

CLASSIFICATION:

**UNCLASSIFIED**

EXHIBIT R-2, RDT&E Budget Item Justification							DATE:			
							June 2001			
APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE					
RDT&E, N / 1319 / BA 5					AEGIS COMBAT SYS ENG / PE 0604307N					
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002							
Total PE Cost	240.898	200.330	262.037							
Surf Combatant Combat Sys/K1447/K2637	227.404	193.691	257.737							
Surf Combatant Weapon Sys Mod/K1776	4.062	4.162	4.300							
Surf Combatant Weapons Dev/K1937	6.511	0.000	0.000							
Smart Ship Project/K2308/K2786	2.921	2.477	0.000							
A. (U) Mission Description and Budget Item Justification										
The AEGIS Combat System provides immediate and effective capability to counter the current and expected air, surface, and sub-surface threats. Changes in the threat capability and advances in technology such as fiber optics, local area networks, and high performance computing require corresponding Weapon System and Combat System changes. This program provides the Combat System engineering and selected weapons development necessary for a continued increase in the capability of the Combat System in AEGIS cruisers and destroyers. In addition to developing and integrating improvements to the AEGIS Weapon System, this program integrates combat capabilities developed in other Navy R&D programs into the AEGIS Combat System. Modifications of AEGIS Weapon System computer programs must be made to integrate these capabilities into the AEGIS Combat System so that battle effectiveness and Combat System performance will be retained against the evolving threat. Selected Weapon and Combat System upgrades will be backfit into CG 47 Class and DDG 51 Class ships already in the Fleet, providing key warfighting capability while reducing life cycle maintenance costs. In addition, with the advent of using Commercial Off-the-Shelf (COTS) equipment extensively throughout the combat system, a COTS refresh development effort will be necessary to parallel the core baseline development work.										

R-1 SHOPPING LIST - Item No.111-1 of 111-13

**Exhibit R-2, RDT&E Budget Item Justification**  
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EXHIBIT R-2, RDT&E Budget Item Justification		DATE:	
		June 2001	
APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE	
RDT&E, N / 1319 / BA 5		AEGIS COMBAT SYS ENG / PE 0604307N	
B. Program Change Summary			
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
FY 2001 President's Budget Submit:	256.120	179.684	194.015
Appropriated Value:	257.980	202.184	
Adjustments to FY2000/2001 Appropriated Value/			
FY2001 President's Budget:	-17.082	-1.854	68.022
FY 2002 President's Budget:	240.898	200.330	262.037
Funding:			
FY2000 funding change is due to reductions for SBIR (\$-6.347), ONR BTR update (\$-3.532), midyear review adjustments, (\$-1.626), FY00 Actuals (\$-2.691), across-the-board reductions (-\$1.422), and minor pricing adjustments (-\$1.464).			
FY2001 funding changes are due to minor pricing adjustments (\$-1.854).			
FY 2002 funding changes are due to an increase for Area Air Defense Commander (AADC) (\$16.500), an increase for development to support Refresh of Commercial Off-The-Shelf (COTS) components in baselines 6 Phase III, and 7 Phase I (\$48.000), rephasing for SPY radar modifications and increase for COTS Refresh of CG Conversion (\$2.900), decrease for minor pricing/rate adjustments (-\$0.622).			
Schedule: 1) Four COTS baseline refresh efforts have been added to the schedule because they require additional developmental efforts that necessitate replacement of commercial components to support updating operating systems, device drivers, and interfaces. COTS Refresh efforts have been added to the scope of Baseline 7 Phase IC (Two deliveries of Cruiser Conversion baseline), and two new baselines introduced to support DDG construction (Baseline 7 Phase I Refresh) and DDG Modernization (Baseline 6 Phase III Refresh).			
Technical: Not applicable.			

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**Exhibit R-2, RDT&E Budget Item Justification**  
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EXHIBIT R-2a, RDT&E Project Justification						DATE:				
						June 2001				
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER				PROJECT NAME AND					
RDT&E, N / 1319 / BA 5	AEGIS COMBAT SYS ENG PE 0604307N				Surface Combatants Combat Sys Improv - K1447					
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002							
Project Cost	227.404	193.691	257.737							
RDT&E Articles Qty										
A. (U) Mission Description and Budget Item Justification: This program provides AEGIS Cruiser and Destroyer Combat System upgrades and integrates new equipment and systems to pace the threat and capture advances in technology. Examples of captured advanced technologies are: fiber optics, distributed architecture, and high performance computing which all require corresponding Weapon System and Combat System changes. Combat Systems are upgraded in baselines. Baseline 2 (CG 52-58) consists of the Vertical Launching System, TOMAHAWK Weapon System, and Anti-Submarine Warfare upgrades. Baseline 3 (CG 59-64) includes the AN/SPY-1B Radar and AN/UYQ-21 consoles. Baseline 4 (CG 65-73) integrates the AN/UYK-43/44 computers with superset computer programs developed for the DDG 51. Baseline 5 was introduced in FY 1992 ships and includes the Joint Tactical Information Distribution System (JTIDS) Command and Control Processor, Tactical Data Information Link 16, Combat Direction Finding, Tactical Data Information Exchange System, AN/SLQ-32 (V)3 Active Electronic Counter Countermeasures, and AEGIS Extended Range (ER) Missile. Baseline 5 was developed in three steps (phases): Phase I integrated AEGIS ER and supported the missile Initial Operational Capability; Phase II integrated system upgrades including Deceptive Electronic Countermeasures, Track Load Control algorithms, and Track Initiation Processor; Phase III integrated JTIDS and the OJ-663 color display Tactical Graphics Capability into the AEGIS Combat System. Baseline 6 Phase I supports OPEVAL of CEC in CGs 66 and 69 and will be introduced in the DDG 51 class beginning with the last ship in FY94, DDG 79. Baseline 6 Phase III is planned for the first ship in FY 1997. Baseline 6 Phase III is the designation for the combat system upgrade resulting from consolidation of the previous Baseline 6 Phase II with functions designed to introduce Theater Ballistic Missile Defense (TBMD) to in-service ships. Baseline 6 upgrades will also include embarked helicopters, Fiber Optics as applied to Data Multiplexing (FODMS), implementation of affordability initiatives, the Radar Set Controller Environmental Simulator (RSCES) and Battle Force Tactical Trainer (BFTT), Advanced Display System, Evolved SEASPARROW Missile (ESSM), Identification (ID) upgrades Phase I, Advanced TOMAHAWK Weapon System (ATWCS) Phase II, Fire Control System Upgrades, and the Joint Maritime Command Information System (JMCIS). Baseline 7 Phase I is planned for the third MYP DDG-51 Class ship in FY 1998. Major Baseline 7 upgrades include but are not limited to: AN/SPY-1D(V) Radar upgrade, COTS-based advanced computer processing and the Remote Mine Hunting System. The Cruiser Conversion program will upgrade cruisers with Theater Ballistic Missile Defense, Land Attack, and Area Air Defense Commander (AADC) capabilities. Experiences aboard AEGIS ships and shore sites have shown that Commercial Off-The-Shelf (COTS) equipment will require a nominal five year cyclical refresh (periodic replacement) plan. This is a fact of life. Currently, these refresh efforts are not "plug and play", rather they require additional developmental efforts that will necessitate replacement of new components with updated operating systems, device drivers, and interfaces. COTS refresh efforts are required and have been funded for Baselines 6 Phase III, 7 Phase I, and 7 Phase IC (Two variants of Cruiser Conversion baseline due to radar configuration).										

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**Exhibit R-2a, RDT&E Project Justification**

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EXHIBIT R-2a, RDT&E Project Justification		DATE: <b>June 2001</b>
APPROPRIATION/BUDGET ACTIVITY <b>RDTE&amp;E, N / 1319 / BA 5</b>	PROGRAM ELEMENT NAME AND NUMBER <b>AEGIS COMBAT SYS ENG PE 0604307N</b>	PROJECT NAME AND NUMBER: <b>Surface Combatants Combat Sys Improv - K1447</b>
<p>FY 2000 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"> <li>- (U) (\$1.200) Continued modifications to the AWS computer program to allow incorporation of AAW capability into the SM2 BLK IVA missile.</li> <li>- (U) (\$29.440) Continued ET&amp;E and MEIT for Baseline 6 Phase I. Delivered updated 6 Ph I programs to CG 66 and 69 for testing. Continued preparation for CEC OPEVAL on CGs 66 and 69. Included (\$10.000) Congressional Plus up to continue development of the ADS MK 6 Capability 7 months longer than planned and incorporated corrections to high-priority anomalies found during ET&amp;E. <ul style="list-style-type: none"> <li>- (U) (\$85.603) Continued coding and extensive Baseline 6 Phase III ET&amp;E and MEIT at CSEDS and the Production Test Center (PTC). Included (\$40.000) Congressional Plus up to support integration of COTS based Adjunct Processors into the SPY radar, ADS, and Command &amp; Decision Element. Additionally, these funds were used to reduce the risk in delivering the unanticipated increasingly complex tactical display services associated with ADS Mk</li> </ul> </li> <li>- (U) (\$44.500) Conducted Critical Design Review (CDR) and began code, debug and test (CDT) for 7 Phase I computer program.</li> <li>- (U) (\$25.500) Conducted System Design Review for the Cruiser Conversion Program to incorporate warfighting capabilities including TBMD, AADC, and Land Attack into Baseline 3 and 4 Cruisers. This included beginning the development of the Baseline 6 Phase IIIC computer program . Included (\$5.000) Congressional Plus up to Conduct Baseline I Cruiser Conversion feasibility study.</li> <li>- (U) (\$1.000) Continued evaluation of the AADC Prototype at sea and conducted Joint Task Force Exercise (JTFEX) using the installed AADC systems. Provided necessary logistics and system engineering support to maintain the AADC Prototype at Sea system in an operationally ready state and support production efforts.</li> <li>- (U) (\$20.640) Continued to provide the RDT&amp;E share of operations and maintenance of the CSED Site, Program Generation Center, Computer Program Test Site, and Land Based Test Site.</li> <li>- (U) (\$19.521) Provided funds for labs and field activities to support forward fit baseline upgrade in order to conduct engineering and scientific studies and analysis to minimize the risk in the introduction of increased warfighting capability including TBMD, CEC, ESSM, and AIEWS into the AEGIS Combat System. Studies produced by the Applied Physics Lab and the Naval Surface Warfare Center, Dahlgren Division (NSWC, DD) ensured effective introduction of Commercial Off the Shelf Technology (COTS). NSWC, DD personnel also provided on site technical support at contractor facilities during development, testing, and evaluation of upgrades to the AEGIS Combat System.</li> </ul> <p>FY 2001 PLAN:</p> <ul style="list-style-type: none"> <li>- (U) (\$0.400) Complete modifications to the AWS computer program to allow incorporation of SM2 BLK IVA missile AAW capability .</li> <li>- (U) (\$5.500) Support CEC OPEVAL (scheduled: 05/2001) on CGs 66 and 69.</li> <li>- (U) (\$42.042) Continue with extensive Baseline 6 Phase III ET&amp;E and MEIT at CSEDS and the Production Test Center (PTC). Deliver program to shipyards for first stage testing in new construction ships. Conduct demo of 6 Phase III and Computer Program Acceptance Panel. Begin preparations for TBMD DT/OT and ESSM DT/OT. Begin developmental efforts for COTS refresh of Baseline 6 Phase III, evaluating integration of advanced warfighting capability upgrades into the AWS in order to meet the evolving threat.</li> </ul>		

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**Exhibit R-2a, RDT&E Project Justification**

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EXHIBIT R-2a, RDT&E Project Justification		DATE: <b>June 2001</b>
APPROPRIATION/BUDGET ACTIVITY <b>RDTE, N / 1319 / BA 5</b>	PROGRAM ELEMENT NAME AND NUMBER <b>AEGIS COMBAT SYS ENG PE 0604307N</b>	PROJECT NAME AND NUMBER: <b>Surface Combatants Combat Sys Improv - K1447</b>
<p>- (U) (\$54.481) Continue code, debug and test (CDT) for 7 Phase I computer program. Begin developmental efforts for COTS refresh of Baseline 7 Phase I.</p> <p>- (U) (\$47.600) Continue development of the computer program for Cruiser Conversion in a Baseline 7 Phase I architecture which incorporates TBMD, AADC, and Land Attack capabilities and a COTS refresh into the Baseline 3&amp;4 Cruisers. Conduct updated System Design Review of the 7 Phase IC computer program.</p> <p>- (U) (\$22.260) Continue to provide the RDT&amp;E share of operations of the CSED Site, Program Generation Center, Computer Program Test Site, and Land Based Test Site.</p> <p>- (U) (\$17.377) Provides funds for labs and field activities to support forward fit baseline upgrade in order to conduct engineering and scientific studies and analysis to minimize the risk in the introduction of increased warfighting capability including TBMD, CEC, ESSM, and AIEWS into the AEGIS Combat System. Studies produced by the Applied Physics Lab and the Naval Surface Warfare Center, Dahlgren Division (NSWC, DD) ensure effective introduction of Commercial Off the Shelf Technology (COTS). NSWC, DD personnel also provide on site technical support at contractor facilities during development, testing, and evaluation of upgrades to the AEGIS Combat System.</p> <p>- (U) (\$4.031) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.</p> <p>FY 2002 PLAN:</p> <p>- (U) (\$20.540) Support TBMD Developmental Test (DT) and ESSM DT/OT. Continue preparations for TBMD Operational Test (OT).</p> <p>- (U) (\$20.000) Analyze and assess candidate components to replace Diminishing Manufacturing Source (DMS) equipment for Baseline 6 Phase III COTS refresh and make final selection. Continue Designing, Coding, and Testing of Baseline 6 Phase III COTS refresh.</p> <p>- (U) (\$56.470) Continue with extensive Baseline 7 Phase I Engineering Test and Evaluation (ET&amp;E) and Multi-Element Integration and Test (MEIT) at Combat Systems Engineering Development Site (CSEDS) and the Production Test Center (PTC). Deliver program to shipyards for first level testing in new construction ships. Conduct demo of Baseline 7 Phase I and Computer Program Acceptance Panel.</p> <p>- (U) (\$29.000) Analyze and assess candidate components to replace Diminishing Manufacturing Source (DMS) equipment for Baseline 7 Phase I COTS refresh and make final selection. Continue Designing, Coding, and Testing of Baseline 7 Phase I COTS refresh.</p> <p>- (U) (\$90.000) Continue development of Baseline 7 Phase IC computer program for the Cruiser Conversion Program which incorporates TBMD, AADC, and Land Attack capabilities into the Baseline 3&amp;4 Cruisers. Conduct Preliminary Design Review. Analyze and assess candidate components to replace Diminishing Manufacturing Source (DMS) equipment for 7 Phase IC COTS Refresh. Begin SPY Radar Engineering effort to support necessary SPY-1D(V) modifications.</p> <p>- (U) (\$23.400) Continue to provide the RDT&amp;E share of operations and maintenance of the CSED site, Program Generation Center, Computer Program Test Site, and Land Based Test Site.</p> <p>- (U) (\$18.327) Provides Funds for labs and field activities to support forward fit baseline upgrade in order to conduct engineering and scientific studies and analysis to minimize the risk in the introduction of increased warfighting capability including TBMD, CEC, ESSM, and AIEWS into the AEGIS Combat System. Studies produced by the Applied Physics Lab and the Naval Surface Warfare Center, Dahlgren Division (NSWC, DD) ensure effective introduction of Commercial Off the Shelf Technology (COTS). NSWC, DD personnel also provide on site technical support at contractor facilities during development, testing, and evaluation of upgrades to the AEGIS Combat System.</p>		

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**Exhibit R-2a, RDT&E Project Justification**  
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EXHIBIT R-2a, RDT&E Project Justification		DATE: <b>June 2001</b>																			
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / 1319 / BA 5</b>	PROGRAM ELEMENT NAME AND NUMBER <b>AEGIS COMBAT SYS ENG PE 0604307N</b>	PROJECT NAME AND NUMBER: <b>Surface Combatants Combat Sys Improv - K1447</b>																			
<p>B. Other Program Funding Summary:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 10%; text-align: right;"><u>FY 2000</u></th> <th style="width: 10%; text-align: right;"><u>FY 2001</u></th> <th style="width: 10%; text-align: right;"><u>FY 2002</u></th> </tr> </thead> <tbody> <tr> <td>SCN LI2122 - DDG 51*</td> <td style="text-align: right;">2,753.773</td> <td style="text-align: right;">3,303.190</td> <td style="text-align: right;">2,314.869</td> </tr> <tr> <td>OPN LI5246 - AEGIS Supt. Eqp</td> <td style="text-align: right;">79.530</td> <td style="text-align: right;">29.356</td> <td style="text-align: right;">155.113</td> </tr> </tbody> </table> <p>*Data includes outfit and post delivery</p> <p>Related RDT&amp;E:</p> <table style="width: 100%;"> <tr> <td style="width: 50%;">PE 0604867C (Navy Area Missile Defense-EMD)</td> <td style="width: 50%;">PE 0603658N (Cooperative Engagement Capability)</td> </tr> <tr> <td>PE 0603382N (Advanced Combat System Technology)</td> <td>PE 0604755N (Ship Self Defense)</td> </tr> <tr> <td>PE 0603868C (Navy Theater Wide Missile Defense)</td> <td>PE 0604366N (Standard Missile Improvements)</td> </tr> </table> <p>C. Acquisition Strategy: Combat System Improvements are implemented in Baselines as described in the project mission statement. In FY 1998, Lockheed Martin was awarded a five year omnibus contract (sole source) to develop and integrate combat system improvements, which will fund all remaining AEGIS Baseline Upgrade Development efforts. After the baseline has been completed and tested, the computer program and associated equipment are delivered to the new construction shipbuilders where the program and equipment are installed and tested along with all other elements of the shipboard combat system and associated combat support systems. The computer program is a GFE deliverable to the Production Test Center for equipment test and check out.</p>					<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	SCN LI2122 - DDG 51*	2,753.773	3,303.190	2,314.869	OPN LI5246 - AEGIS Supt. Eqp	79.530	29.356	155.113	PE 0604867C (Navy Area Missile Defense-EMD)	PE 0603658N (Cooperative Engagement Capability)	PE 0603382N (Advanced Combat System Technology)	PE 0604755N (Ship Self Defense)	PE 0603868C (Navy Theater Wide Missile Defense)	PE 0604366N (Standard Missile Improvements)
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>																		
SCN LI2122 - DDG 51*	2,753.773	3,303.190	2,314.869																		
OPN LI5246 - AEGIS Supt. Eqp	79.530	29.356	155.113																		
PE 0604867C (Navy Area Missile Defense-EMD)	PE 0603658N (Cooperative Engagement Capability)																				
PE 0603382N (Advanced Combat System Technology)	PE 0604755N (Ship Self Defense)																				
PE 0603868C (Navy Theater Wide Missile Defense)	PE 0604366N (Standard Missile Improvements)																				

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**Exhibit R-2a, RDT&E Project Justification**  
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EXHIBIT R-2a, RDT&amp;E Project Justification

DATE:

June 2001

APPROPRIATION/BUDGET ACTIVITY

RDT&amp;E, N / 1319 / BA 5

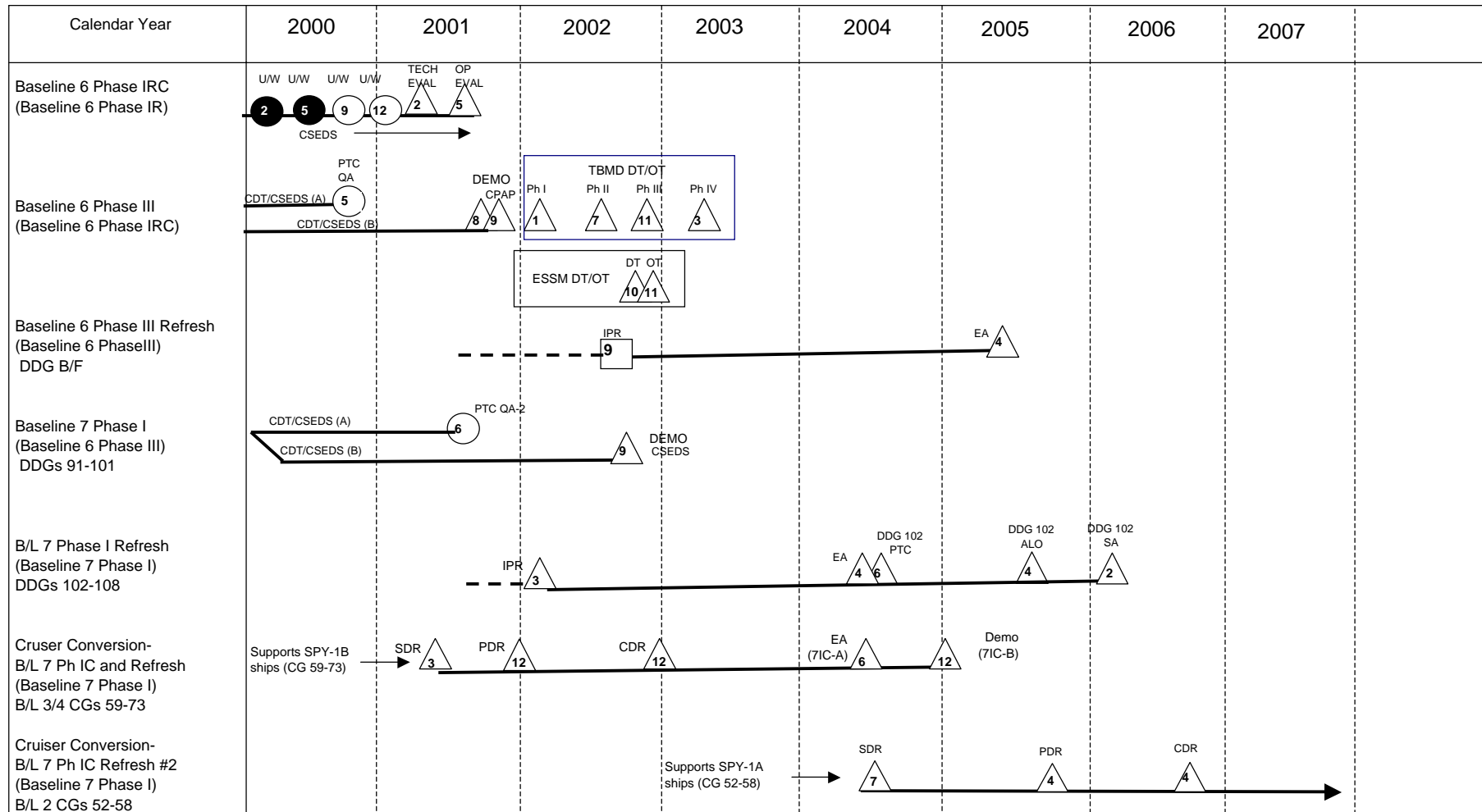
PROGRAM ELEMENT NAME AND NUMBER

AEGIS COMBAT SYS ENG PE 0604307N

PROJECT  
NAME AND  
NUMBER:

Surface Combatants Combat Sys Improv - K1447

## D. Schedule Profile:



R-1 SHOPPING LIST - Item No.111-7 of 111-13

Exhibit R-2a, RDT&E Project Justification  
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Exhibit R-3 Cost Analysis (page 1)								DATE: <b>June 2001</b>				
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / 1319 / BA 5</b>			PROGRAM ELEMENT NAME AND NUMBER <b>AEGIS COMBAT SYS ENG PE 0604307N</b>			PROJECT NAME AND NUMBER: <b>Surface Combatants Combat Sys Improv - K1447</b>						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	SS/CPAF	Lockheed, Moorestown, NJ	394.849	163.272	03/00	123.930	03/01	168.579	03/02	CONT.	CONT.	
Systems Engineering	SS/CPFF	APL, Baltimore MD	22.007	1.170	10/99	2.100	10/00	2.500	10/01	CONT.	CONT.	
Systems Engineering	WR/RCP	NSWC, Dahlgren VA	45.686	21.398	12/99	13.000	12/00	16.271	12/01	CONT.	CONT.	
Systems Engineering	SS/CPAF	PCI, VA Beach, VA	2.325	2.325	03/00	2.325	03/01	2.300	03/02	CONT.	CONT.	
Systems Engineering	SS/CPAF	BAE Systems, Rockville MD	21.960	1.840	03/00	1.840	03/01	1.800	03/02	CONT.	CONT.	
Systems Engineering	WR/RCP	NWAS, Corona CA	1.100	0.882	11/99	0.703	11/00	2.250	11/01	CONT.	CONT.	
Systems Engineering	SS/CPAF	Litton	0.997	0.000	na	0.000	na	0.000	na	CONT.	CONT.	
Systems Engineering	SS/CPAF	Boeing	0.990	0.000	na	0.000	na	0.000	na	CONT.	CONT.	
Systems Engineering	SS/CPAF	General Dynamics	0.999	11.515	07/00	17.000	various	18.000	various	CONT.	CONT.	
Systems Engineering	RCP	SPAWAR	2.260	0.320	11/99	1.600	11/00	0.065	11/01	CONT.	CONT.	
Systems Engineering	CPFF	Techmatics	0.000	0.000	na	0.000	11/00	2.000	11/01	CONT.	CONT.	
Systems Engineering	WR/RCP	Miscellaneous	30.922	0.389	various	0.875	various	0.000	various	CONT.	CONT.	
Award Fees	SS/CPAF	Lockheed, Moorestown, NJ	54.118	17.488	03/00	15.352	03/01	23.800	03/02	CONT.	CONT.	
Award Fees	SS/CPAF	BAE Systems, Rockville, MD	0.160	0.160	03/00	0.160	03/01	0.160	03/02	CONT.	CONT.	
Award Fees	SS/CPAF	PCI, VA Beach, VA	0.175	0.175	03/00	0.175	03/01	0.175	03/02	CONT.	CONT.	
Award Fees	WR/RCP	Miscellaneous	2.790	0.000	na	0.000	na	0.000	na	CONT.	CONT.	
Subtotal Product Development			581.338	220.934		179.060		237.900		CONT.	CONT.	
Remarks:												
Support	CPFF	APL, Baltimore MD	7.396	0.180	10/99	0.200	10/00	0.200	10/01	CONT.	CONT.	
Support	WR	NSWC, Pt. Hueneme, CA	0.434	0.150	11/99	1.050	11/00	3.017	11/01	CONT.	CONT.	
Support	WR	NSWC, Dahlgren VA	1.617	0.000	12/99	1.050	12/00	0.000	12/01	CONT.	CONT.	
Support	WR/RCP	Miscellaneous	5.928	0.000	various	0.581	various	0.000	various	CONT.	CONT.	
Subtotal Support			15.375	0.330		2.881		3.217		CONT.	CONT.	
Remarks:												

R-1 SHOPPING LIST - Item No. 111-8 of 111-13

Exhibit R-3, Project Cost Analysis  
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Exhibit R-3 Cost Analysis (page 2)								DATE: <b>June 2001</b>				
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / 1319 / BA 5</b>			PROGRAM ELEMENT NAME AND NUMBER <b>AEGIS COMBAT SYS ENG PE 0604307N</b>			PROJECT NAME AND NUMBER: <b>Surface Combatants Combat Sys Improv - K1447</b>						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Test and Evaluation	SS/CPAF	Lockheed, Moorestown, NJ	0.000	1.000	03/00	4.500	03/01	11.822	03/02	CONT.	CONT.	
Test and Evaluation	WR	NSWC, Pt. Hueneme, CA	2.100	2.000	11/99	1.984	11/00	2.000	11/01	CONT.	CONT.	
Test and Evaluation	CPFF	APL, Baltimore MD	0.000	0.180	10/99	3.000	10/00	0.500	10/01	CONT.	CONT.	
Test and Evaluation	WR/RCP	Miscellaneous	7.904	0.000	various	0.788	various	0.820	various	CONT.	CONT.	
Subtotal T&E			10.004	3.180		10.272		15.142		CONT.	CONT.	
Remarks:												
Program Management Support	WR/RCP	Miscellaneous	3.900	2.960	various	1.478	various	1.478	various	CONT.	CONT.	
			0.000									
Subtotal Management			3.900	2.960		1.478		1.478		CONT.	CONT.	
Remarks:												
Total Cost			610.617	227.404		193.691		257.737		CONT.	CONT.	
Remarks:												

R-1 SHOPPING LIST - Item No.111-9 of 111-13

**Exhibit R-3, Project Cost Analysis**  
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EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>June 2001</b>			
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / 1319 / BA 5</b>		PROGRAM ELEMENT NAME AND NUMBER <b>AEGIS COMBAT SYS ENG PE 0604307N</b>			PROJECT NAME AND NUMBER: <b>Surface Combatant Weapon System Mod/K1776</b>					
COST (\$ in Millions)		FY 2000	FY 2001	FY 2002						
Project Cost		<b>4.062</b>	<b>4.162</b>	<b>4.300</b>						
RDT&E Articles Qty										
<p>A. (U) Mission Description and Budget Item Justification This program provides for modifications to the AEGIS Weapon System MK-7 to counter the threat as articulated in ONI System Threat Assessment Report, ONI TA #046-93 dated May 1993 and subsequent updates. The modifications will be introduced into CG 47 Class and DDG 51 Class ships.</p> <p>FY 2000 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"> <li>- (U) (\$2.382) Continued Radar System Engineering Studies to enable AWS to meet the evolving threat. Investigated proposed Deceptive Electronic Counter Measures (DECM) changes and integration plans.</li> <li>- (U) (\$1.224) Developed an Electronic Counter Measure Analysis (ECMA) transition architecture that migrates from Programmable Computer Interface (PCI) based Field Programmable Gated Arrays (FPGA) design to a more supportable configuration.</li> <li>- (U) (\$0.456) Continued Operational Readiness Test Systems (ORTS) design efforts and ECMA or Common signal processor implementation impacts.</li> </ul> <p>FY 2001 PLAN:</p> <ul style="list-style-type: none"> <li>- (U) (\$2.286) Continue Radar System Engineering Studies to enable AWS to meet the evolving threat.</li> <li>- (U) (\$0.334) Definitize signal processing requirements for a Common Moving Target Indicator (MTI)/TBMD adjunct processor design.</li> <li>- (U) (\$1.114) Continue ECMA upgrade effort and develop design package for transition to production.</li> <li>- (U) (\$0.334) Continue ORTS design efforts and support ECMA transition to production.</li> <li>- (U) (\$0.094) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.</li> </ul> <p>FY 2002 PLAN:</p> <ul style="list-style-type: none"> <li>- (U) (\$2.459) Continue Radar System Engineering Studies to enable AWS to meet the evolving threat.</li> <li>- (U) (\$0.345) Continue common MTI/TBMD adjunct processor design.</li> <li>- (U) (\$1.151) Continue ECMA upgrade effort and develop design package for transition to production.</li> <li>- (U) (\$0.345) Continue ORTS design efforts and support ECMA transition to production.</li> </ul>										

R-1 SHOPPING LIST - Item No.111-10 of 111-13

**Exhibit R-2a, RDT&E Project Justification**

(Exhibit R-2a, page 10 of 13)

**UNCLASSIFIED**

CLASSIFICATION:

**UNCLASSIFIED**

EXHIBIT R-2a, RDT&E Project Justification		DATE: <b>June 2001</b>												
APPROPRIATION/BUDGET ACTIVITY <b>RDTE, N / 1319 / BA 5</b>	PROGRAM ELEMENT NAME AND NUMBER <b>AEGIS COMBAT SYS ENG PE 0604307N</b>	PROJECT NAME AND NUMBER: <b>Surface Combatant Weapon System Mod, K1776</b>												
<p>B. Other Program Funding Summary:</p> <table><thead><tr><th></th><th><u>FY 2000</u></th><th><u>FY 2001</u></th><th><u>FY 2002</u></th></tr></thead><tbody><tr><td>SCN LI2122 - DDG 51</td><td>2,753.773</td><td>3,303.190</td><td>2,314.869</td></tr><tr><td>OPN LI5246 - AEGIS Supt. Eqp</td><td>79.530</td><td>29.356</td><td>155.113</td></tr></tbody></table> <p>Related RDT&amp;E: Not applicable.</p> <p>C. Acquisition Strategy: Lockheed Martin is the sole producer of the AEGIS Weapon System (AWS) except for the AN/SPY-1 Radar transmitter and the MK 99 CWI transmitter and illuminator which are produced by Raytheon. It is anticipated that all AWS modifications will be procured from the original equipment manufacturer.</p>				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	SCN LI2122 - DDG 51	2,753.773	3,303.190	2,314.869	OPN LI5246 - AEGIS Supt. Eqp	79.530	29.356	155.113
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>											
SCN LI2122 - DDG 51	2,753.773	3,303.190	2,314.869											
OPN LI5246 - AEGIS Supt. Eqp	79.530	29.356	155.113											

R-1 SHOPPING LIST - Item No. 111-11 of 111-13

**Exhibit R-2a, RDT&E Project Justification**  
(Exhibit R-2a, page 11 of 13)

**UNCLASSIFIED**

CLASSIFICATION:

**UNCLASSIFIED**

EXHIBIT R-2a, RDT&E Project Justification						DATE: <b>June 2001</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDTE, N / 1319 / BA 5</b>		PROGRAM ELEMENT NAME AND NUMBER <b>AEGIS COMBAT SYS ENG PE 0604307N</b>			PROJECT NAME AND NUMBER: <b>Surface Combatant Weapon System Mod/K1776</b>		

D. \$

	00	01	02	03	04	05	06	07
Radar System Engineering	Studies / Analysis / System Solution/ Proposed Equipment Mods. / Proposed C. P. Mods							
Common MTI/TBMD Processor	System Engineering / Design / Build / Test / Debug							
ORTS Upgrades	Design / Build / Test / Debug							
ECMA	Design, Dev., and Verification				Transition to Production			
AWS Warfighting Improvements	Surface Search for SPY-1D(V) / Enhanced Ultra Low / TIP Testability / Dynamic Test Target (DTT)							

R-1 SHOPPING LIST - Item No.111-12 of 111-13

**Exhibit R-2a, RDT&E Project Justification**  
(Exhibit R-2a, page 12 of 13)

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CLASSIFICATION:

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)							DATE: <b>June 2001</b>					
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT NAME AND NUMBER			PROJECT NAME AND NUMBER:						
<b>RDT&amp;E, N / 1319 / BA 5</b>			<b>AEGIS COMBAT SYS ENG PE0604307</b>			<b>Surface Combatant Weapon System Mod/K1776</b>						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	SS/CPAF	Lockheed, Moorestown, NJ	19.855	2.075	03/00	1.430	03/01	2.132		CONT.	CONT.	
Systems Engineering	WR/RCP	Naval Laboratories		0.547		0.725		0.700				
Systems Engineering		Wright Patterson AFB		0.152		0.113		0.144				
Systems Engineering		Miscellaneous		0.833		1.597		1.008				
Award Fees	SS/CPAF	Lockheed, Moorestown, NJ	0.417	0.275	03/00	0.297	03/01	0.304	03/02	CONT.	CONT.	
Subtotal Product Development			20.272	3.882		4.162		4.288		CONT.	CONT.	
Remarks:												
Support	WR/RCP	Miscellaneous	1.060	0.000		0.000		0.000		CONT.	CONT.	
			0.000									
			1.060	0.000		0.000		0.000		CONT.	CONT.	
Remarks:												
Test & Evaluation	WR/RCP	Miscellaneous	0.000	0.000		0.000		0.000		CONT.	CONT.	
			0.000									
Subtotal T&E			0.000	0.000		0.000		0.000		CONT.	CONT.	
Remarks:												
Program Management Support	WR/RCP	Miscellaneous	4.945	0.180		0.000		0.012		CONT.	CONT.	
			0.000									
Subtotal Management			4.945	0.180		0.000		0.012		CONT.	CONT.	
Remarks:												
Total Cost			26.277	4.062		4.162		4.300		CONT.	CONT.	
Remarks:												

R-1 SHOPPING LIST - Item No.111-13 of 111-13

**Exhibit R-3, Project Cost Analysis**  
(Exhibit R-3, page 13 of 13)

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