CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **February 2003**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**					R-1 ITEM NOMENCLATURE 0603563N/Ship Concept Advanced Design			
COST ($ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost	**22.437**	**25.102**	**7.679**	**7.545**	**1.784**	**1.762**	**1.769**	**1.793**
S2196/Design Tools, Plans & Concepts	**4.068**	**5.691**	**7.679**	**7.545**	**1.784**	**1.762**	**1.769**	**1.793**
S9041/Small Combatant Craft	**8.165**	**7.823**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
S9042/Sealion Tech Demo	**0.966**	**0.977**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
S9043/Metallic Materials Adv Dev & Certification	**3.323**	**3.325**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
S9044/DocumentAutomation Of ICAS Maint	**2.514**	**2.494**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
S9045/Planning and Design LHD-Type Ship	**3.401**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
S9192/Autonomous Maritime Navigation	**0.000**	**1.467**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
S9194/Adv Integ Low-Profile Antenna (HF,VHF,UHF)	**0.000**	**2.348**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
S9195/Advanced Stealth Ship Radars	**0.000**	**0.977**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**

Defense Emergency Response Funds (DERF) Funds: Not Applicable.

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

A. (U) Mission Description and Budget Item Justification:

The mission of the PE is to explore alternative surface ship force structures, the advanced surface ship & unmanned surface vehicles concepts, and the potential technologies for these force structures and the advanced concepts in support pre-acquisition mission needs analysis, mission area analysis, SCN and R&D planning. The objective is more affordable mission capable surface ship force including ships with reduced manning, increased producibility, reduced operating and support costs, and greater utilization of the latest technology. The program directly supports the Navy Shipbuilding Plan with state-of-the-art design tools and methods for surface ship force structure alternative studies, ship & unmmanned 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 S2196 - This project funds concept develop engineering, mission effectiveness analysis, and other analysis for formulation of future surface ship force structure along with development of the tools to accomplish these efforts. Advanced ship concept studies, ship and ship systems technology assessments, and the development and upgrade of ship concept design and engineering tools, methods, and criteria are also funded in this project.

(U) Project S9041 - Congressional add. This project funds only acquisition, test and evaluation of a high speed variable freeboard planning craft and related special warfare high speed support craft and equipment. This was a Congressional add project in FY 2000 and FY 2001 in a different PE.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2003**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**	R-1 ITEM NOMENCLATURE 0603563N/Ship Concept Advanced Design

(U) Project S9042 - Congressional add. This project funds Situation Awareness Module, related to the Sealion Craft (project S9041).

(U) Project S9043 - Congressional add. This project funds the Metallic Material Advanced Development and Certification Program.

(U) Project S9044 - Congressional add. This project funds Documentation Automation of Integrated Condition Assessment System (ICAS) Maintenance and other Navy prcedures in XML format.

(U) Project S9045 - Congressional add. This project funds Planning and Design of LHD-type ship.

(U) Project S9192 - Congressional add. This project funds development of autonomous operation technologies in maritime vehicles and their payloads.

(U) Project S9194 - Congressional add. This project funds design and test construction of conformal antennas related to SEALION craft (project S0941).

(U) Project S9195 - Congressional add. This project funds adaptive design and test construction of low probability of intercept (LP1) radar, related to SEALION craft (project S0941).

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2003**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603563N/ship Concept Advanced Design				PROJECT NUMBER AND NAME S2196/Design Tools, Plans, and Concepts			
COST ($ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**4.068**	**5.691**	**7.679**	**7.545**	**1.784**	**1.762**	**1.769**	**1.793**
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: A. (U) Mission Description and Budget Item Justification: This project develops and explores alternative surface ship force structures, the advanced surface ship & unmanned surface vehicles concepts, and the potential technologies for these force structures and the advanced concepts in support pre-acquisition mission needs analysis, mission area analysis, SCN and R&D planning. The objective is more affordable mission capable surface ship force including ships with reduced manning, increased producibility, reduced operating and support costs, and greater utilization of the latest technology. The program directly supports the Navy Shipbuilding Plan with state-of-the-art design tools and methods for surface ship force structure alternative studies, ship & unmmanned vehicle concept studies, and the actual conduct of surface ship force structure alternative studies and advanced design concept studies for the ships that may become part of the SCN plan.

(U) This project provides the foundation for affordable and mission capable surface ship force. It also supports the next step in the development of a transformed naval force by accomplishing the pre-milestone A efforts for all potential surface ships. These efforts are the required first step in the integration of total ship systems, including combat systems and hull, mechanical and electrical (HM&E) systems. Inadequate early planning and ship concept formulation can result in down-stream design/construction and operational problems. A more subtle and severely negative impact of neglecting this early effort is that the "best" concepts and technologies may never even be considered and our greatest potential ship design advances never realized. Designs and technologies must meet the threat. This project supports this requirement.

(U) This project funds concept develop engineering, mission effectiveness analysis, and other analysis for formulation of future surface ship force structure along with development of the tools to accomplish these efforts. Advanced ship concept studies, ship and ship systems technology assessments, and the development and upgrade of ship concept design and engineering tools, methods, and criteria are also funded in this project.

(U) This project accomplishes the following: (1) Develops alternative surface ship force structure concepts including the ships and unmanned vehicles; (2) Evaluates the mission capability effectiveness and costs for these alternatives surface fleet architectures; (3) Performs fleet warfighting / mission effectivenes assessment studies; (4) identifies future surface ship requirements and characteristics necessary to meet future threats and support mission needs; (5) investigates new affordable ship concepts and evaluates technologies necessary to support these concepts; (6) provides design methods and automated design tools to develop and evaluate ship concepts; and (7) supports development of Mission Need Statements (MNS) for future ships. These efforts are done to support mission analysis, mission needs development and technology assessment in support of future fleet concepts and potential ship acquisition programs. These efforts are foundational to the Navy's formulation of the future fleet.

(U) Efforts under Project S2196 transition directly to early stage ship design in PE 0603564N, Ship Preliminary Design and Feasibility Studies. While these efforts support concept exploration and mission needs assessment for potential future ship acquisition programs, they are not direct efforts for specific authorized shipbuilding programs. This project is the only R&D effort (Government or commercial) that supports and maintains this country's naval ship design and engineering capabilities in the area of very early stage (Concept Design) design tools, criteria, and methods.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603563N/Ship Concept Advanced Design	S2196/Design Tools, Plans, and Concepts

B. Accomplishments/Planned Program

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.504	0.744	0.502	0.811
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 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.189	0.261	0.000	0.000
RDT&E Articles Quantity				

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

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.175	1.066	0.848	1.196
RDT&E Articles Quantity				

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

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603563N/Ship Concept Advanced Design	S2196/Design Tools, Plans, and Concepts

B. Accomplishments/Planned Program (Cont.)

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	1.810	3.115	5.538
RDT&E Articles Quantity				

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

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	1.810	3.214	0.000
RDT&E Articles Quantity				

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

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	2.200	0.000	0.000	0.000
RDT&E Articles Quantity				

(U) This task funds requirement development for ship and technologies to counter such threatrs as part of a netted distributed family of ships that will project power forward and enable naval and joint task force commander to dominate the littoral battlespace. The transformation of the surface Combatant Fleet starts with Highly capable, multi-mission Sestroyers, advanced Cruisers and a new breed of focused mission ships designed to defeat enemy littoral defenses including mines, small boats, and submarines, ultimately ensuring maritime access in any environment. This study focuses on requirements for a ship with the newest generation hull form and tailored, modularized combat systems package designs to accomodate: small boats, Littoral mine countermeasures and Littoral ASW.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **Febraury 2003**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603563N/Ship Concept Advanced Design	S2196/Design Tools, Plans, and Concepts

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 03 Pres Controls):	1.932	5.820	8.054	7.909
Current BES/President's Budget: (FY04 President Controls Controls)	4.068	5.691	7.679	7.545
Total Adjustments	2.136	-0.129	-0.375	-0.364
Summary of Adjustments				
FY 02 Actuals (30-Sept)	2.185	0.000	0.000	0.000
FY05/09 Inflation adjustments	0.000	0.000	0.000	-0.163
Reduction in Support Contractors	0.000	0.000	0.000	-0.102
Nonpay Inflation Adjustments	0.000	0.000	-0.136	0.000
Minor adjustments	-0.049	-0.129	-0.239	-0.099
Subtotal	2.136	-0.129	-0.375	-0.364

Schedule:

Not Applicable.

Technical:

Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603563N/Ship Concept Advanced Design	S2196/Design Tools, Plans, and Concepts

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost

(U) Related RDT&E
(U) PE 0603512N (Carrier Systems Development)
(U) PE 0603513N (Shipboard Systems Component Development)
(U) PE 0603564N (Ship Preliminary Design and Feasibility Studies)
(U) PE 0604300N (SC21 Total Ship Systems Engineering)
(U) PE 0604567N (Ship Contract Design/Live Fire T&E)

E. ACQUISITION STRATEGY: *

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

F. MAJOR PERFORMERS: **

List major contractors, universities, colleges, government facilities, federally funded research and development centers, laboratories, center, or other organizations contributing to this effort through BY2 (FY 2005). Only list those who were primary recipients of funds (e.g., received 15% or over $10 million, whichever is less). Include name or titles, locations and brief description of work performed. Include actual or projected award date (month/year).

*** Not required for Budget Activities 1,2,3, and 6**
**** Required for DON and OSD submit only.**

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2003**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603563N/Ship Concept Advanced Design				PROJECT NUMBER AND NAME S2196/Design Tools, Plans, and Concepts						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Systems Engineering	various	Other Various Contractors	55.097	0.953	various	2.397	various	2.387	various		60.834	
Engineering Developemnt	WR	NAVSEA, Dahlgren Div,		1.525	various	1.908	various	1.875	various		5.308	
		Dahlgren, VA									0.000	
											0.000	
Demonstration & Evaluation	WR	NAVSEA, Carderock Div,	29.958	2.382	various	1.908	various	2.005	various		36.253	
		West Bethesda, MD									0.000	
Licenses											0.000	
Tooling	WR & RC	Other Govt. Activities	8.828	0.816	various	1.446	various	1.258	various		12.348	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			93.883	5.676		7.659		7.525		0.000	114.743	
Remarks:												
Development Support											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2003**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603563N/Ship Concept Advanced Design			PROJECT NUMBER AND NAME S2196/Design Tools, Plans, and Concepts							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel				0.015		0.020		0.020			0.055	
Labor (Research Personnel)											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.000	0.015		0.020		0.020		0.000	0.055	
Remarks:												
Total Cost			93.883	5.691		7.679		7.545		0.000	114.798	
Remarks:												

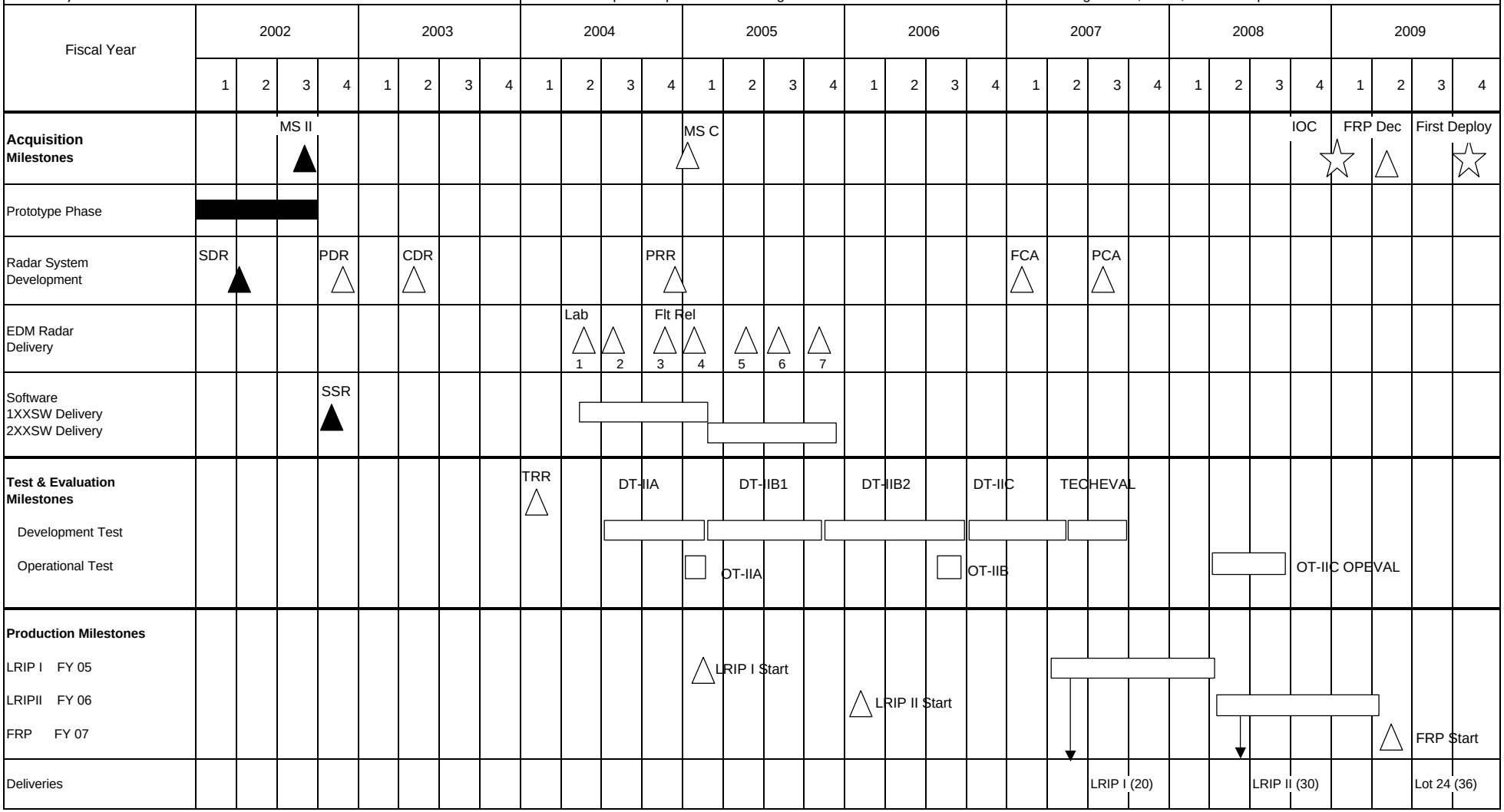
CLASSIFICATION:

EXHIBIT R4, Schedule Profile — DATE: **February 2003**

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

PROGRAM ELEMENT NUMBER AND NAME: 0603563N/Ship Concept Advanced Design

PROJECT NUMBER AND NAME: S2196/Design Tools, Plans, and Concepts



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

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2003**		
APPROPRIATION/BUDGET ACTIVITY **RDT&BA-4**	PROGRAM ELEMENT 0603563N/Ship Concept Advanced Design				PROJECT NUMBER AND NAME S2196/Design Tools, Plans, and Concepts			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Prototype Phase	1Q-3Q							
System Design Review (SDR)	2Q							
Milestone II (MSII)	3Q							
Contract Preparation	3Q							
Software Specification Review (SSR)	4Q							
Preliminary Design Review (PDR)	4Q							
System Development		1Q-2Q						
Critical Design Review (CDR)		2Q						
Quality Design and Build		3Q-4Q	1Q-4Q					
Test Readiness Review (TRR)			1Q					
Developmental Testing (DT-IIA)			3Q-4Q	1Q				
Eng Dev Model (EDM) Radar Delivery - Lab			2Q-3Q					
Software Delivery 1XXSW			2Q-4Q	1Q				
Preproduction Readiness Review (PRR)			4Q					
EDM Radar Delivery - Flt Related			4Q	1Q-4Q				
Milestone C (MS C)				1Q				
Operational Testing (OT-IIA)				1Q				
Start Low-Rate Initial Production I (LRIP I)				2Q				
Software Delivery 2XXSW				1Q-4Q				
Developmental Testing (DT-IIB1)				1Q-4Q				
Developmental Testing (DT-IIB2)				4Q	1Q-3Q			
Start Low-Rate Initial Production II					1Q			
Operational Testing (OT-IIB)					3Q	1Q-2Q		
Developmental Testing (DT-IIC)					4Q	1Q-2Q		
Functional Configuration Audit (FCA)						1Q		
Low-Rate Initial Production I Delivery						2Q-4Q	1Q-2Q	
Technical Evaluation (TECHEVAL)						2Q-3Q		
Physical Configuration Audit						3Q		
Operational Evaluation (OT-IIC) (OPEVAL)							2Q-3Q	
Low-Rate Initail Production II Delivery							2Q-4Q	1Q-2Q
IOC								1Q
Full Rate Production (FRP) Decision								2Q
Full Rate Production Start								2Q
First Deployment								4Q

R-1 SHOPPING LIST - Item No. 53 - 11 of 53 - 11