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Exhibit R-2, RDT&E Budget Item Justification									Date: February 1999	
APPROPRIATION/BUDGET ACTIVITY: RDT&E,N/Budget Activity 5						R-1 ITEM NOMENCLATURE: SC-21 Total Ship Systems Engineering/PE 0604300N				
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 PE Cost	58.548	125.964	162.056	250.719	259.629	255.326	283.413	271.857	Continuing	Continuing
Design/32464	52.763(1)	84.291(1)	112.087	174.380	176.102	193.515	247.240	252.190	Continuing	Continuing
DC/Survivability/32465	5.785(2)	6.182(2)	3.153	3.314	3.154	6.722	6.870	7.022	Continuing	Continuing
Multi Function Radar (MFR)/32466	0	35.491(3)	46.816	73.025	80.373	55.089	29.303	12.645	Continuing	Continuing
Quantity of RDT&E Articles & Cost			0	0	0	*1/TBD	0	0	Continuing	Continuing
<p>Notes: (1) (U) FY 1998 and FY 1999 funds were budgeted and executed under PE 0604567N/Project S1803 and Project S2198 as displayed in the FY 99 President's Budget exhibits. Funds from PE 0604567N/Project S1803 and Project S2198 transitioned into PE 0604300N/Project 32464 in FY 2000 and out.</p> <p>(2) (U) FY 1998 and FY 1999 funds were budgeted and executed under PE 0604516N/Project S1828 and Project S2054 as displayed in the FY 99 President's Budget exhibits. Funds from PE 0604516N/Project S1828 and Project S2054 transitioned into PE 0604300N/Project 32465 in FY 2000 and out.</p> <p>(3) (U) FY 1999 funds were budgeted and executed under PE 0604755N/Project U2348 as displayed in the FY 99 President's Budget exhibits. Funds from PE 0604755N/Project U2348 transitioned into PE 0604300N/Project 32466 in FY 2000 and out.</p> <p>A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This is a new Program Element (PE) that provides funds for development of the DD 21 Class of U. S. Navy surface combatants and advanced development R&D which is integral to DD 21. The mission of the DD 21 class is to provide affordable credible independent forward presence/deterrence and operate as an integral part of Naval, Joint or Combined Maritime Forces. DD 21 will provide an advanced level of land attack in support of the ground campaign and contribute to Naval, Joint or Combined battlespace dominance in littoral operations. DD 21 will establish and maintain surface and sub-surface superiority, provide local air defense, and will incorporate signature reduction to operate in all threat environments. DD 21 will have seamless Joint Interoperability to integrate all source information for battlespace awareness and weapons direction.</p> <p>* (U) For explanation of Test Articles, see Project 32466.</p>										

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B. (U) PROGRAM CHANGE SUMMARY:			
	<u>FY1998</u>	<u>FY 1999</u>	<u>FY 2000</u>
(U) FY 1999 President's Budget	0	0	0
(U) Appropriated Value	N/A	N/A	N/A
(U) Adjustments to FY 1998 Appropriated Value/FY 1999 President's Budget	58.548	125.964	162.065
(U) FY 2000 President's Budget Submit	58.548	125.964	162.056
 (U) Funding: The FY 2000 net increase of \$162.056M is due to the realignment of programs. The FY 98/99 net increases of \$58.548M and \$125.964M respectively are due to Comparability Adjustments.			
 (U) Schedule: N/A			
 (U) Technical Parameters: Technical parameters are contained in the DD 21 Operational Requirements Document (ORD) approved by JROC on 16 October 1997.			

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Exhibit R-2a, RDT&E Project Justification									Date: February 1999	
APPROPRIATION/BUDGET ACTIVITY: RDT&E,N/Budget Activity 5		PROGRAM ELEMENT NAME AND NUMBER SC-21 Total Ship Systems Engineering/PE 0604300N					PROJECT NAME AND NUMBER: Design/32464			
COST (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Project Cost	52.763(1)	84.291(1)	112.087	174.380	176.102	193.515	247.240	252.190	Continuing	Continuing
RDT&E Articles Qty	0	0	0	0	0	0	0	0	Continuing	Continuing

Notes: (1) (U) FY 1998 and FY 1999 funds were budgeted and executed under PE 0604567N/Project S1803 and Project S2198 as displayed in the FY 99 President's Budget exhibits. Funds from PE 0604567N/Project S1803 and Project S2198 transitioned into PE 0604300N/Project 32464 in FY 2000 and out.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project encompasses efforts for the total ship system engineering development and integration of Hull, Mechanical and Electrical (HM&E), communications, electronics, command and control, combat, weapons and shipboard systems into the DD 21 class. These engineering development and integration efforts include systems engineering, analysis, computer program development, interface design, technical documentation, and system testing to ensure fully functional systems integration. These systems engineering development efforts are required to ensure that DD 21 is a totally integrated ship system, delivering required warfighting technologies to the fleet within the reduced manning and cost goals.

1. (U) FY 1998 ACCOMPLISHMENTS

- (U) (\$16.500) Began DD 21 System Concept Development (Contract Phase I). Awarded 845/804 Agreement to begin DD 21 Initial Concept Development.
- (U) (\$20.690) Began implementation of a government engineering development team responsible for participation, oversight and monitoring of the industry team effort for DD 21. Began implementation of the DD 21 source selection and evaluation team that will be used to transition to Phase II of the acquisition strategy. Began development of the DD 21 Collaborative Engineering Data Center (CEDC) and Integrated Data Environment (IDE).
- (U) (\$3.431) Began DD 21 Test and Evaluation program. FY 1998 DD 21 Live Fire Test and Evaluation (LFT&E) efforts focused on advanced threat weapons effects including a demonstration of static anti-ship missile warhead damage.
- (U) (\$12.142) Began development of the operational context in which DD 21 will operate. This included development of the DD 21 Design Reference Mission (DRM) and Concept of Operations (CONOPS). Began implementation of DD 21 Manning/Human Systems Interface (HSI) and Integrated Logistics Support (ILS) Integrated Product Teams (IPTs) to address how industry-developed concepts will impact the future Navy support infrastructure in these functional areas. Began identification and risk reduction efforts in high risk areas such as manning, ILS, Total Ship Computing and certification.

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Exhibit R-2a, RDT&E Project Justification		Date: February 1999
APPROPRIATION/BUDGET ACTIVITY: RDT&E,N/Budget Activity 5	PROGRAM ELEMENT NAME AND NUMBER SC-21 Total Ship Systems Engineering/PE 0604300N	PROJECT NAME AND NUMBER: Design/32464

2. (U) FY 1999 PLAN

- (U) (\$38.300) Complete DD 21 System Concept Development (Phase I). System Concept Development includes a top level DD 21 concept, an initial DD 21 Performance Specification, top level cost estimates, and Integrated Logistics Support (ILS) and test plans to support the concept. Begin development of a Smart Product Model virtual prototype, which constitutes a complete representation of the ship's requirements, design and capabilities.
- (U) (\$21.500) Continue implementation of the DD 21 Technical Team responsible for the participation, oversight and monitoring of the DD 21 Industry team's contract Phase I concepts. The team will provide the engineering expertise to evaluate/support the industry-developed concepts in the Combat Systems; HM&E; Signatures; C4ISR; Modeling and Simulation; Total Ship Computing; and Test and Evaluation; Manning and ILS. Complete development of CEDC and IDE.
- (U) (\$8.495) Continue DD 21 LFT&E Program. FY 99 DD 21 LFT&E efforts will be focused in the following areas: mission recoverability (including damage control with reduced manning), magazine vulnerability (improved capability to assess munitions magazine vulnerability to current and future threats), advanced threat weapons effects (improved weapons effects predictive capabilities to address the advanced threats identified in the DD 21 STAR), damaged seaway survivability, and selected equipment vulnerability.
- (U) (\$5.400) Complete development of the operational context in which DD 21 will operate. This includes development of the DD 21 DRM and CONOPS. Develop and brief results of DRM Operational Situations (OPSITs) to Navy fleet representatives.
- (U) (\$9.321) Continue identification and risk mitigation efforts in high risk areas such as manning, Life Cycle Support and Engineering (LCS&E), Total Ship Computing and certification. Continue Manning/HIS and ILS IPTs to address the impact of how industry-developed concepts will impact the future Navy support infrastructure in these functional areas. Review and develop proposed policy changes as a result of DD 21 industry concepts that impact Navy manning and life cycle support structure as a result of Full Service Contractor (FSC) proposals.
- (U) (\$1.275) Portion of extramural program is reserved for Small Innovative Research assessment in accordance with 15 USC 638.

3. (U) FY 2000 PLAN

- (U) (\$77.967) Begin Contract Phase II for the development of two competitive initial system designs for DD 21. DD 21 industry teams will continue development of the system functional baseline, continue refinement of the performance specification, continue to develop and validate cost estimates, and continue to develop a detailed total ship design leading to a Preliminary Design Review (PDR). Continue development of the Smart Product Model virtual prototype, which constitutes a representation of the ship's requirements, design and capabilities at the preliminary design level.
- (U) (\$22.805) Continue implementation of the DD 21 Technical Team responsible for the participation, oversight and monitoring of the two industry designs in Contract Phase II. The Engineering team consists of Government Labs, Universities and selected technical support contractors. This technical team provides the expertise to evaluate/support the DD 21 industry design in the areas of Combat Systems; HM&E; Signatures; C4ISR; Modeling and Simulation; Total Ship Computing; Test and Evaluation; Manning and ILS.

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Exhibit R-2a, RDT&E Project Justification		Date: February 1999
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- (U) (\$6.030) Development of DD 21 Live Fire Test & Evaluation (LFT&E) plan. The DD 21 LFT&E program will focus on the following areas: Mission Recoverability, Magazine Protection, Damaged Seaway Survival, Selected Equipment Vulnerability, Advanced Weapon Threat Effects, and required documentation. These areas address critical elements of DD 21 survivability as defined in the Test and Evaluation Master Plan (TEMP) and the Operational Requirements Document (ORD). Test results will be used to improve modeling and simulation capability and will support DD 21 design evaluations.
- (U) (\$5.285) Continue identification and risk mitigation efforts in high risk areas such as manning, Life Cycle Support and Engineering (LCS&E), Total Ship Computing and certification. Continue Manning/HIS and ILS IPTs to address the impact of how industry-developed concepts will impact the future Navy support infrastructure in these functional areas. Review and develop proposed policy changes as a result of DD 21 industry concepts that impact Navy manning and life cycle support structure as a result of Full Service Contractor (FSC) proposals.

B. (U) OTHER PROGRAM FUNDING SUMMARY:

COST (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	To Complete	Total Cost
Shipboard System Component Development/PE 0603513N	56.961	100.748	108.334	114.643	135.178	110.292	101.859	93.316	Continuing	Continuing

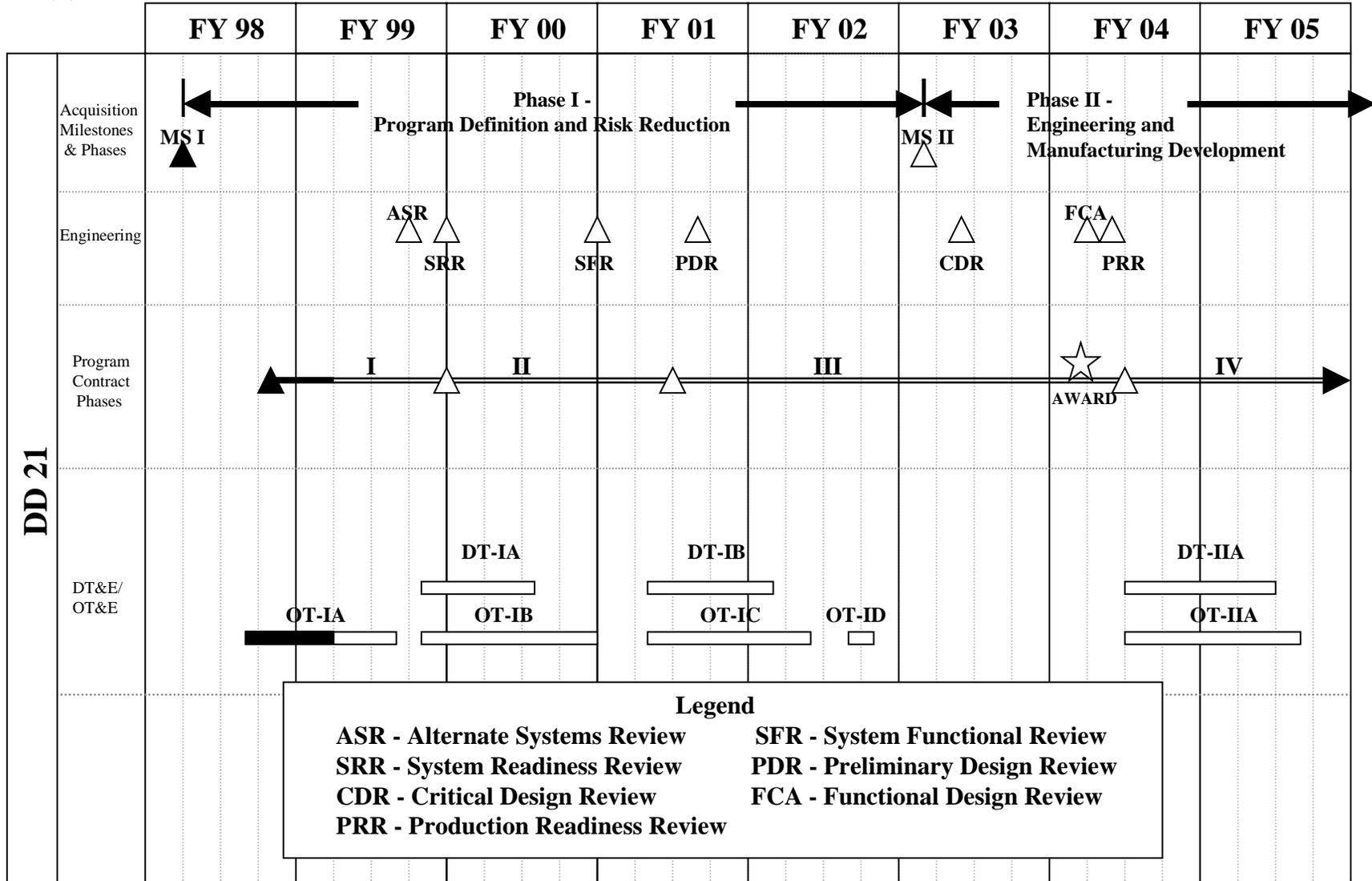
C. (U) ACQUISITION STRATEGY:

(U) The DD 21 acquisition strategy encompasses five contract phases: Phase I – System Concepts, Phase II – Initial System Design, Phase III – System Design, Phase IV – Detail Design and Construction, and Phase V – Engineering and Logistics Life Cycle Support. The Navy will award section 845/804 agreements for Phases I and II for two DD 21 Industry teams. Downselection to a single DD 21 Full Service Contractor will occur in mid FY 2001 to begin Contract Phase III.

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APPROPRIATION/BUDGET ACTIVITY: RDT&E,N/Budget Activity 5	PROGRAM ELEMENT NAME AND NUMBER SC-21 Total Ship Systems Engineering/PE 0604300N	PROJECT NAME AND NUMBER: Design/32464

D. (U) SCHEDULE PROFILE:



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Exhibit R-2a, RDT&E Project Justification
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Exhibit R-3, Cost Analysis (page 1)								Date: February 1999		
APPROPRIATION/BUDGET ACTIVITY: RDT&E,N/ Budget Activity 5			PROGRAM ELEMENT NAME AND NUMBER: SC-21 Total Ship Systems Engineering/PE0604300N					PROJECT NAME AND NUMBER: Design/32464		
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	Cost To Complete	Total Cost	Target Value of Contract
Initial System Design	Sect 845/804	DD 21 Industry Teams	16.500	35.500	11/98	77.967	10/99	Continuing	Continuing	
Subtotal Product Development			16.500	35.500		77.967		Continuing	Continuing	
Remarks										
Subtotal Support			0	0		0		Continuing	Continuing	
Remarks:										
(U) Support costs during this period will be rolled up in development contracts cost.										
Live Fire Test & Evaluation (LFT&E)	Sect 845/804	DD 21 Industry Teams	0	2.425	2QFY99	1.750	10/99	Continuing	Continuing	
	WR	NSWC CD Bethesda, MD	2.320	4.512	2QFY99	3.280	1QFY00	Continuing	Continuing	
	WR	NSWC DD Dahlgren, VA	0.200	0	N/A	0	N/A	Continuing	Continuing	
	TBD	Various	0.911	1.558	TBD	1.000	TBD	Continuing	Continuing	
Subtotal T&E			3.431	8.495		6.030		Continuing	Continuing	
Remarks:										

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Exhibit R-3, Project Cost Analysis
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Exhibit R-3, Cost Analysis (page 2)								Date: February 1999		
APPROPRIATION/BUDGET ACTIVITY: RDT&E,N/ Budget Activity 5			PROGRAM ELEMENT NAME AND NUMBER: SC-21 Total Ship Systems Engineering/PE0604300N					PROJECT NAME AND NUMBER: Design/32464		
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	Cost To Complete	Total Cost	Target Value of Contract
Contracting Engineering Support	GSA	Techmatics Arlington, VA	1.800	1.500	1QFY99	1.200	1QFY00	Continuing	Continuing	
	GSA	Vitro Arlington, VA	1.000	1.000	1QFY99	1.000	1QFY00	Continuing	Continuing	
	Misc.	Various	1.300	0.500	1QFY99	0.362	1QFY00	Continuing	Continuing	
Government Engineering Support	WR	NSWC DD Dahlgren, VA	12.490	12.300	1QFY99	12.318	1QFY00	Continuing	Continuing	
	WR	NSWC CD Bethesda, MD	3.660	3.975	1QFY99	1.959	1QFY00	Continuing	Continuing	
	WR	NSWC CR Crane, IN	0.665	2.492	1QFY99	0.530	1QFY00	Continuing	Continuing	
	WR	NSWC PHD Pt Hueneme, CA	0.370	1.920	1QFY99	0.815	1QFY00	Continuing	Continuing	
	WR	SSCSD San Diego, CA	0.970	1.670	1QFY99	1.670	1QFY00	Continuing	Continuing	
	WR	NUWC/N Newport, RI	0.846	1.159	1QFY99	1.206	1QFY00	Continuing	Continuing	
	WR	NAWC TSD Orlando, FL	0.150	0.150	1QFY99	0.150	1QFY00	Continuing	Continuing	
	WR	NAWC AD(LKE) Lakehurst, NJ	0	0	N/A	0.075	1QFY00	Continuing	Continuing	
	Various	Various	4.370	4.600	1QFY99	0.405	1QFY00	Continuing	Continuing	
	University Research	CPFF	APL/JHU Laurel, MD	0.940	3.730	1QFY99	1.722	1QFY00	Continuing	Continuing
Program Management Support	Various	Various	4.071	4.300	1QFY99	3.278	1QFY00	Continuing	Continuing	
Travel	Various	Various	0.200	1.000	Various	1.400	Various	Continuing	Continuing	
Subtotal Management			32.832	40.296		28.090		Continuing	Continuing	
Remarks:										
Total Cost			52.763	84.291		112.087		Continuing	Continuing	
Remarks:										

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Exhibit R-2a, RDT&E Project Justification									Date: February 1999	
APPROPRIATION/BUDGET ACTIVITY: RDT&E,N/Budget Activity 5		PROGRAM ELEMENT NAME AND NUMBER SC-21 Total Ship Systems Engineering/PE 0604300N					PROJECT NAME AND NUMBER: DC/Survivability/32465			
COST (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Project Cost	5.785(1)	6.182(1)	3.153	3.314	3.154	6.722	6.870	7.022	Continuing	Continuing
RDT&E Articles Qty	0	0	0	0	0	0	0	0	Continuing	Continuing

Notes: (1) (U) FY 1998 and FY 1999 funds were budgeted and executed under PE 0604516N/Project S1828 and Project S2054 as displayed in the FY 99 President's Budget exhibits. Funds from PE 0604516N/Project S1828 and Project S2054 transitioned into PE 0604300N/Project 32465 in FY 2000 and out.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project funds the engineering development of DD 21 ship protection and damage control/firefighting systems and features that reduce vulnerability against conventional weapons (e.g., missiles, mines, torpedoes) and peacetime accidents that enable an effective recovery of mission capability. The requirements for this project are based on the need to develop affordable, balanced DD 21 survivability designs that address recent wartime lessons learned and meet established DD 21 survivability goals. Additionally, this project addresses survivability requirements applicable to the existing fleet and other ship acquisition programs (e.g., LPD 17, CVX, LHX).

(U) Development areas include: 1) computer-based damage control systems that enable reduced manning through systems automation, minimizing the need for manual Damage Control (DC) actions; 2) personnel protection systems/devices that increase endurance and reduce stress on DC personnel during sustained operations; 3) tactics and doctrine for attacking major threat, ship threatening conflagration; 4) damage tolerant structures that increase hull girder survival against underwater explosions; and 5) system protection devices that enable continued system operation after damage.

1. (U) FY 1998 ACCOMPLISHMENTS

- (U) (\$0.744) Completed design and construction set-up for conducting full-scale weapon effects Test and Evaluation (T&E) of electrical fault clearing device that provides for uninterrupted power after damage.
- (U) (\$1.300) Continued firefighting experiments aboard the ex-USS SHADWELL in support of developing tactics and doctrine for the water mist fire extinguishing and smoke ejection systems
- (U) (\$1.573) Continued development of the pre-hit configuration management module.
- (U) (\$2.168) Initiated development of damage tolerant structural fabrication techniques and configurations that limit holing and flooding and prevent ship sinking from close-in underwater explosions (UNDEX), and prevent post damage hull girder breaking due to crack growth under sea state loading. Initiated design of configurations that limit holing and flooding. Continued Real Time Damage Tracking (RTDT) fire/smoke sensor evaluations aboard the USS RUSHMORE. Completed Damage Control System (DCS) Human Computer Interface guidelines. Provided software support for DCS T&E ships. Initiated investigation of cold water/weather and anti-exposure suits with heat retention capabilities to be utilized by DC personnel in the event of a flooding casualty. Initiated evaluation of conditioned firefighting clothing (Integrated Firefighter's Protective Ensemble). Initiated evaluation of personnel monitoring systems.

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Exhibit R-2a, RDT&E Project Justification		Date: February 1999
APPROPRIATION/BUDGET ACTIVITY: RDT&E,N/Budget Activity 5	PROGRAM ELEMENT NAME AND NUMBER SC-21 Total Ship Systems Engineering/PE 0604300N	PROJECT NAME AND NUMBER: DC/Survivability/32465

2. (U) FY 1999 PLAN

- (U) (\$0.343) Conduct full-scale weapons effects T&E of the electrical fault clearing device.
- (U) (\$1.170) Complete firefighting experiments aboard the ex-USS SHADWELL in support of developing tactics and doctrine for the water mist and smoke ejection systems.
- (U) (\$2.427) Continue development of the pre-hit configuration module. Complete software coding for moderately fast missile hit point prediction utilizing CIWS data. Initiate system automation designs for the electrical, fluid and total ship computing plant systems. Initiate DD 21 combat/damage control systems integration for monitoring advanced projected DD 21 threats.
- (U) (\$1.937) Continue design of damage tolerant hull girder configurations that limit holing and flooding and prevent ship sinking from close-in UNDEX; develop designs. Complete RTDT fire/smoke sensor evaluations aboard the USS RUSHMORE. Complete shipboard evaluations of cold water/weather and anti-exposure suits with body heat retention systems. Complete evaluation of conditioned firefighting clothing that increases the time firefighters can remain on-station during extreme environments. Continue evaluation of personnel monitoring systems. Initiate development of a lightweight firefighter/boundary suit ensemble. Initiate evaluation of hands-free communication devices that enable direct, clear communication between on-scene firefighters.
- (U) (\$0.200) Initiate development of a shipboard electrical fault simulation and coordination model that generates weapon-induced fault conditions for use in supporting electrical system design diagnostics and for training to restore electrical systems; identify modeling approaches.
- (U) (\$0.105) Portion of extramural program is reserved for Small Business Innovative Research assessment in accordance with 15 USC 638.

3. (U) FY 2000 PLAN

- (U) (\$2.175) Continue development of the pre-hit Configuration Management capability. Continue DD 21 combat/damage control systems integration for monitoring advanced, projected DD 21 threats. Continue system automation designs for the electrical, fluid and total ship computing plant systems.
- (U) (\$0.678) Continue development and evaluation of specific elements of damage control and survivability and continuation of design of damage tolerant structural fabrication details that limit holing and flooding and prevent ship sinking from close-in underwater explosions.
- (U) (\$0.300) Continue development of a shipboard electrical fault simulation and coordination model that generates weapon-induced fault conditions for use in supporting electrical system design diagnostics and for training to restore electrical systems; prepare software development plan and initial coding.

B. (U) OTHER PROGRAM FUNDING SUMMARY:

COST (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	To Complete	Total Cost
Shipboard System Component Development/PE 0603513N	56.961	100.748	108.334	114.643	135.178	110.292	101.859	93.316	Continuing	Continuing

C. (U) ACQUISITION STRATEGY:

(U) These development efforts were realigned into this project in an effort to consolidate related DD 21 RDT&E efforts and will be transitioned into the DD 21 acquisition strategy in FY 2000 and out.

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D. (U) SCHEDULE PROFILE:		
PROGRAM MILESTONES		
FY 1998	FY 1999	FY 2000
1Q Electrical Fault Clearing Device T&E		
2Q DCS HCI Guidelines		
4Q Pre-Hit Configuration Management Software Requirements	4Q Pre-Hit Configuration Management Software Code	
	4Q UNDEX Designs	3Q Damage Tolerant Structural Configurations
	4Q Shipboard Fault Simulation Modeling Approaches	
	3Q Water Mist/ Smoke Ejection Systems Evaluations	
	4Q Cold Water/ Weather Evaluations	
	4Q Conditioned Firefighting Clothing Evaluations	
	4Q Personnel Monitoring System Evaluations	4Q Personnel Protection Monitor System Specification

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APPROPRIATION/BUDGET ACTIVITY: RDT&E,N/ Budget Activity 5			PROGRAM ELEMENT NAME AND NUMBER: SC-21 Total Ship Systems Engineering/PE0604300N				PROJECT NAME AND NUMBER: DC/Survivability/32465			
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	Cost To Complete	Total Cost	Target Value of Contract
Product Development	Sect 845/804	DD 21 Industry Teams	0	2.180	11/98	2.427	10/99	Continuing	Continuing	
	WR	NSWC CD Bethesda, MD	2.249	1.397	11/98	0.400	10/99	Continuing	Continuing	
	Various	Other Govt. Activities	2.911	2.150	Various	0.226	Various	Continuing	Continuing	
	Various	Other Contractors	0.625	0.455	Various	0.100	Various	Continuing	Continuing	
Subtotal Product Development			5.785	6.182		3.153		Continuing	Continuing	
Remarks: Notes:										
Subtotal Support			0	0		0				
Remarks: Notes:										

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Exhibit R-3, Cost Analysis (page 2)								Date: February 1999		
APPROPRIATION/BUDGET ACTIVITY: RDT&E,N/ Budget Activity 5			PROGRAM ELEMENT NAME AND NUMBER: SC-21 Total Ship Systems Engineeringt/PE0604300N				PROJECT NAME AND NUMBER: DC/Survivability/32465			
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	Cost To Complete	Total Cost	Target Value of Contract
Subtotal T&E			0	0		0				
Remarks:										
Subtotal Management			0	0		0				
Remarks:										
Total Cost			5.785	6.182		3.153		Continuing	Continuing	
Remarks:										

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APPROPRIATION/BUDGET ACTIVITY: RDT&E,N/Budget Activity 5		PROGRAM ELEMENT NAME AND NUMBER SC-21 Total Ship Systems Engineering/PE 0604300N					PROJECT NAME AND NUMBER: Multi Function Radar (MFR)/32466			
COST (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Project Cost	0	35.491(1)	46.816	73.025	80.373	55.089	29.303	12.645	Continuing	Continuing
RDT&E Articles Qty	0	0	0	0	0	1	0	0	Continuing	Continuing
Notes: (1) (U) FY 1999 funds were budgeted and executed under PE 0604755N/Project U2348 as displayed in the FY 99 President's Budget exhibits. Funds from PE 0604755N/Project U2348 transitioned into PE 0604300N/Project 32466 in FY 2000 and out.										
A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project provides funds for the development of the Multi-Function Radar (MFR) in association with DD 21 as the lead ship development effort. The MFR will provide DD 21 and other applicable surface ships with an affordable, high performance radar system for ship's defense well into the next century. The MFR system is based on solid state, active array radar technology and will provide search, detect, track, and weapon control functions while dramatically reducing manning and life-cycle costs associated with multiple systems that perform these functions today. The MFR will achieve a level of force protection that greatly enhances ship defense capability against all threats envisioned in the littoral environment. The Test Article will be available in FY 03 to support DT/OT land-based and at-sea testing.										
1. (U) FY 1998 ACCOMPLISHMENTS										
<ul style="list-style-type: none"> • N/A 										
2. (U) FY 1999 PLAN										
<ul style="list-style-type: none"> • (U) (\$27.205) Complete MFR Concept Definition (Contract Phase II). Continue MFR development program (Contract Phase III). Conduct source selection of Engineering and Manufacturing Development (E&MD) development contractor. Award E&MD contract and conduct Preliminary Design Review (PDR). • (U) (\$7.500) Government Engineering and support services. Monitor Phase II contract effort. Conduct source selection for E&MD development contractor. Monitor Phase III E&MD contract effort. • (U) (\$0.786) Portion of extramural program is reserved for Small Business Innovation Research assessment in accordance with 15 USC 638. 										
3. (U) FY 2000 PLAN										
<ul style="list-style-type: none"> • (U) (\$38.766) Continue E&MD phase of MFR. Conduct Critical Design Review (CDR) and procure Engineering Development Model (EDM) material. • (U) (\$7.050) Government Engineering Services for E&MD including systems engineering analysis. • (U) (\$1.000) Government Engineering and logistics support. 										
B. (U) OTHER PROGRAM FUNDING SUMMARY:										
COST (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	To Complete	Total Cost
Shipboard System Component Development/PE 0603513N	56.961	100.748	108.334	114.643	135.178	110.292	101.859	93.316	Continuing	Continuing

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Exhibit R-2a, RDT&E Project Justification		Date: February 1999
APPROPRIATION/BUDGET ACTIVITY: RDT&E,N/Budget Activity 5	PROGRAM ELEMENT NAME AND NUMBER SC-21 Total Ship Systems Engineering/PE 0604300N	PROJECT NAME AND NUMBER: Multi Function Radar (MFR)/32466

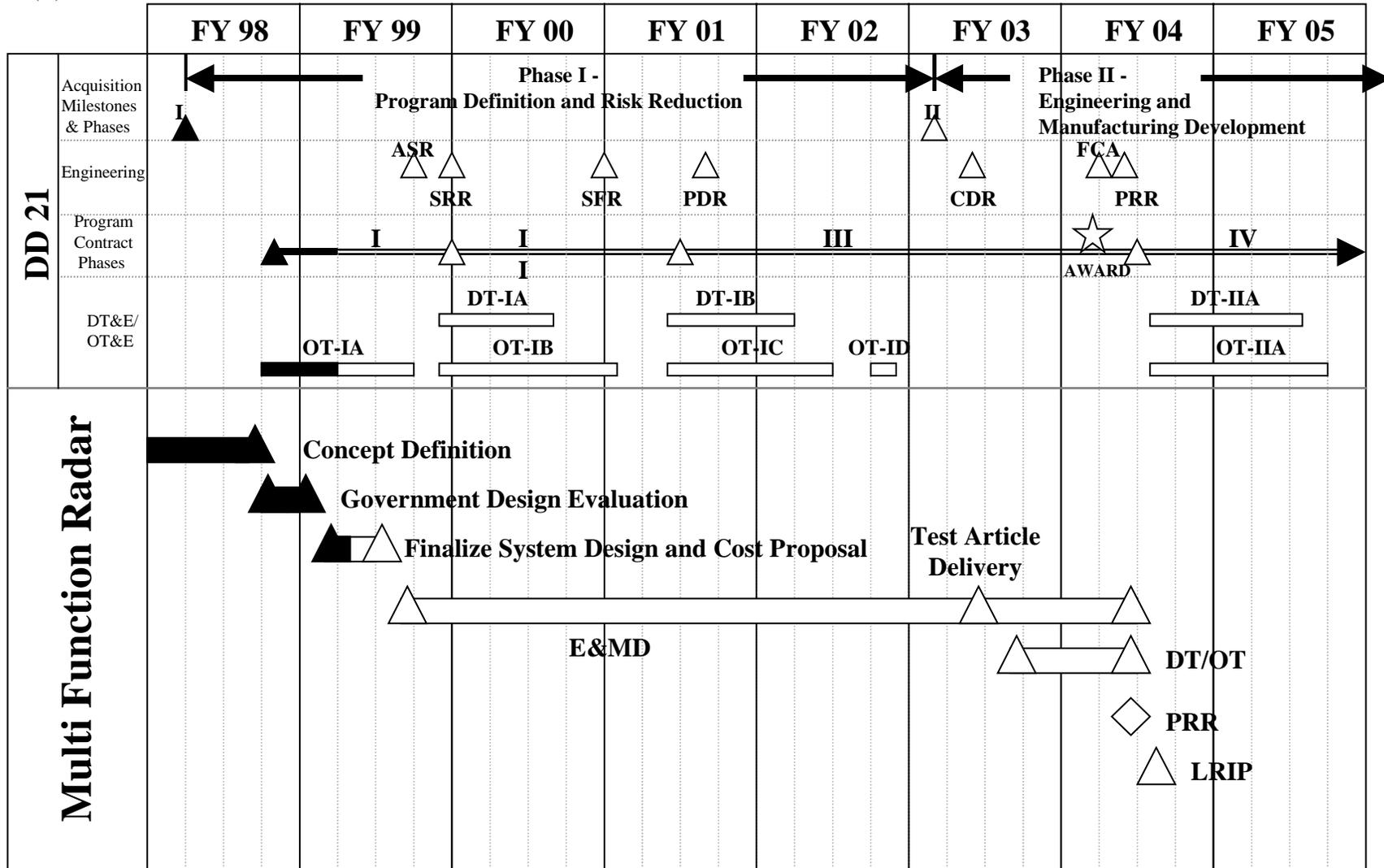
C. (U) ACQUISITION STRATEGY:

(U) Currently in competitive Concept Refinement Phase II with three industry teams. In FY 1999, the Government will downselect to a single industry team to conduct Phase III E&MD. DT/OT anticipated in FY 2003/04. After MFR downselect, the Government will consider incorporating these efforts into the DD 21 Acquisition Strategy.

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Exhibit R-2a, RDT&E Project Justification		Date: February 1999
APPROPRIATION/BUDGET ACTIVITY: RDT&E,N/Budget Activity 5	PROGRAM ELEMENT NAME AND NUMBER SC-21 Total Ship Systems Engineering/PE 0604300N	PROJECT NAME AND NUMBER: Multi Function Radar (MFR)/32466

D. (U) SCHEDULE PROFILE:



R-1 Item No. 95-16 of 95-18

Exhibit R-2a, RDT&E Project Justification
(Exhibit R-2, Page 16 of 18)

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Exhibit R-3, Cost Analysis (page 1)								Date: February 1999		
APPROPRIATION/BUDGET ACTIVITY: RDT&E,N/ Budget Activity 5				PROGRAM ELEMENT NAME AND NUMBER: SC-21 Total Ship Systems Engineering/PE0604300N				PROJECT NAME AND NUMBER: Multi Function Radar (MFR)/32466		
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	Cost To Complete	Total Cost	Target Value of Contract
	CPAF/IF	Prime E&MD TBD	0	27.205	5/99	38.766	11/99	154.411	220.382	220.392
Subtotal Product Development			0	27.205		38.766		154.411	220.382	220.392
Remarks:										
Subtotal Support			0			0		Continuing	Continuing	
Remarks:										
(U) FY 1999 and FY 2000 support costs will be rolled up into the E&MD contract.										

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Exhibit R-3, Cost Analysis (page 2)								Date: February 1999		
APPROPRIATION/BUDGET ACTIVITY: RDT&E,N/ Budget Activity 5				PROGRAM ELEMENT NAME AND NUMBER: SC-21 Total Ship Systems Engineering/PE0604300N				PROJECT NAME AND NUMBER: Multi Function Radar/32466		
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	Cost To Complete	Total Cost	Target Value of Contract
Subtotal T&E			0	0		0		Continuing	Continuing	
Remarks:										
(U) No Developmental or Operational Test and Evaluation will be conducted during FY 1999 through FY 2001.										
Government Engineering Support	WR	NSWC-DD Dahlgren, VA	0	2.000	1QFY99	2.000	1QFY00	Continuing	Continuing	
	WR	NSWC-PHD Pt Hueneme, CA	0	1.000	1QFY99	1.000	1QFY00	Continuing	Continuing	
	SS/CPFF	JHU/APL Laurel, MD	0	1.000	1QFY99	1.100	1QFY00	Continuing	Continuing	
	WR	Miscellaneous	0	2.600	1QFY99	2.950	1QFY00	Continuing	Continuing	
Program Management Support	C/CPFF	Various	0	1.686	1QFY99	1.000	1QFY00	Continuing	Continuing	
Subtotal Management			0	8.286		8.050		Continuing	Continuing	
Remarks:										
Total Cost			0	35.491		46.816		Continuing	Continuing	
Remarks:										