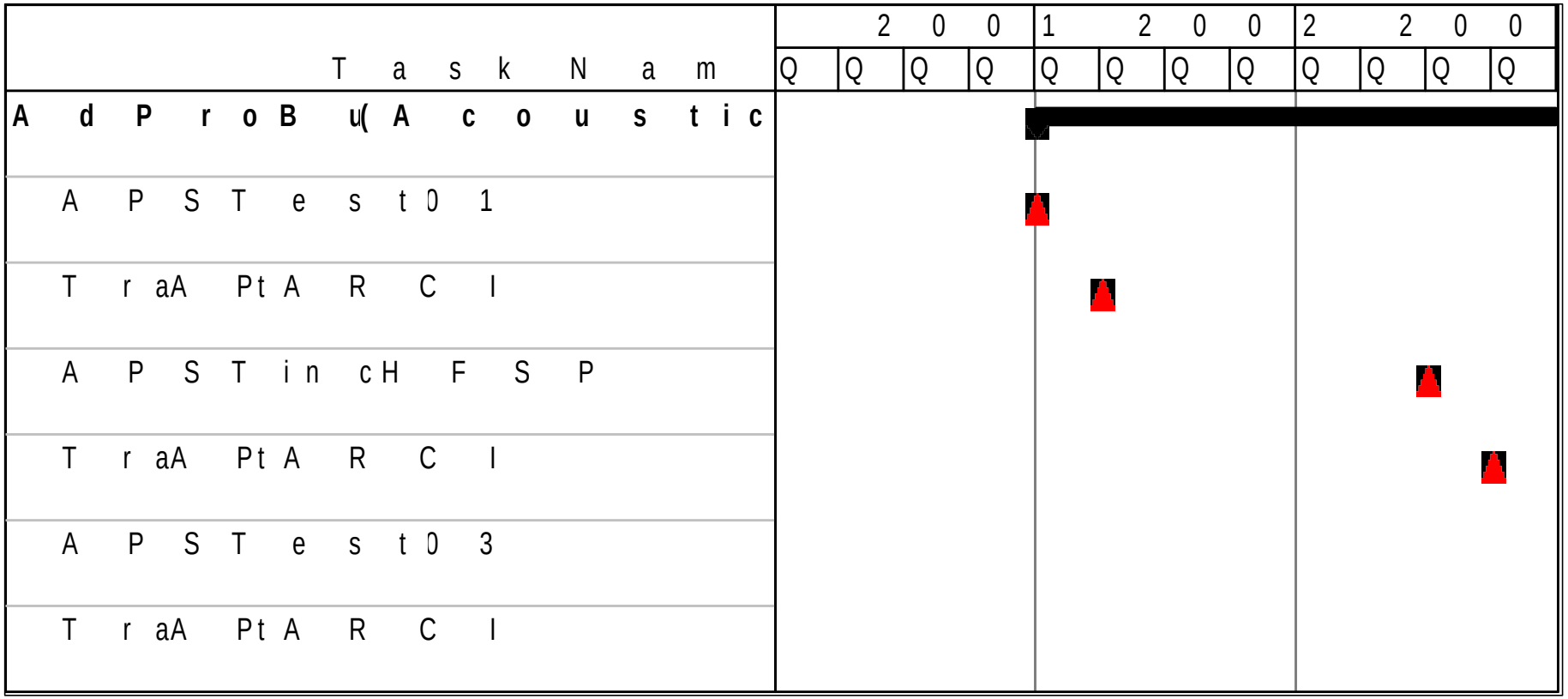
B. (U) Other Program Funding Summary: Not applicable.

(U) Related RDT&E: Not applicable.

C. (U) Acquisition Strategy: Plan to use competitively awarded contracts from Broad Agency Announcement (BAA) solicitations.

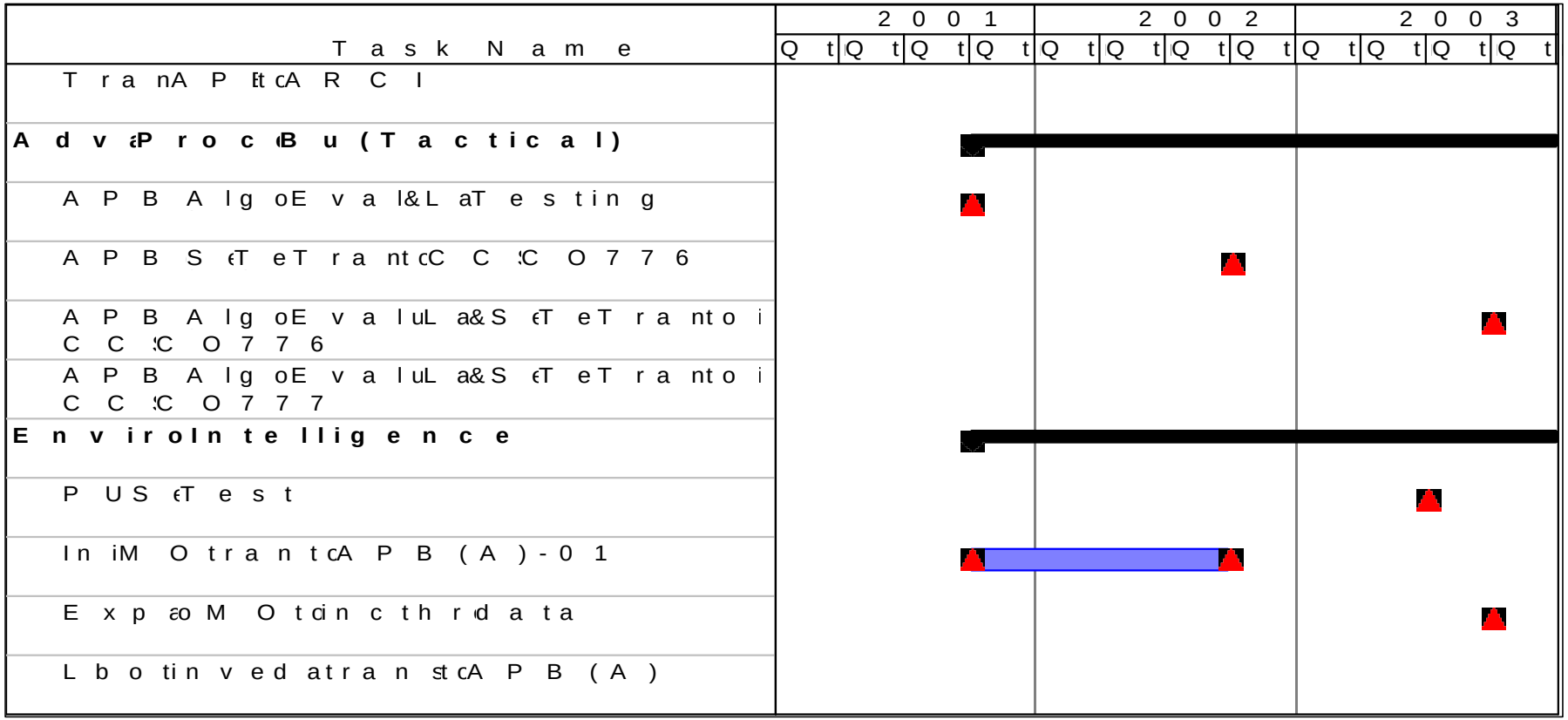
CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**	**Advanced Submarine Dev/0603561N**	PROJECT NAME AND NUMBER Advanced Submarine Combat Systems Development/S0223



CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**	**Advanced Submarine Dev/0603561N**	PROJECT NAME AND NUMBER Advanced Submarine Combat Systems Development/S0223



CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**	**Advanced Submarine Dev/0603561N**	PROJECT NAME AND NUMBER Advanced Submarine Combat Systems Development/S0223

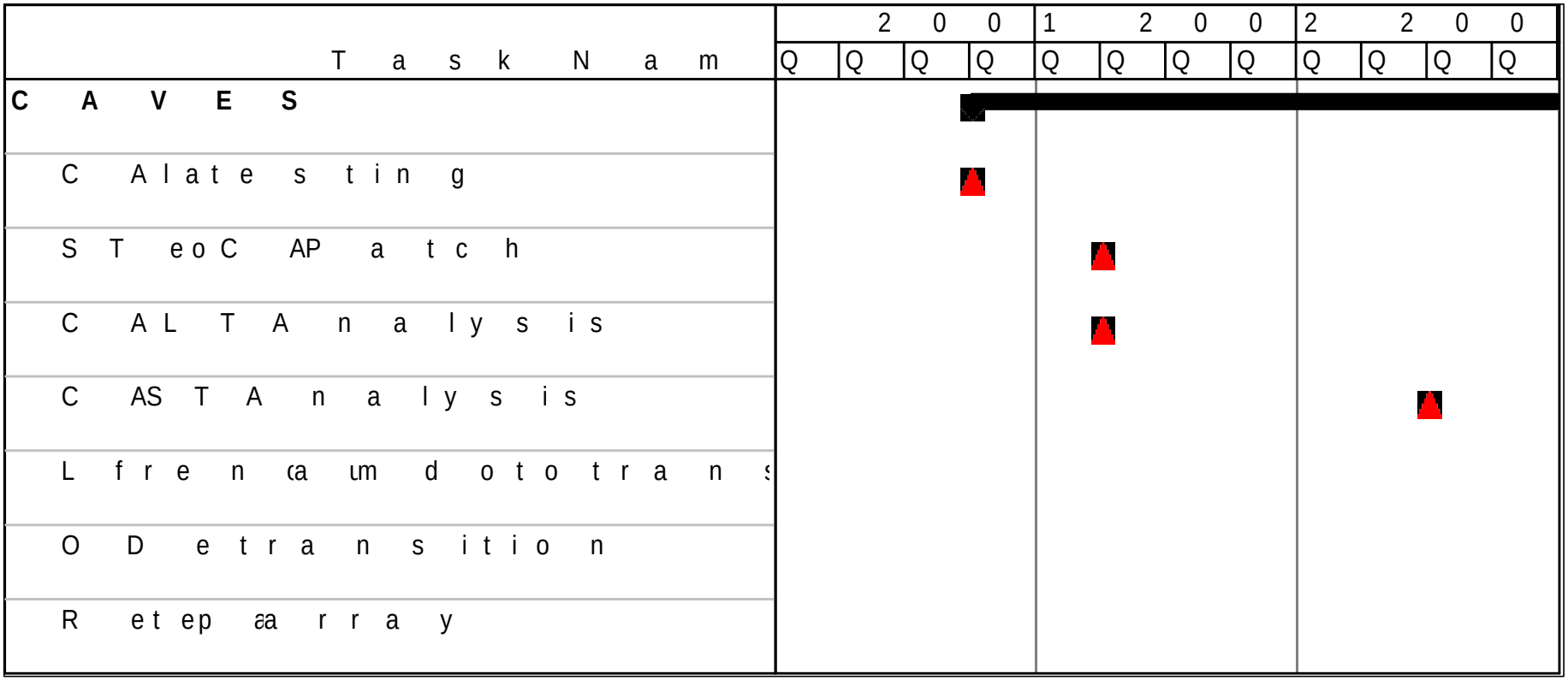


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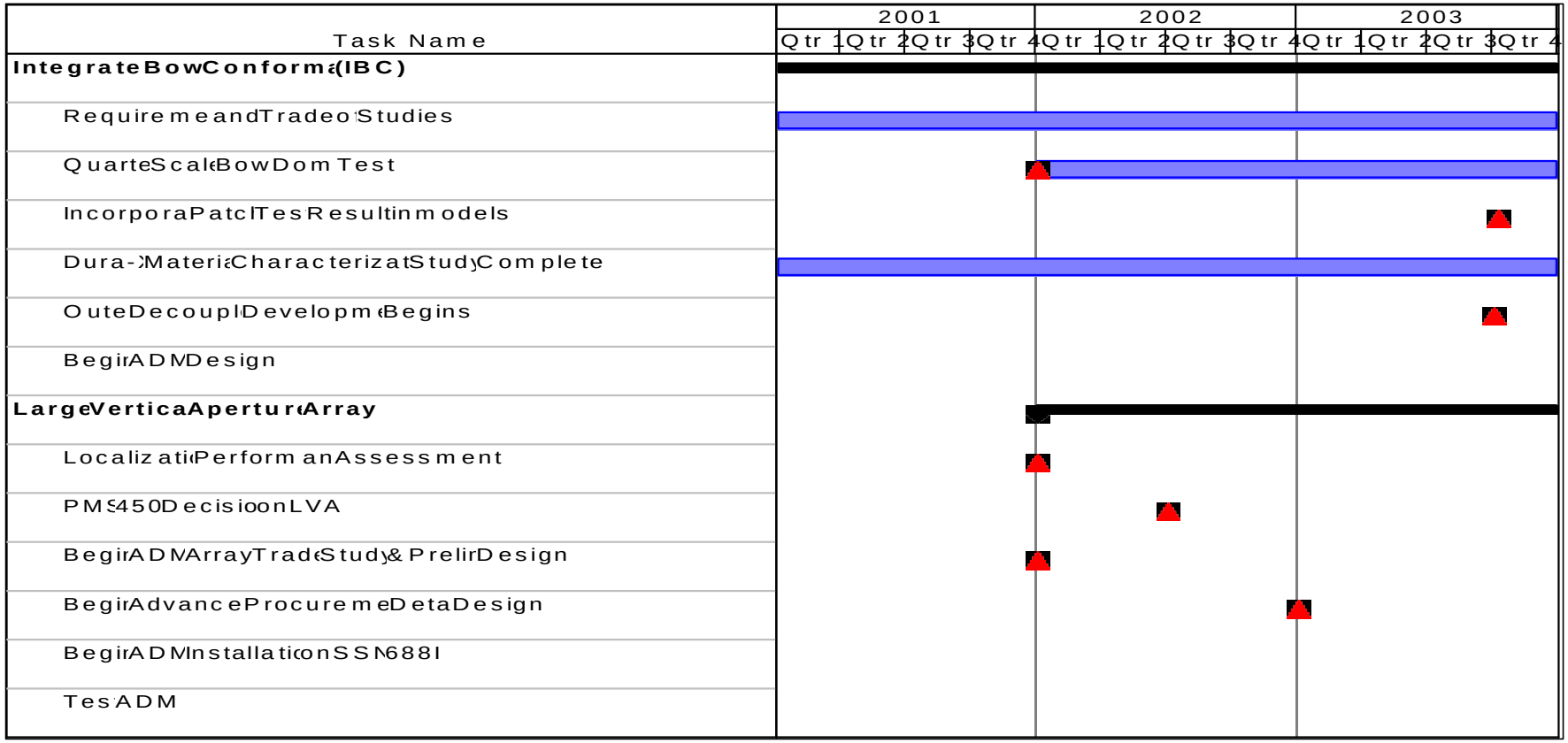
EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**	**Advanced Submarine Dev/0603561N**	PROJECT NAME AND NUMBER Advanced Submarine Combat Systems Development/S0223



CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**	**Advanced Submarine Dev/0603561N**	PROJECT NAME AND NUMBER Advanced Submarine Combat Systems Development/S0223

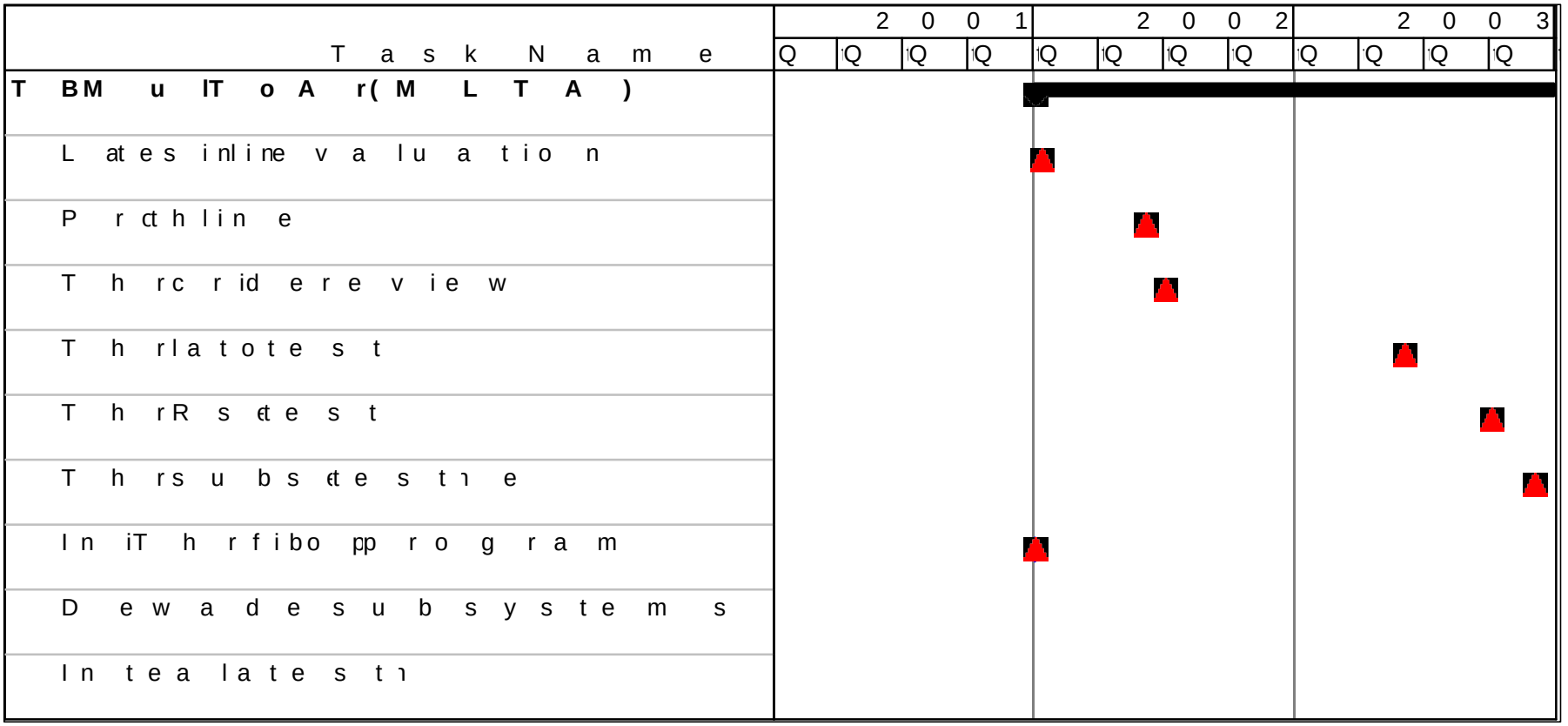


Exhibit R-3 Cost Analysis (page 1)

DATE: **February 2002**

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

PROGRAM ELEMENT: **Advanced Submarine Sys Dev/0603561N**

PROJECT NAME AND NUMBER: Advanced Submarine Combat Systems Development/S0223

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Product Development	WR	NUWC Newport, RI	23.148	15.827	10/00	13.646	10/01	12.275	10/02	CONT.	CONT.	
Product Development	RCP	NUWC Newport, RI	0.500	0.500	-	0.000	-	0.000	-	CONT.	CONT.	
Product Development	WR	NRL/Washington	1.900	1.000	10/00	0.800	10/01	0.800	10/02	CONT.	CONT.	
Product Development	RCP	NRL/Washington	0.240	0.250	-	0.000	-	0.000	-	CONT.	CONT.	
Product Development	WR	NSWC Carderock, MD	5.082	2.750	10/00	0.700	10/01	1.400	10/02	CONT.	CONT.	
Product Development	RCP	NSWC Carderock, MD	0.036	0.000	-	0.000	-	0.000	-	CONT.	CONT.	
Product Development	WR	NSWC Dahlgren	0.000	0.048	10/00	0.080	10/01	0.080	10/02	CONT.	CONT.	
Product Development	PD	ONI, Washington	0.735	0.735	12/01	0.870	12/01	0.900	12/02	CONT.	CONT.	
Product Development	C/CPFF	Lockheed-Martin,VA	3.371	3.250	-	3.000	-	3.214	12/02	CONT.	CONT.	
Product Development	C/CPFF	Sanders Assoc. (L-M),NH	0.902	1.000	11/00	0.750	11/01	0.750	12/02	CONT.	CONT.	
Product Development	RCP	NSMA	0.150	0.180	-	0.180	-	0.180	11/02	CONT.	CONT.	
Product Development	MIPR	U.S. Army/MITRE	1.740	1.750	12/00	1.750	12/01	1.800	12/02	CONT.	CONT.	
Product Development	MIPR	U.S. Air Force/MIT Lincoln Labs	1.500	1.620	12/00	1.000	12/01	1.500	12/02	CONT.	CONT.	
Product Development	RCP	ONR/MCCI/METRON	1.200	1.200	01/01	0.750	12/01			CONT.	CONT.	
Product Development	C/CPFF	Progeny, VA	0.400	0.750	-	0.500	-	0.440	12/02	CONT.	CONT.	
Product Development	C/CPFF	BBN, VA	0.810	1.099	-	1.000	-	0.927	-	CONT.	CONT.	
Product Development	RCP	ONR/GTRI	1.050	1.000	01/01	0.000	-	0.000	-	CONT.	CONT.	
Product Development	SS/CPFF	APL/JHU, MD	6.895	7.348	01/01	7.200	01/02	7.200	01/03	CONT.	CONT.	
Product Development	SS/CPFF	APL/UW, WA	0.025	0.050	12/00	0.050	12/01	0.050	12/02	CONT.	CONT.	
Product Development	SS/CPFF	ARL/UT, TX	5.890	7.000	01/01	6.250	12/01	1.500	12/02	CONT.	CONT.	
Product Development	SS/CPFF	ARL/PSU, PA	0.825	0.350	12/00	0.350	12/01	0.350	12/02	CONT.	CONT.	
Product Development	MD	ARL/PSU, PA	0.357	0.150	01/01	0.185	01/02	0.150	01/03	CONT.	CONT.	
Product Development	WR	NAVAIR PAX/NSWC Indian H	0.040	0.040	10/00	0.030	10/01	0.030	10/02	CONT.	CONT.	
Product Development	WR	SPWAR, CA	0.206	0.432	10/00	0.200	10/01	0.140	10/02	CONT.	CONT.	
Product Development	C/CPFF	DSR, VA	4.500	4.500	12/00	5.000	-	5.915	12/02	CONT.	CONT.	
Product Development	WR	COMSUBLANT	0.000	0.095	-	0.100	-	0.100	10/02	CONT.	CONT.	
Product Development	C/CPFF	Electric Boat, CT	5.603	0.000	-	0.000	-			CONT.	CONT.	
Product Development	CPFF	NNS, VA	0.000	0.000	-	0.000	-			CONT.	CONT.	
Product Development	MIPR	DARPA, VA	0.000	9.000	12/00	12.600	12/01	13.000	12/02	CONT.	CONT.	

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-4**			PROGRAM ELEMENT **Advanced Submarine Sys Dev/0603561N**			PROJECT NAME AND NUMBER Advanced Submarine Combat Systems Development/S0223						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
SBIRs / BAAs	C/CPFF	Various	5.584	0.041	Various	0.684	Various	1.625	Various	CONT.	CONT.	
Advanced Towed Array BAA	C/CPFF	Lockheed Martin, NY	1.315	0.000	-	0.000	-	0.000		CONT.	CONT.	
Product Development	Various	Various	0.811	1.733	Various	0.092	Various	0.750	Various	CONT.	CONT.	
Subtotal Product Development			74.815	63.698		57.767		55.076		CONT.	CONT.	
Remarks:												
Development Support Equipment											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks: This is a Non Acquisition Program which therefore includes no indirect support costs.												

Exhibit R-3 Cost Analysis (page 2) | DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N/BA-4** | PROGRAM ELEMENT: **Advanced Submarine Sys Dev/0603561N** | PROJECT NAME AND NUMBER: Advanced Submarine Combat Systems Development/S0223

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NUWC Newport, RI	0.425	0.000	10/00	0.450	10/01	1.140	10/02	CONT.	CONT.	
Developmental Test & Evaluation	Various	Various	0.050	1.622	Various	0.050	Various	0.500		CONT.	CONT.	
Operational Test & Evaluation										0.000	0.000	
GFE										0.000	0.000	
Subtotal T&E			0.475	1.622		0.500		1.640		CONT.	CONT.	
Remarks:												
Program Management Support	C/CPFF	Integrated Product Dec, CT	0.200	0.250	Various	0.000	Various			CONT.	CONT.	
Program Management Support	C/CPFF	Stanley Associates, VA	0.900	1.099	12/00	1.000	12/01	1.000	12/02	CONT.	CONT.	
Program Management Support	Various	Various	0.200	0.000	-	0.000	12/01	0.844	12/02	CONT.	CONT.	
Program Management Support	Various	EG&G	0.000	0.587	Various	1.200	12/01	0.000	-	CONT.	CONT.	
Program Management Support	Various	Anteon Corporation	0.000	0.064	Various	0.134	12/01	0.000	-	CONT.	CONT.	
Government Engineering Support											0.000	
Travel			0.050	0.075		0.050		0.045			0.220	
Overhead											0.000	
Subtotal Management			1.350	2.075		2.384		1.889		CONT.	CONT.	
Remarks:												
Total Cost			76.640	67.395		60.651		58.605		CONT.	CONT.	
Remarks:												