Exhibit R-2, Budget Item Justification		Date: February 1999
APPROPRIATION/BUDGET ACTIVITY R&D BA - 4	Program Element Name and Number Advanced Submarine Systems Development PE 0603561N	R-1 Nomenclature S2033/V0223 - Advanced Submarine Systems Development

COST ($ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total P.E. Cost	106.8	60.3	115.8	114.9	122.3	120.5	126.8	118.7	Cont.	Cont.
Adv. Sub. Systems Dev. S2033	54.7	60.3	44.1	46.6	55.9	56.3	60.5	57.5	Cont.	Cont.
Submarine Technology S2391	52.1	0	0	0	0	0	0	0	0	0
Adv. Sub. Combt Sys. Dev. V0223	0	0	71.6	68.3	66.5	64.2	66.3	61.2	Cont.	Cont.

A. Mission Description and Budget Item Justification:

This RDT&E Budget line was restructured by Issue #66765 NAVSEA Restructure to transfer all the RDT&E funds from PE 0603504N/V0223 Advanced Submarine Combat Systems Development into PE 0603561N under Project V0223 for FY2000 and out.

(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 NSSN 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 Tactical Technology Office. 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 office also supports three Information Exchange Programs, two with the United Kingdom, (one on submarine electromagnetic silencing and the second on submarine platform equipment, systems, and hull technology); and one with Australia (on air-independent propulsion and power for conventional submarines, manned submersibles, and unmanned underwater vehicles); 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 Measurement System; and provides life cycle support for the R&D Submarine modifications. In addition, the program is designing and constructing a second large scale vehicle, the LSV2, expressly for Virginia class technology insertion demonstrations.

This Program has been structured to support near term Virginia class insertion as well as core technologies in Hydrodynamics/Hydroacoustics, Affordability, and Stealth.

(U) Project S2391 is authorized by Congress to pursue a Large-Scale Vehicle (LSV) demonstrator that is not limited to form or single hull design and issue a competitive solicitation to all responsible sources for such a demonstrator. To avoid costly oversights and conflicts between the LSV builder and the technology providers, the Secretary of the Navy has ensured that the Virginia class shipbuilders are participating in the process of including new technologies into the LSV.

Exhibit R-2, Budget Item Justification		Date: February 1999
APPROPRIATION/BUDGET ACTIVITY R&D BA - 4	Program Element Name and Number Advanced Submarine Systems Development PE 0603561N	R-1 Nomenclature S2033/V0223 - Advanced Submarine Systems Development

(U) Project Unit V0223: This non-acquisition (Non-ACAT) program supports the Navy Submarine Acoustic Superiority and Technology Insertion Initiatives through the application of advanced development and testing of improvements to present and future sonar and combat control systems. The goal is to address the technology challenges that marginalize tactical control in littoral and open ocean environments during the performance of a variety of missions including peacetime engagement, surveillance, deterrence, regional sea denial, precision strike, task group support, and ground warfare support. Prototype hardware and/or software systems are developed to demonstrate technologically promising system concepts in Laboratory and at-sea submarine environments. Technology areas specific to this program include transducers, hull-mounted and towed arrays, on-board monostatic and bistatic sonar signal processing, target motion analysis (TMA), multiple contact processing and test and evaluation. This program is funded under demonstration and validation because it develops and integrates hardware for experimental test related to specific ship and aircraft applications.

B. (U) Program Change Summary:

	FY 1998	FY 1999	FY 2000
FY 1999 President's Budget:	110.6	60.5	60.0
Appropriated Value:	110.6	60.5	
Adjustment to FY 1998 /1999 Appropriated Value/1999 President's budget	-3.8	-.2	+55.8
FY 2000 PRES Budget Submit:	106.8	60.3	115.8

(U) Change Summary Explanation

Funding: FY98 and FY99 funding level changes are due to minor program adjustments. The FY00 fund change is was due to a program restructure.
Schedule: Not applicable.

Technical: Proceed with the Category II Core 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 1999

COST ($ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Adv. Sub. Systems Dev. S2033	54.7	60.3	44.1	46.6	55.9	56.3	60.5	57.5	Cont.	Cont.

A. Mission Description and Budget Item Justification:

(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 NSSN 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 Tactical Technology Office. 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 office also supports three Information Exchange Programs, two with the United Kingdom, (one on submarine electromagnetic silencing and the second on submarine platform equipment, systems, and hull technology); and one with Australia (on air-independent propulsion and power for conventional submarines, manned submersibles, and unmanned underwater vehicles); 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 Measurement System; and provides life cycle support for the R&D Submarine modifications. In addition, the program is designing and constructing a second large scale vehicle, the LSV2, expressly for Virginia class technology insertion demonstrations.

This Program has been structured to support near term Virginia class insertion as well as core technologies in Hydrodynamics/Hydroacoustics, Affordability, and Stealth.

(U) Program Accomplishments and Plans:

(U) FY 1998 Accomplishments (S2033):

- (U) ($14.7M) Stealth: Supported the Advanced Submarine Propulsion System (ASPS) including research and development into propulsor systems (Wet) and internal systems (Dry). Development of Internal Transmission Paths, Hull Coatings, and Advanced Electromagnetic Silencing.
- (U) ($9M) Hydrodynamics/Hydroacoustics: Continued development of elements of Integrated Computational Design Environment and analysis of hydrodynamic and hydroacoustic submarine performance. Developed and demonstrated techniques to improve hydrodynamic performance of submarines through modification flow and lift characteristics.
- (U) ($27.5) Infrastructure: Continued operations and support for the Large-Scale Vehicle, Hydroacoustic/Hydrodynamic Test Center (HTC), Intermediate Scale Measurement (ISMS), ARD Range Upgrade, SSN Security, Advanced Submarine Technology Office (ASTO), R&D Submarine, Mission & Future Design/Hull & Mechanical Conform studies and New Technology Assessment. In the LSV program, conducted unmanned undersea vehicle support experiments for the Virginia class propulsor project, and conducted experiments for the Advanced hybrid Propulsor Project. In the H/HTC, completed hardware/software maintenance and hardware upgrades. In the ISMS, conducted experiments involving target strength measurements of advanced submersible vehicles. Initiated necessary upgrades to the LSV acoustic range.
- (U) ($3.5M) Total Ownership Cost/Affordability: Continue demonstration and validation of the Elastomeric Ejection System (EES) for insertion into the Virginia class.

(U) FY 1999 Plan:

- (U) ($8.2M) Stealth: Continue development of Advanced Submarine Propulsor technologies, Internal Transmission Paths, Hull Radiation and Echo formation (Advanced Coating), Advanced EM Silencing, Signature Characterization and Monitoring and Experimental Tools.
- (U) ($10.3M) Hydrodynamics/hydroacoustics: Continue development of elements of Integrated Computational Design Environment analysis of hydrodynamic and hydroacoustic submarine performance. Develop and demonstrate techniques to improve hydrodynamic performance of submarines through modification of flow and lift characteristics. Development of the Advanced Sail. Initiated transition of NASA's virtual wind tunnel to development of a virtual water tunnel.
- (U) ($33.6M) Infrastructure: Continue operations and support for the Large Scale Vehicle, H/HTC, ISMS, R&D submarine, Mission and Future Design/Hull & Mechanical Conform studies and New Technology Assessment. Continue design and construction of the Large Scale Vehicle 2 (LSV 2).
- (U) ($7.2M) Total Ownership Cost/Affordability: Continue research and development of EES for insertion into the Virginia class.
- (U) ($.997M) Portion of extramural program is reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

(U) FY 2000 Plan:

- (U) ($6M) Stealth: Continue development of Advanced Submarine Propulsor technologies, Internal Transmission Paths, Advanced EM Silencing, Signature Characterization and Monitoring, and experimental tools.
- (U) ($15.2M) Hydrodynamics/Hydroacoustics: Continue development of elements of Integrated Computational Design Environment analysis of hydrodynamic and hydroacoustic submarine performance. Developed and demonstrated techniques to improve hyrodynamic performance of submarines through modification of flow and lift characteristics. Complete demonstration/validation of the Advanced Sail. Continue development of the Advanced Seawater pump.
- (U) ($20M) Infrastructure: Continue operations and support for the Large Scale Vehicle, H/HTC, ISMS, R&D submarine, Mission & Future Design/Hull & Mechanical Conform studies and New Technology Assessment. Continued design and construction of the LSV 2.
- (U) ($2.9M) Total Ownership Cost/Affordability: Complete demonstration/validation of EES and transition to Virginia class PE.

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 1998	FY 1999	FY 2000
Program Milestones	Complete ASPS concepts. Conduct LSV Propulsor testing For SEAWOLF propulsor Development/improvement program	Advanced coating effort deferred to FY02 Advanced Decks & mounts effort restructured	Complete demonstration/ Validation of advanced sail, transitioned to Virginia class PE
Engineering Milestones	Complete EES 1st generation elastomeric disk life cycle test Design and fab prototype Advanced Sail & test instrumentation Completed initial phase of develop-ment of enabling component and analytical techniques needed for main propulsion electric drives Complete concept design for LSV 2 Deliver full length composite shaft Completed 1st design option for LSV 2 coating	Complete 2nd design option for LSV 2 coating Complete design of Adv. Mount and Hull attachment Closeout and final documentation for development of enabling component and analytical techniques needed for Electric Drive Begin construction of LSV 2 modules. Begin manufacture of Advanced Seawater Pump Complete 2nd design option of LSV 2 coating	Complete construction of LSV 2 modules Assemble LSV 2 modules at Lake Pend Oreille Complete manufacture of Advanced Seawater Pump Complete EES EDM equipment fabrication Initiate adv. Truss/deck design, continue shock mount testing, test air mount design Initiate prototype design of flow mgmt.

Project Unit: S2033

	FY 1998	FY 1999	FY 2000
T&E Milestones	Conduct SAS Sea Test II	Complete design of Adv. Mount and Hull attachment. Conduct evaluation of prototype Adv. Sail	Begin in-water acceptance testing of LSV 2

	Begin testing of 2nd gen. Elastomer Disk for life cycle and aging	Complete EES 2nd generation disk life cycle aging test
	Conduct pass/fail test for flow mgmt.	Complete EES 2nd generation disk shock test Conduct hydroacoustic evaluation of Advanced Sail prototype Complete 2nd gen. Elastomer Disk Life cycle and aging tests Begin EES EDM equipment testing
		Conduct testing of Advanced Seawater Pump
		Weapons effect testing of Advanced decks & mounts
Contract Milestones	Award LSV 2 detailed design/ build contract	
	Award concept formulation contract	
	Award Virtual Water Tunnel contract	

Exhibit R-3 Cost Analysis		Date: February 1999
APPROPRIATION/BUDGET ACTIVITY R&D BA-4	PROGRAM ELEMENT NAME AND NUMBER ADVANCED SUBMARINE SYSTEMS DEVELOPMENT 0603561N	PROJECT NAME AND NUMBER S2033

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY99 Cost	FY99 Award Date	FY00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	S/CPFF	NNS Newprt New,Va	40.4	1.0	12/98	2.2	12/99			Cont.	Cont.	67.8
	S/CPIF	NNS Newprt New,Va	0	20.8	10/98					0	20.8	80
	S/CPFF	EB Groton, Conn.	43.9	6.8	12/98	4.1	12/99			Cont.	Cont.	37.3
	WR	NSWC Bethesda, MD	112.9	3.1	10/98	8.75	10/99			Cont.	Cont.	
	S/CPFF	ARL/PSU Penn.	30.1			1.0	01/00			Cont.	Cont.	
	WR	NUWC Newport RI	66.5	.6	10/98	.6	10/99			Cont.	Cont.	
	S/CPFF	KAPL Schenectady, NY	0	7.2	02/99	0				Cont.	Cont.	
	TBD	TBD		1.6		11.9				Cont.	Cont.	
Subtotal Product Development			293.8	41.1		28.55						

Remarks: (S2033)
TBD is due to emerging technologies.
EB's PY cost is greater than total value of contract due to a new contract award.

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

Remarks: (S2033)

Exhibit R-3 Cost Analysis		Date: February 1999
APPROPRIATION/BUDGET ACTIVITY R&D BA-4	PROGRAM ELEMENT NAME AND NUMBER ADVANCED SUBMARINE SYSTEMS DEVELOPMENT 0603561N	PROJECT NAME AND NUMBER S2033

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY99 Cost	FY99 Award Date	Fy00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC Bethesda, MD	16.6	3.8	10/98	3.0	10/99			Cont.	Cont.	
	S/CPFF	NNS Norfolk, VA	0	.6	12/98	.4	12/99			Cont.	Cont.	67.8
	S/CPFF	EB Groton, Conn.	15.9	.2	12/98	.2	12/99			Cont.	Cont.	37.3
Subtotal T&E			32.5	4.6		3.6						
Remarks: (S2033)												
Contractor Engineering Support	S/CPFF	NNS Norfolk, VA	1.7	.95	12/98	.9	12/99					67.8
Contractor Engineering Support	S/CPFF	EB Groton, Conn.	1.7	1.0	12/98							37.3
Contractor Engineering Support	S/CPFF	DARPA Fairfax, VA		3.0	12/98						3.0	3.0
Government Engineering Support	WR	NSWC Bethesda, MD	1.0	9.6	10/98	11.0	10/99			Cont.	Cont.	
Travel		NAVSEA	.4	.05		.05						
Subtotal Management			4.8	14.6		11.95						
Remarks: (S2033)												
Total Cost			331.1	60.3		44.1						

COST ($ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Adv. Sub. Systems Dev. V0223	0.0	0.0	71.6	68.3	66.5	64.2	66.3	61.2	Cont.	Cont.

A. Mission Description and Budget Item Justification:

(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 V0223: This non-acquisition (Non-ACAT) program supports the Navy Submarine Acoustic Superiority and Technology Insertion Initiatives through the application of advanced development and testing of improvements to present and future sonar and combat control systems. The goal is to address the technology challenges that marginalize tactical control in littoral and open ocean environments during the performance of a variety of missions including peacetime engagement, surveillance, deterrence, regional sea denial, precision strike, task group support, and ground warfare support. Prototype hardware and/or software systems are developed to demonstrate technologically promising system concepts in Laboratory and at-sea submarine environments. Technology areas specific to this program include transducers, hull-mounted and towed arrays, on-board monostatic and bistatic sonar signal processing, target motion analysis (TMA), multiple contact processing and test and evaluation. This program is funded under demonstration and validation because it develops and integrates hardware for experimental test related to specific ship and aircraft applications.

(U) Accomplishments and Plans:

FY 2000 Plan (V0223):

- **($8.200) Advanced Tactical Control** – Begin development of Tactical Control Build 2 software. Further define functional priorities and initiate development of 3D tactical scene rendering, improved use of ARCI data and integrated vulnerability information management. Conduct at-sea evaluation. Develop performance quantification metrics and data collection, storage and analysis methodologies.. Develop and deliver SFMPL 6.2. Identify potential information management solutions from DARPA, ONR, industry and academia. Evaluate for inclusion in Tactical Control Builds.
- **($37.500) Advanced Sonar System and Processing** – Complete APB 99 sea test and transition to ARCI Phase III. Complete development and integration, conduct performance assessment and initiate transition of APB 00 to Rapid COTS Insertion effort NSSN. Continue development of APB 01 including concurrent treatment of LF, MF and HF, continued automation enhancements, matched field localization, passive torpedo alertment, extension of 3-line MLTA processing, defensive multi-static, signal processing extensions for beamformerless detection and improved OMI.
- **($6.432) Advanced Towed Arrays** - Continue 3-line array development. Complete fabrication of 1-line array. Develop NTMLTA signal processing design. Conduct 1-line lake test and Critical Item Tests. Complete 3-line ADM design. Conduct 3-line ADM CDR.
- **($11.800) Advanced Hull Arrays** – Continue development of CAVES technology. Conduct CAVES Pre-SRA sea test and perform data analysis. Install CAVES Patch arrays on USS Providence. Conduct Post-SRA Sea Test. Continue planning for integration of CAVES technology with other Hull arrays. Perform CAVES Outer decoupler buckling experiment. Initiate update of noise audit model. Investigate impact of outer decoupler on inner decoupler. Initiate CACTISS III test planning. Initiate CAVES WAA transition planning. Initiate conformal array technology in conjunction with Advanced Sail to maintain current capability. Initiate Integrated Conformal Array technology to replace spherical array, HF sail array, and HF chin array. Develop Noise Audit Model for Integrated Conformal Array. Initiate planning for FY04 Lake Test/Demonstration and FY05 Sea Test/Demonstration. Design Bow Dome for demonstration tests. Initiate sensor development. Initiate acoustic source development. Initiate processor software development.
- **($7.200) High Frequency Sonar Program** - Complete development, evaluation and testing of Build 2+ build and transition and integration into ARCI program. Complete Test bed upgrades. Initiate integration of ACOMMS processing and hardware into HF suite. Continue sail and conformal array studies. Continue processing improvements

for HF APB 01 including bottom and target mapping, ASW improvements, bottom tracking and navigation, and adaptive signal design. Initiate processing improvements to support LMRS precision mapping efforts.

- **($.500) Test and Evaluation** – Conduct Towed Array APB lake test. Continue at-sea data gathering program. Initiate planning for HF APB Sea Test.

B. **Other Program Funding Summary**: Not Applicable

To Total

(U Related RDT&E: Not Applicable.

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

D. **Schedule Profile**:

FY 1998 FY 1999 FY2000

	---------- PE # 0603504N ----------		-- PE # 0603561N/V0223 --
Program Milestones	**1Q** - Transition CAVES Program to PE 0603504N **2Q** - Transition 3-Line MLTA program to ASTO **3Q** - Transition TA-APB98 to ARCI **3Q** – TCP IPT established	**2Q** - Delivered Range Dependent Search capability to SFMPL **3Q** – Transition TA- APB99 to ARCI **4Q** – Transition TCP Bld 1 **1Q** – CAVES MANTECH (ONR Funded) Start	**3Q** - Complete TCP APB-2 **2Q** - SFMPL 6.2 Complete **3Q** - Transition TA-APB00 & HF APB99 to ARCI
Engineering Milestones	**2Q** – Initiate HF APB 00 **4Q** – TSOA Integration Completed **2Q**- Initiate TA- APB99 Evaluation	**1Q** - Initiate TA-APB00 **1Q** – Initiate TCP APB2 **2Q** – Complete TSOA **2Q** - MLTA 1-Line CDR **3Q** - Deliver TCP Build 1	**1Q** – Initiate TA-APB02 **1Q** - Deliver SFMPL 6.1 **4Q** - MLTA 3-Line CDR
Test & Evaluation Milestones	**2Q** – HFSP Sea Test 3Q – TA-APB-98 Sea Test **3Q** – CAVES Fabrication & Installation **3Q** - Shipboard Tactical Information System Test	**2Q**- **2Q** – CACTISS II Test **3Q** – TA-APB99 Sea Test	**3Q** - HF APB99 Sea Test **3Q** – TA-APB00 Sea Test **3Q** - TCP APB-1 Sea Test **3Q** - CAVES Sea Test **3Q** - MLTA 1-Line Lake Test

Exhibit R-3 Cost Analysis		Date: February 1999
APPROPRIATION/BUDGET ACTIVITY R&D BA-4	PROGRAM ELEMENT NAME AND NUMBER ADVANCED SUBMARINE SYSTEMS DEVELOPMENT 0603561N	PROJECT NAME AND NUMBER V0223

Categories Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY99 Cost	FY99 Award Date	FY00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Product Development	WR	NUWC/Newport, RI	.000	.000	-	29.620	10/99			Contin	Contin	
Product Development	RCP	NUWC/Newport, RI	.000	.000	-	.000	-			Contin	Contin	
Product Development	WR	NRL/Washington	.000	.000	-	1.962	10/99			Contin	Contin	
Product Development	RCP	NRL/Washington	.000	.000	-	.000	-			Contin	Contin	
Product Development	WR	NSWC/Carderock, MD	.000	.000	-	1.308	10/99			Contin	Contin	
Product Development	RCP	NSWC/Carderock, MD - AMSI	.000	.000	-	.000	-			Contin	Contin	
Product Development	WR	NCCOSC/San Diego, CA	.000	.000	-	.150	10/99			Contin	Contin	
Product Development	RCP	NCCOSC/San Diego, CA - Litton	.000	.000	-	.000	-			Contin	Contin	
Product Development	WR	NSMRL	.000	.000	-	.000	-			Contin	Contin	
Product Development	RCP	NSMA	.000	.000	-	.180	03/00			Contin	Contin	
Product Development	WR	NUWC/Keyport, HI	.000	.000	-	.100	10/99			Contin	Contin	
Product Development	MIPR	U.S. Army/MITRE	.000	.000	-	2.000	12/99			Contin	Contin	
Product Development	MIPR	U.S. Air Force/MIT Lincoln Labs	.000	.000	-	.800	12/99			Contin	Contin	
Product Development	RCP	ONR/MCCI	.000	.000	-	1.400	01/00			Contin	Contin	
Product Development	RCP	ONR/University of California	.000	.000	-	.000	-			Contin	Contin	
Product Development	RCP	ONR/BBN	.000	.000	-	.000	-			Contin	Contin	
Product Development	RCP	ONR/GTRI	.000	.000	-	1.986	12/99			Contin	Contin	
Product Development	SS/CPFF	APL/JHU, MD	.000	.000	-	5.207	12/99			Contin	Contin	
Product Development	SS/CPFF	APL/UW, WA	.000	.000	-	.000	-			Contin	Contin	
Product Development	SS/CPFF	ARL/UT, TX	.000	.000	-	9.200	12/99			Contin	Contin	
Product Development	SS/CPFF	ARL/PSU, PA	.000	.000	-	.315	12/99			Contin	Contin	
Product Development	MD	ARL/PSU, PA	.000	.000	-	.130	01/00			Contin	Contin	

Exhibit R-3 Cost Analysis		Date: February 1999
APPROPRIATION/BUDGET ACTIVITY R&D BA-4	PROGRAM ELEMENT NAME AND NUMBER ADVANCED SUBMARINE SYSTEMS DEVELOPMENT 0603561N	PROJECT NAME AND NUMBER V0223

Cost Categories Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY99 Cost	FY99 Award Date	FY00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Product Development	PD	NAVAIR Pax River /NSWC Indian Hd	.000	.000	-	.000	-			Contin	Contin	
Product Development	WR	SPAWAR, CA	.000	.000	-	.100	10/99			Contin	Contin	
Product Development	C/FP	DSI, VA	.000	.000	-	.000	-			Contin	Contin	
Product Development	C/CPFF	DSR, VA	.000	.000	-	7.000	12/99			Contin	Contin	
Product Development	C/CPFF	TWD Associate, VA	.000	.000	-	.000	-			Contin	Contin	
Product Development		Electric Boat, CT	.000	.000	-	.000	-			Contin	Contin	
Product Development	CPFF	Newport News Shipyard, VA	.000	.000	-	.000	-			Contin	Contin	
Product Development	C/CPFF	Systems Planning Analysis, VA	.000	.000	-	.000	-			Contin	Contin	
Product Development	MIPR	DARPA, VA	.000	.000	-	.000	-			Contin	Contin	
BAAs	C/CPFF	Various	.000	.000	-	2.349	Various			Contin	Contin	
Advanced Towed Array BAA	C/CPFF	Lockheed Martin, NY	.000	.000	-	1.200	12/99			Contin	Contin	
Product Development	Various	Various	.000	.000	-	5.125	Various			Contin	Contin	
Subtotal Product Development			.000	.000		70.132				Contin	Contin	

Remarks: (V0223)

Exhibit R-3 Cost Analysis		Date: February 1999
APPROPRIATION/BUDGET ACTIVITY R&D BA-4	PROGRAM ELEMENT NAME AND NUMBER ADVANCED SUBMARINE SYSTEMS DEVELOPMENT 0603561N	PROJECT NAME AND NUMBER V0223

Cost Categories Support	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY99 Cost	FY99 Award Date	FY00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Development Support Equipment												
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
GFE												
Subtotal Support			.000	.000		.000		.000		Contin	Contin	

Remarks: (V0223)
This is a Non Acquisition Program which therefore includes no indirect support costs.

Cost Categories Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY99 Cost	FY99 Award Date	FY00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NUWC/Newport, RI	.000	.000	-	.450	10/99			Contin	Contin	
Developmental Test & Evaluation	Various	Various	.000	.000	-	.050	Various			Contin	Contin	
Operational Test & Evaluation												
Tooling												
GFE												
Subtotal T&E			.000	.000		.500				Contin	Contin	

Exhibit R-3 Cost Analysis		Date: February 1999
APPROPRIATION/BUDGET ACTIVITY R&D BA-4	PROGRAM ELEMENT NAME AND NUMBER ADVANCED SUBMARINE SYSTEMS DEVELOPMENT 0603561N	PROJECT NAME AND NUMBER V0223

Remarks: (V0223)

Cost Categories Management	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY99 Cost	FY99 Award Date	FY00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	Integrated Product Decision, CT	.000	.000	-	.000	-			Contin	Contin	
Program Management Support	C/CPFF	Stanley Associates, VA	.000	.000	-	.900	12/99			Contin	Contin	
Program Management Support	Various	Various	.000	.000	-	.100	Various			Contin	Contin	
Subtotal Management			.000	.000		1.000				Contin	Contin	
Remarks: (V0223)												
Total cost			.000	.000		71.632				Contin	Contin	

Remarks: (V0223)

Exhibit R-3 Cost Analysis		Date: February 1999
APPROPRIATION/BUDGET ACTIVITY R&D BA-4	PROGRAM ELEMENT NAME AND NUMBER ADVANCED SUBMARINE SYSTEMS DEVELOPMENT 0603561N	PROJECT NAME AND NUMBER V0223

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