EXHIBIT R-2, RDT&E Budget Item Justification						DATE: February 2006	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-4**				R-1 ITEM NOMENCLATURE 0603563N/Ship Concept Advanced Design			
COST ($ in Millions)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	**16.077**	**21.221**	**21.549**	**30.937**	**30.897**	**30.838**	**30.745**
2196/Design Tools, Plans & Concepts	**3.862**	**11.721**	**2.149**	**1.518**	**1.518**	**1.527**	**1.507**
3161/NAVSEA Tech Authority	**0.000**	**0.000**	**19.400**	**29.419**	**29.379**	**29.311**	**29.238**
9042/Sealion Tech Demo	**8.149**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9044/Document Automation of ICAS & Other Navy	**2.423**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9193/Total Fleet Support	**1.643**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9999/Total Fleet Support	**0.000**	**9.500**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

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.

(U) Project 9042: This project funds Situation Awareness Module, related to the Sealion Craft.

(U) Project 9044: This project funds Documentation Automation of Integrated Condition Assessment System (ICAS) Maintenance and other Navy procedures in XML format.

(U) Project 9193: This project funds development and analysis of fleet support technologies.

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2006	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603563N/Ship Concept Advanced Design			PROJECT NUMBER AND NAME 2196/Design Tools, Plans, and Concepts			
COST ($ in Millions)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	**3.862**	**11.721**	**2.149**	**1.518**	**1.518**	**1.527**	**1.507**
RDT&E Articles Qty							

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, and surface ship force structure alternative studies and advanced design concept studies for the ships that may become part of the SCN plan.

(U) This project provides the foundation for 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 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:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-4	0603563N/Ship Concept Advanced Design	2196/Design Tools, Plans, and Concepts

B. Accomplishments/Planned Program

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	1.000	0.690	0.728	
RDT&E Articles Quantity				

(U) Ship Concepts and Mission Need Analysis: Develop ship concepts and perform mission area analysis (MAA) for potential ships 5-10 years out in the SCN plan, including ship size, configuration, capabilities and rough order of magnitude (ROM) ship costs. Conduct pre-Milestone A ship concept studies for potential ship concepts/configurations in support of SCN planning. Assess the future ship concepts as part of potential future fleet architecture concepts.

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.722	0.246	0.436	
RDT&E Articles Quantity				

(U) Total Ship Technology Assessment: Analyze the benefits and impacts of new ship and hull, mechanical & electrical (HM&E) concepts and technologies. Identify, characterize and assess new and emergent technologies. Develop methodologies for assessment of benefits and impacts of technologies in total ship concepts. Support development of total ship and HM&E technology roadmaps.

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.940	0.689	0.699	
RDT&E Articles Quantity				

(U) Ship Concept Design and Engineering Tools, Methods, and Criteria: Improve capability for rapid and accurate ship performance/cost/risk assessments and tradeoff studies. Improve the US Navy's Advanced Surface Ship Evaluation Tool (ASSET) surface ship synthesis/assessment models in the following areas: improve performance assessment capabilities, update and enhance capabilities to handle new ship configurations, hull form alternatives, signature reduction features, characterize advanced machinery technologies, address optimal required shipboard manning, reduced total ownership cost, and increased capabilities to determine ship size impacts of new technologies including warfare systems. Improve interoperability of Navy and shipbuilder design systems.

R-1 SHOPPING LIST - Item No. 48

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-4	0603563N/Ship Concept Advanced Design	2196/Design Tools, Plans, and Concepts

B. Accomplishments/Planned Program (Cont.)

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.100	0.000	0.000	
RDT&E Articles Quantity				

(U) Future Force Formulation (Core): Continued development of methodology for force architecture alternatives and analyses. Conducted analyses of force architecture concepts that can illuminate the high level interfaces between surface ship warfare communities and other force elements such as aviation and submarines. Examined the distribution of functions between various existing and postulated ship classes, the interface between diverse force elements such as platform configuration and mission, network connectivity, force level logistics and concept of operations, with a particular focus on total force level cost, performance and risk.

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	1.000	0.000	0.000	
RDT&E Articles Quantity				

(U) Future Force Formulation (Demo): Conducted first Future Force Formulation case study, selecting a limited case of force architecture for practical execution and feedback into the process development. Selection of a family of ships within a community will be made, and the developing methodology of Future Force Formulation will be exercised in a one year study with deliverables for presentation before decision authority for a pre-MS A project.

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.100	0.246	0.286	
RDT&E Articles Quantity				

(U) Mission Systems Interface Development and Demonstration: This task funds requirements development for ships and technologies to counter threats such as asymmetric, peer and littoral enemies. The transformation of the surface fleet starts with highly capable, multi-mission destroyers, advanced cruisers, and a new breed of reconfigurable and/or focused mission ships designed to defeat enemy littoral defenses including mines, small boats, and submarines, ultimately ensuring maritime access in any environment. This effort focuses on requirements for ships with tailored, modularized mission systems packages designed to accommodate a variety of naval missions. It includes liaison with DARPA and SBIR experimentation.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-4	0603563N/Ship Concept Advanced Design	2196/Design Tools, Plans, and Concepts

B. Accomplishments/Planned Program (Cont.)

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	0.425	0.000	
RDT&E Articles Quantity	N/A	N/A	N/A	

(U) Future Ship and Force Concept Design:
Center for Innovation in Ship Design - Revitalize design, engineering education and research to ensure engineering capability to develop and design innovative, affordable, mission capable naval ships which utilize the latest technologies. These efforts will focus on ship hull form, structure and propulsion advanced development R&D. PB06 funded Technical Authority in Project 2196 starting in FY 2006. PB06 also established Project 3161/NAVSEA Technical Authority in FY 2007 and beyond, and this effort moves with the funding to Project 3161 under High Speed Ships and Craft/Alternative Power Systems - Alternative Power Systems.

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	0.278	0.000	
RDT&E Articles Quantity				

(U) Future Submarine and Submersible Concept Design:
Hydrodynamic/Hydroacoustic Technology Center - Provides Government activities, shipbuilders, academia and contractors the following: high performance computing systems; commercial and research software libraries; classified and unclassified connectivity; high end data visualization; and collaboration tools/Centralized data repository. PB06 funded Technical Authority starting in FY 2006 with funds in Project 2196. PB06 also established Project 3161/NAVSEA Technical Authority in FY 2007 and beyond, and this effort moves with the funding to Project 3161 under Ship Engineering and Analysis Technology Center.

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	0.707	0.000	
RDT&E Articles Quantity				

(U) Future Ship and Force Concept Design:
High Speed Ships and Craft - Technology, Design Criteria and Process Development - Engineering development for transformational capabilities to include design processes, tool design standards and criteria for high speed ships and craft. PB06 funded Technical Authority starting in FY 2006 with funds in Project 2196. PB06 also established Project 3161/NAVSEA Technical Authority in FY 2007 and beyond, and this effort moves with the funding to Project 3161 under High Speed Ships and Craft/Alternative Power Systems - High Speed Ships and Craft.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-4	0603563N/Ship Concept Advanced Design	2196/Design Tools, Plans, and Concepts

B. Accomplishments/Planned Program (Cont.)

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	0.283	0.000	
RDT&E Articles Quantity	N/A	N/A	N/A	

(U) Future Ship and Force Concept Design:
Next Generation USV - Development, demonstration and deployment of Unmanned Surface Vehicles (USVs) and possible air droppable USVs. Achievement of full war fighting utility and full mission package capability will require innovations in vehicle design, sensors, autonomous behavior and modular payloads. Focus on utility in surface warfare especially new ship classes with improved deployable vehicle capabilities such as DD(X), LCS and CG(X). PB06 funded Technical Authority in Project 2196 starting in FY 2006. PB06 also established Project 3161/NAVSEA Technical Authority in FY 2007 and beyond and this effort moves with the funding to Project 3161 under Next Generation USV.

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	0.482	0.000	
RDT&E Articles Quantity				

(U) Ship Design and Certification Tools:
Ship Certification Tools - Evaluation tools to certify the safety and mission capability of Navy ships. Top-Level metrics & monitoring of certification capability. Technical coordination of tool development efforts sponsored with focus on surface warfare and submarine warfare needs. PB06 funded Technical Authority in Project 2196 starting in FY 2006 . PB06 also established Project 3161/NAVSEA Technical Authority in FY 2007 and beyond, and this effort moves with the funding to Project 3161 under Tool Integration and Technical Data Exchange.

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	0.464	0.000	
RDT&E Articles Quantity				

(U) Future Ship and Force Concept Design:
Ship Concept Advanced Development - Directly supports the Navy's ability to understand and quantify mission requirements impacts on surface warfare assets; Pre-Milestone A ship and craft design and analysis to determine ROM cost and feasibility of new technologies being incorporated into ship designs; performs risk mitigation engineering for ongoing acquisition programs such as LCS (especially future flights) and CG(X). PB06 funded Technical Authority in Project 2196 starting in FY 2006. PB06 also established Project 3161/NAVSEA Technical Authority in FY 2007 and beyond, and this effort moves with the funding to Project 3161 under Ship Concept Advanced Development.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-4	0603563N/Ship Concept Advanced Design	2196/Design Tools, Plans, and Concepts

B. Accomplishments/Planned Program (Cont.)

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	0.311	0.000	
RDT&E Articles Quantity	N/A	N/A	N/A	

(U) Ship Design and Certification Tools:
Engineering and Technical Data Exchange (formerly: Ship Development Systems Interoperability) - Develop and implement a framework of standardized interfaces for ship development and engineering systems: built upon ISO 10303 STEP content standards and XML format specifications, CAD to CAD and CAD to CAE/Vis/Sim interfaces; align with Technical Authority Warrants; and eliminate need for custom interface to each program's IDE for design review and certification (recurring NRE). Focus on surface warfare, expeditionary warfare and submarine warfare issues initially. PB06 funded Technical Authority in Project 2196 starting in FY 2006. PB06 also established Project 3161/NAVSEA Technical Authority in FY 2007 and beyond, and this effort moves with the funding to Project 3161 under Tool Integration and Technical Data Exchange.

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	0.990	0.000	
RDT&E Articles Quantity				

(U) Future Submarine and Submersible Concept Design:
Submarine Design - Transform the submarine fleet with dramatic increases in mission effectiveness. Innovate the "Navy after Next" concepts. Develop knowledge to invest smartly in technology. Develop ship concept studies and evaluate technologies to define the Next Generation Submarine. Common SSN-SSBN Hull and Payload Modularity. PB06 funded Technical Authority in Project 2196 starting in FY 2006. PB06 also established Project 3161/NAVSEA Technical Authority in FY 2007 and beyond, and this effort moves with the funding to Project 3161 under Submarine Concepts.

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	4.088	0.000	
RDT&E Articles Quantity				

(U) Interoperability Engineering:
Embedded Interoperability Engineering - This effort establishes and executes a dedicated process for evaluating the interoperability performance of complex warfare systems early in the acquisition cycle. Interoperability engineering assessments conducted prior to the certification phase will ensure fewer mission critical system failures that degrade the warfighting capability that is ultimately fielded. This effort will apply systems engineering techniques and processes to delivery of CAPSTONE warfighting capability and the Littoral Combat Ship (LCS) Warfare Systems. FY 2006 funding is a follow-on to effort funded in FY05 in PE 0603582N for REAGAN Strike Force Interoperability and continues in 2007 and beyond in Project 3161 under Embedded Interoperability Engineering.

R-1 SHOPPING LIST - Item No. 48

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N /BA-4	0603563N/Ship Concept Advanced Design	2196/Design Tools, Plans, and Concepts	

B. Accomplishments/Planned Program (Cont.)

Mission Capability Systems Engineering	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	1.822	0.000	
RDT&E Articles Quantity	N/A	N/A	N/A	

(U) Interoperability Engineering:
Mission Capability Systems Engineering - This project funds development of force level systems engineering criteria and guidance at the systems of systems (SoS) and Familiy of Systems (FoS) level based on characterization, quantification, assessment, and validation of mission capabilities. FY06 effort will evaluate the SoS/FoS architectures, and artifacts in advance of SRR, SFR, PDR, and CDR reviews associated with critical mission capability system deliveries tied to major platforms, and the Open Architecture Track Manager (OATM) that the Navy's Technical Authority for Warfare Systems has determined must receive independent technical risk assessments. These efforts will provide the assessment to ensure Navy's ability to build to a "system of systems" capability. Continued funding for this effort in FY07 and beyond is included in Project 3161 under Mission Capability Systems Engineering.

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				

R-1 SHOPPING LIST - Item No. 48

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-4	0603563N/Ship Concept Advanced Design	2196/Design Tools, Plans, and Concepts

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2005	FY 2006	FY 2007
FY 2006 President's Budget:	3.687	11.899	22.215
FY 2007 President's Budget:	3.862	11.721	2.149
Total Adjustments	0.175	-0.178	-20.066
Summary of Adjustments			
General provisions	-0.038	-0.054	0.13
Programmatic Changes	0.213		-20.000
Revised rates & inflation indices		-0.124	-0.796
Subtotal	0.175	-0.178	-20.666

Schedule: PB06 includes Technical Authority funds in Project 2196 for FY 2006, and establishes Project 3161/NAVSEA Technical Authority for FY 2007 and future with Technical Authority funds moved to that project.

Technical:

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-4	0603563N/Ship Concept Advanced Design	2196/Design Tools, Plans, and Concepts

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
(U) Related RDT&E									
(U) PE 0603512N (Carrier Systems Development)	7.874	10.434	9.908	7.930	7.629	7.149	4.122		
(U) PE 0603513N (Shipboard Systems Component Development)	1.899	2.182	1.647	1.924	1.949	1.970	1.987		
(U) PE 0603564N (Ship Preliminary Design and Feasibility Studies)	0.000	10.874	13.419	7.406	1.600	0.729	1.022		
(U) PE 0604300N (SC21 Total Ship Systems Engineering)	206.800	204.937	140.698	79.660	47.152	46.598	55.927		
(U) PE 0604567N (Ship Contract Design/Live Fire T&E)	13.091	5.525	8.580	8.249	5.811	3.975	8.521		
(U) PE 0603582N (Combat System Integ/Strike Force Interoperability)	76.651	76.975	68.603						

E. ACQUISITION STRATEGY:

This is a non acquisition program that develops, evaluates, and validates early stages of total ship concepts and technologies in support of SCN planning and potential future ship acquisition programs. This program also supports development, demonstration, evaluation, and validation of engineering tools, methods, and criteria for those concept designs and assessments.

F. MAJOR PERFORMERS:

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:

Exhibit R-3 Cost Analysis (page 1)						DATE: **February 2006**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4**		PROGRAM ELEMENT 0603563N/Ship Concept Advanced Design				PROJECT NUMBER AND NAME 2196/Design Tools, Plans, and Concepts						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Systems Engineering	various	Other Various Contractors	57.446	1.166	various	2.560	various	0.334	various	Continuing	Continuing	
Engineering Development	WX & RX	NAVSEA, Dahlgren Div,	2.905	0.901	various	3.000	various	0.835	various	Continuing	Continuing	
		Dahlgren, VA										
	WX&RX	NSWC PHD				1.750	various					
Demonstration & Evaluation	WX & RX	NAVSEA, Carderock Div,	33.846	1.163	various	4.201	various	0.860	various	Continuing	Continuing	
		West Bethesda, MD										
	WX & RX	SPAWAR				0.150	various	0.100	various	Continuing	Continuing	
Licenses											0.000	
Tooling	WX\RXPD	SPAWAR	9.779	0.612	various					0.000	10.391	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			103.976	3.842		11.661		2.129		0.000	121.608	
Remarks:												
Development Support											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

Exhibit R-2a, RDTEN Project Justification

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)						DATE: **February 2006**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4**		PROGRAM ELEMENT 0603563N/Ship Concept Advanced Design				PROJECT NUMBER AND NAME 2196/Design Tools, Plans, and Concepts						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel				0.020		0.060		0.020		Continuing	Continuing	
Labor (Research Personnel)											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.000	0.020		0.060		0.020		0.000	0.100	
Remarks:												
Total Cost			103.976	3.862		11.721		2.149		0.000	121.708	
Remarks:												

CLASSIFICATION:

EXHIBIT R4, Schedule Profile — DATE: **February 2006**

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-4	0603563N/Ship Concept Advanced Design	2196/Design Tools, Plans, and Concepts

Fiscal Year	2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Engineering Milestones																												
Pre-MS A Ship Concept Studies	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬
Ship Synthesis Modeling Tool																												
Extension to Small & Alt Hull																												
Modular Framwork & Interface	▬	▬	▬																									
Interface to Performance																												
Commencement of Early Stage Multi Discipline Eval Model	▬	▬	▬	▬																								
Initial Trial & Dev of Multi-disciplinary Evaluation Model			▬	▬																								
Capability to Assess Alt & Adv Hull Forms			▬	▬	▬	▬	▬	▬	▬	▬	▬	▬																
Commence Force Architecture Methodology																												
Force Architecture Including Futures & Force Structure Alt	▬	▬	▬	▬																								
Initial Open Systems Architecture & other Technology Assessments	▬	▬	▬	▬																								
Assessment of Technology Benefits					▬	▬	▬	▬																				
Technology Management & Cost Assessment Methods					▬	▬	▬	▬																				
PB06 projects These projects move to 3161 in FY07					▬	▬	▬	▬																				

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2006**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603563N/Ship Concept Advanced Design				PROJECT NUMBER AND NAME 2196/Design Tools, Plans, and Concepts		
Schedule Profile	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
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
Ship Synthesis Modeling Tool							
Extension to Small & Alt Hull	Q3						
Modular Framework & Interface	Q4						
Interface to Performance	Q4						
Commencement of Early Stage Multi Discipline Eval Model	Q4						
Initial Trial & Dev of Multi-disciplinary Evaluation Model	Q3 Q4						
Capability to Assess Alt & Adv Hull Forms	Q4	Q4	Q4				
Commence Force Architecture Methodology							
Force Architecture Including Futures & Force Structure Alt	Q4						
Initial Open Systems Architecture & Other Technology Assessments	Q4						
Assessment of Technology Benefits		Q4					
Technology Management & Cost Assessment Methods		Q4					
PB06 projects, transition to 3161 in FY07		Q4					

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2006	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603563N/Ship Concept Advanced Design			PROJECT NUMBER AND NAME 3161/NAVSEA Technical Authority			
COST ($ in Millions)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	**0.000**	**0.000**	**19.400**	**29.419**	**29.379**	**29.311**	**29.238**
RDT&E Articles Qty							

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; the advanced submarine, surface ship & unmanned surface vehicles concepts; and the potential technologies necessary for ForceNet implementation and advanced warfare systems development and integration 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 force 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.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-4	0603563N/Ship Concept Advanced Design	3161/NAVSEA Technical Authority

B. Accomplishments/Planned Program

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.332	
RDT&E Articles Quantity				

(U) Ship Concept Advanced Development: Directly supports the Navy's ability to understand and quantify mission requirements impacts on surface warfare assets; Pre-Milestone A ship and craft design and analysis to determine ROM cost and feasibility of new technologies being incorporated into ship designs; performs risk mitigation engineering for ongoing acquisition programs such as LCS (especially future flights) and CG(X). Perform Ship Concept studies and analysis, Mission Effectiveness Assessments, and Mission Systems Development and Assessments. Outline implementation of concepts, techniques, and tools that can substantially reduce surface ship operating and procurement costs, provide additional or novel capabilities, and/or alter future force level criteria decision making.

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	3.178	
RDT&E Articles Quantity				

(U) Submarine Concepts (formerly Submarine Design): Transform the submarine fleet with dramatic increases in mission effectiveness. Innovate the "Navy after Next" concepts. Develop knowledge to invest wisely in technology. Develop ship concept studies and evaluate technologies to define the Next Generation Submarine, common SSN-SSBN Hull and Payload Modularity. Develop concepts and outline implementation of techniques, tools, policies and procurements that can substantially reduce submarine acquisition and operating costs, provide additional/novel capabilities, and/or alter future force level criteria decision making, with coordination on common technologies to surface ships

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.164	
RDT&E Articles Quantity				

(U) Next Generation USV: Development, demonstration and deployment of Unmanned Surface Vehicle (USVs) and possible air droppable USVs. Achievement of full war fighting utility and full mission package capability will require innovations in vehicle design, sensors, autonomous behavior and modular payloads. Focus on utility in surface warfare, especially in new ship classes with improved deployable vehicle capabilities such as DD(X), LCS and CG(X). Investigate concepts and develop prototypes, and conduct experiments on next generation USVs that will substantially enhance surface ship capabilities while reducing acquisition and operational costs and reducing personnel risk.

R-1 SHOPPING LIST - Item No. 48

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-4	0603563N/Ship Concept Advanced Design	3161/NAVSEA Technical Authority

B. Accomplishments/Planned Program

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	2.381	
RDT&E Articles Quantity				

(U) High Speed Ships and Craft/Alternative Power Systems: High Speed Ships and Craft - Technology, Design Criteria and Process Development - Engineering development for transformational capabilities to include design processes, tools design standards and criteria for high speed ships and craft. Investigate concepts for future high speed ships and craft that will provide new capabilities and embody technologies tracked and recommended by SurfTech.

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.587	
RDT&E Articles Quantity				

(U) High Speed Ships and Craft/Alternative Power Systems: Alternative Power Systems (formerly Center for Innovation in Ship Design) - Revitalize design, engineering education and research to ensure engineering capability to develop and design innovative, affordable, mission capable naval ships which utilize the latest technologies including cost-effective alternative power and propulsion. In support of CNO Guidance, these efforts will focus on ship hull form, structure and propulsion advanced development R&D. Investigate concepts for future high speed ships and craft including development and assessment of alternative power and propulsion systems for surface vessels.

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.790	
RDT&E Articles Quantity				

(U) Ship Engineering & Analysis Technology Center (formerly Hydrodynamic/Hydroacoustic Technology Center (H/HTC)): Provides Government activities, shipbuilders, academia and contractors the following: 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.

R-1 SHOPPING LIST - Item No. 48

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N /BA-4	0603563N/Ship Concept Advanced Design	3161/NAVSEA Technical Authority	

B. Accomplishments/Planned Program

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.788	
RDT&E Articles Quantity				

(U) Tool Integration and Technical Data Exchange: Ship Certification Tools - Evaluation tools to certify the safety and mission capability of Navy ships. Top-Level metrics & monitoring of certification capability. Technical coordination of tool development efforts sponsored with focus on surface warfare and submarine warfare needs. Define and implement an integrated strategy for the suite of tools used by NAVSEA in support of ship certification activities.

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.748	
RDT&E Articles Quantity				

(U) Tool Integration and Technical Data Exchange: Engineering and Technical Data Exchange - Develop and implement a framework of standardized interfaces for ship development and engineering systems: build upon ISO 10303 STEP content standards and XML format specifications, CAD to CAD and CAD to CAE/Vis/Sim interfaces; align with Technical Authority Warrants; and eliminate need for custom interface to each program's IDE for design review and certification (recurring NRE). Focus on surface warfare, expeditionary warfare and submarine warfare issues initially. Provide increased efficiency in development and certification processes by standardizing data exchange methods and protocols.

Embedded Interoperability Engineering	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	2.716	
RDT&E Articles Quantity				

(U) Embedded Interoperability Engineering:
Embedded Interoperability Engineering - This effort establishes and executes a dedicated process for evaluating the interoperability performance of complex warfare systems early in the acquisition cycle. Interoperability engineering assessments conducted prior to the certification phase will ensure fewer mission critical system failures that degrade the warfighting capability that is ultimately fielded. FY07-11 effort will apply systems engineering techniques and processes to warfighting capabilities planned for DDG Modernization, Open Architecture Combat Systems, and Littoral Combat Ship (LCS) Warfare Systems. Specific focus will be on ensuring force interoperability considerations are included to meet safety, training and human system integration factors are integrated in program acquistion plans.

R-1 SHOPPING LIST - Item No. 48

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N /BA-4	0603563N/Ship Concept Advanced Design	3161/NAVSEA Technical Authority	

B. Accomplishments/Planned Program

Mission Capability Systems Engineering	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	2.716	
RDT&E Articles Quantity				

(U) Mission Capability Systems Engineering:
Mission Capability Systems Engineering - This project funds development of force level systems engineering criteria and guidance at the systems of systems (SoS) and Familiy of Systems (FoS) level based on characterization, quanitifcation, assessment, and validation of mission capabilities. FY07-11 effort will evaluate the SoS/FoS architectures, and artifacts in advance of SRR, SFR, PDR, and CDR reviews associated wtih critical mission capability system deliveries that the Navy's Technical Authority for Warfare Systems has determined must receive independent technical risk assessments. These efforts will ensure that Navy decision makers will have standards and tools in place i.e. force level FoS/SoS architectures in place to conduct affordable analyses of alternatives tied to mission capabiilties for warfare systems.

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	
RDT&E Articles Quantity				

(U)

	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	
RDT&E Articles Quantity				

(U)

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-4	0603563N/Ship Concept Advanced Design	3161/NAVSEA Technical Authority

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2005	FY 2006	FY 2007
FY 2006 President's Budget:	0.000	0.000	0.000
FY 2007 President's Budget:	0.000	0.000	19.400
Total Adjustments	0.000	0.000	19.400
Summary of Adjustments			
Programmatic Changes			20.000
Revised rates & inflation indices			-0.717
Other general provisions			0.117
Subtotal	0.000	0.000	19.400

Schedule:

Technical: These efforts support the NAVSEA Technical Authority through cross platform systems development and effectively execute the funding through coordination of efforts associated with surface ships, submarines and warfare systems to develop and implement the tools, processes and procedures necessary to perform early stage and concept studies and comparisons that support the future fleet and capability requirements.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N /BA-4	0603563N/Ship Concept Advanced Design	3161/NAVSEA Technical Authority	

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
(U) Related RDT&E									
(U) PE 0603512N (Carrier Systems Development)	7.874	10.434	9.908	7.930	7.629	7.149	4.122		
(U) PE 0603513N (Shipboard Systems Component Development)	1.899	2.182	1.647	1.924	1.949	1.970	1.987		
(U) PE 0603564N (Ship Preliminary Design and Feasibility Studies)	0.000	10.874	13.419	7.406	1.600	0.729	1.022		
(U) PE 0604300N (SC21 Total Ship Systems Engineering)	206.800	204.937	140.698	79.660	47.152	46.598	55.927		
(U) PE 0604567N (Ship Contract Design/Live Fire T&E)	13.091	5.525	8.580	8.249	5.811	3.975	8.521		
(U) PE 0603582N (Combat System Integration/Strike Force Interoperability)									

E. ACQUISITION STRATEGY:

This is a non acquisition program that develops, evaluates, and validates early stages of total ship concepts and technologies in support of SCN planning and potential future ship 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.

F. 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:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2006**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4**			PROGRAM ELEMENT 0603563N/Ship Concept Advanced Design		PROJECT NUMBER AND NAME 3161/NAVSEA Technical Authority							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Systems Engineering	various	Various Contractors						4.800	various	Continuing	Continuing	
	WX&RX	NSWC, NUWC						7.500	various	Continuing	Continuing	
Engineering Development	WX&RX	NSWC, NUWC						4.500	various	Continuing	Continuing	
Demonstration & Evaluation	WX&RX	NSWC						1.200	various	Continuing	Continuing	
	WX&RX	SPAWAR						1.300	various			
Licenses											0.000	
Tooling										0.000	0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			0.000	0.000		0.000		19.300		0.000	19.300	
Remarks:												
Development Support											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

Exhibit R-2a, RDTEN Project Justification

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)						DATE: **February 2006**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4**			PROGRAM ELEMENT 0603563N/Ship Concept Advanced Design			PROJECT NUMBER AND NAME 3161/NAVSEA Technical Authority						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel				0.000		0.000		0.100		Continuing	Continuing	
Labor (Research Personnel)											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.000	0.000		0.000		0.100		0.000	0.100	
Remarks:												
Total Cost			0.000	0.000		0.000		19.400		0.000	19.400	
Remarks:												

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																													DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4**					PROGRAM ELEMENT NUMBER AND NAME 0603563N/Ship Concept Advanced Design												PROJECT NUMBER AND NAME 3161/NAVSEA Technical Authority													
Fiscal Year	2005				2006				2007				2008				2009				2010				2011			
	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									▬	▬	▬	▬																
Submarine Concepts									▬	▬	▬	▬																
Next Generation USV									▬	▬	▬	▬																
High Speed Ships and Craft and Alternative Power Systems									▬	▬	▬	▬																
Ship Engineering and Analysis Technology Center									▬	▬	▬	▬																
Tool Integration and Technical Data Exchange									▬	▬	▬	▬																
Embedded Interoperability Engineering									▬	▬	▬	▬																
Mission Capability Systems Engineering									▬	▬	▬	▬																

R-1 SHOPPING LIST - Item No. 48

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2006**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603563N/Ship Concept Advanced Design				PROJECT NUMBER AND NAME 3161/NAVSEA Technical Authority		
Schedule Profile	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Cross Platform Systems Development			Q1 Q2 Q3 Q4				
Ship Concepts Advanced Development			Q1 Q2 Q3 Q4				
Submarine Concepts			Q4				
Next Generation USV			Q4				
High Speed Ships/Craft & Alternative Power Systems			Q4				
Ship Engineering and Analysis Technology Center			Q4				
Tool Integration and Technical Data Exchange			Q4				
Embedded Interoperability Engineering			Q4				
Mission Capability Systems Engineering			Q4				

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603563N/Ship Concept Advanced Design	Project Unit (PU) No. and Name: Congressional Plus-Ups : VARIOUS

CONGRESSIONAL PLUS-UPS:

	FY 06			
9816N				
Autonomous Maritime Navigation Program	6.800			

(U) 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 06			
9817N				
Security Video Distribution System	1.000			

Congressional add for a security video distribution system.

	FY 06			
9817N				
Video Analysis Research and Development	1.700			

Congressional add for video analysis research and development.

R-1 SHOPPING LIST - Item No. 48