

CLASSIFICATION:

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EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2000			
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER			R-1 ITEM NOMENCLATURE						
RDT&E, N / 1319 / BA 5	AEGIS COMBAT SYS ENG PE0604307			Program Element (PE) Name and No. AEGIS COMBAT SYS ENG PE0604307						
COST (\$ in Millions)		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total PE Cost		175.562	256.120	179.684	194.015	130.676	107.796	82.409	CONT.	CONT.
Surf Combatant Combat Sys/K1447		128.300	241.727	175.484	189.733	126.318	103.352	77.873	CONT.	CONT.
Surf Combatant Weapon Sys Mod/K1776		6.827	4.188	4.200	4.282	4.358	4.444	4.536	CONT.	CONT.
Surf Combatant Weapons Dev/K1937		6.499	7.201	0.000	0.000	0.000	0.000	0.000	0.000	193.570
Smart Ship Project/K2308		0.539	3.004	0.000	0.000	0.000	0.000	0.000	0.000	3.543
CEC Integration on DDG-51 Ships/K2636		9.241	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.241
AEGIS Baseline Software Development/K2637		19.316	0.000	0.000	0.000	0.000	0.000	0.000	0.000	19.316
DDG-51 Composite Director Room/K2638		4.840	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.840
Quantity of RDT&E Articles	Not Applicable									
<p>A. (U) Mission Description and Budget Item Justification</p> <p>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.</p> <p>Note: \$5.862M of the FY 2000 funds budgeted is that portion of the extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638</p>										

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EXHIBIT R-2, RDT&E Budget Item Justification		DATE:	February 2000																				
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	R-1 ITEM NOMENCLATURE																					
RDT&E, N / 1319 / BA 5	AEGIS COMBAT SYS ENG PE0604307	Program Element (PE) Name and No. AEGIS COMBAT SYS ENG PE0604307																					
<p>B. Program Change Summary</p> <table border="0"> <thead> <tr> <th></th> <th><u>FY 1999</u></th> <th><u>FY 2000</u></th> <th><u>FY 2001</u></th> </tr> </thead> <tbody> <tr> <td>FY 2000 PRES Budget Submit:</td> <td>178.426</td> <td>204.480</td> <td>192.256</td> </tr> <tr> <td>Appropriated Value:</td> <td>164.061</td> <td>257.980</td> <td></td> </tr> <tr> <td>Adjustment to FY 1999/2000 Appropriated Value/ FY2000 President's Budget:</td> <td>11.501</td> <td>-1.860</td> <td>-12.572</td> </tr> <tr> <td>FY 2001 PRES Budget Submit:</td> <td>175.562</td> <td>256.120</td> <td>179.684</td> </tr> </tbody> </table> <p>Funding:</p> <p>FY 1999 funding change is due to increases associated with three factors: 1) To resolve interoperability issues and integration requirements for Aegis (ADS Mk6)/CEC, 2) Subsequent extension of Cooperative Engagement Capability (CEC) OPEVAL (\$+19.250), 3) increase for AADC prototype installation on MT WHITNEY (\$+3.999), decreases for SBIR/STTR transfer (\$-5.887), decrease for NTACMS/LASM realignment (\$-4.050), Contract Advisory and Assistance Services (\$-0.436) and minor pricing adjustments (\$-1.375).</p> <p>FY2000 funding change is due to shifting Navy priorities (\$-438) and across the board reductions (\$-1.422).</p> <p>FY 2001 funding change is due to removal of Baseline 7 Phase I Follow-On requirements (\$-12.600), increase for Area Air Defense Commander (AADC) (\$+12.000), decrease for deferral of Baseline 2 CG Conversion by 1 year (\$-16.600), increase for acquisition stability reserve for increased scope in Baseline 6 Phase III and 7 Phase I (\$+13.200), decrease due to minimum sustaining rate corrections (\$-3.867), increase for system configuration equipment file (\$+2.000), and NWCF rate adjustments (\$+0.407), reduction to finance higher priorities (\$-6.190) and minor pricing adjustments (\$-.922).</p> <p>Schedule: Following the FY99 Appropriations Act, Baseline 6 Phase III development was extended one year and Baseline 7 Phase I was extended 10 months. These adjustments were necessary to: 1) More thoroughly complete necessary testing to ensure that those baselines will meet all functional requirements and 2) Incorporate lessons learned from the Baseline 6 Phase I AEGIS Weapon System (AWS)/CEC integration effort. All baselines will still be delivered to shipbuilders within contractual dates.</p> <p>Since the FY 2000/2001 President's Budget Submission, Baseline 7 Phase IC (for B/L 2 Cruiser Conversion) development schedule was adjusted one year and Baseline 7 Phase I Follow-on was cancelled.</p> <p>Technical: Not applicable.</p>					<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	FY 2000 PRES Budget Submit:	178.426	204.480	192.256	Appropriated Value:	164.061	257.980		Adjustment to FY 1999/2000 Appropriated Value/ FY2000 President's Budget:	11.501	-1.860	-12.572	FY 2001 PRES Budget Submit:	175.562	256.120	179.684
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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2000			
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER			PROJECT NAME AND NUMBER: Surface Combatants Combat Sys Improv - K1447; CEC Integration on DDG 51 Ships - K2636; AEGIS Baseline Software Development - K2637						
RDT&E, N / 1319 / BA 5	AEGIS COMBAT SYS ENG PE0604307									
COST (\$ in Millions)		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
K1447		128.300	241.727	175.484	189.733	126.318	103.352	77.873	CONT.	CONT.
K2636		9.241	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.241
K2637		19.316	0.000	0.000	0.000	0.000	0.000	0.000	0.000	19.316
TOTAL		156.857	241.727	175.484	189.733	126.318	103.352	77.873	CONT.	CONT.
RDT&E Articles Qty	Not Applicable									
<p>Note: Projects K2636 and K2637 were FY 1999 Congressional Plus-ups. These projects funded efforts that are an integral part of the Surface Combatant Combat Systems Improvements program. For consistency across the FYDP, these projects are grouped with K1447.</p> <p>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 such as fiber optics and distributed architecture. 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.</p>										

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EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2000
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / 1319 / BA 5	PROGRAM ELEMENT NAME AND NUMBER AEGIS COMBAT SYS ENG PE0604307	PROJECT NAME AND NUMBER: Surface Combatants Combat Sys Improv - K1447; CEC Integration on DDG 51 Ships, K2636; AEGIS Baseline Software Development - K2637
<p>FY 1999 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"> - (U) (\$1.000) Began modifications to the AWS computer program to allow incorporation of AAW capability into the SM2 BLK IVA missile. - (U) (\$27.605) Continued with Element Test and Evaluation (ET&E) and Multi-element Integration Testing (MEIT) for Baseline 6 Ph I. Delivered 6 Ph I program to CG 66 and 69 for testing. Continued with integration of CEC Baseline 2 functionality into this baseline for cruisers. Continued preparation for CEC OPEVAL. - (U) (\$21.900) Continued Baseline 6 Phase III computer program code, debugging, and testing. Conducted Critical Design Review (CDR) II. Began extensive ET&E and MEIT at the Combat System Engineering Development Site (CSEDS). - (U) (\$47.573) Continued system engineering for full integration of SPY-1D(V), advanced processing, and other upgrades into new construction AEGIS Combat System in Baseline 7 Phase I. Conducted Baseline 7 Phase I PDR for integration of upgrades into the AEGIS Combat System. - (U) (\$15.000) Began system definition and engineering for the AEGIS Cruiser Conversion Program to incorporate warfighting capabilities including TBMD, AADC, and land attack into Baseline 3, and 4 Cruisers. This includes development of the Baseline 6 Phase IIIC computer program . - (U) (\$11.999) Continued the AADC Prototype at Sea installations in USS SHILOH and MT WHITNEY and commenced proof of concept and risk reduction testing in an operational environment. Conducted joint exercises employing the prototype shore capability for both operational and technical evaluation, providing feedback to the system developer. - (U) (\$14.280) Continued to provide the RDT&E share of operations and maintenance of the Combat System Engineering Development (CSED) Site, Program Generation Center, Computer Program Test Site, and Land Based Test Site. - (U) (\$17.500) 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. <p>FY 2000 PLAN:</p> <ul style="list-style-type: none"> - (U) (\$1.200) Continue modifications to the AWS computer program to allow incorporation of AAW capability into the SM2 BLK IVA missile. - (U) (\$35.540) Continue ET&E and MEIT for Baseline 6 Phase I. Continue to deliver updated 6 Ph I programs to CG 66 and 69 for testing. Continue preparation for CEC OPEVAL on CGs 66 and 69. Includes (\$10.000) Congressional Plus up to continue to develop the ADS MK 6 Capability 7 months longer than planned and incorporate corrections to high-priority anomalies found during ET&E. - (U) (\$93.926) Continue extensive Baseline 6 Phase III ET&E and MEIT at CSEDS and the Production Test Center (PTC). Includes (\$40.000) Congressional Plus up to support integration of COTS based Adjunct Processors into the SPY radar, ADS, and Command & Decision Element. Additionally, these funds will be used to reduce the risk in delivering the unanticipated increasingly complex tactical display services associated with ADS Mk 6. 		

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Exhibit R-2a, RDT&E Project Justification
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EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2000
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / 1319 / BA 5	PROGRAM ELEMENT NAME AND NUMBER AEGIS COMBAT SYS ENG PE0604307	PROJECT NAME AND NUMBER: Surface Combatants Combat Sys Improv - K1447; CEC Integration on DDG 51 Ships, K2636; AEGIS Baseline Software Development - K2637
<ul style="list-style-type: none"> - (U) (\$42.641) Conduct Critical Design Review (CDR) and begin code, debug and test (CDT) for 7 Phase I computer program. Develop radar handbook and technical manuals associated with introduction of 7 Phase I computer program. - (U) (\$25.500) Conduct 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 includes development of the Baseline 6 Phase IIIC computer program . Includes (\$5.000) Congressional Plus up to Conduct Baseline I Cruiser Conversion feasibility study. - (U) (\$1.000) Continue evaluation of the AADC Prototype at sea and conduct Joint Task Force Exercise (JTFEX) using the installed AADC systems. Provide necessary logistics and system engineering support to maintain the AADC Prototype at Sea system in an operationally ready state and support production efforts. - (U) (\$20.640) Continue to provide the RDT&E share of operations and maintenance of the CSED Site, Program Generation Center, Computer Program Test Site, and Land Based Test Site. - (U) (\$21.280) 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>FY 2001 PLAN:</p> <ul style="list-style-type: none"> - (U) (\$0.400) Complete modifications to the AWS computer program to allow incorporation of AAW capability into the SM2 BLK IVA missile. - (U) (\$5.500) Support CEC OPEVAL (05/2001) on CGs 66 and 69. - (U) (\$34.200) Continue with extensive Baseline 6 Phase III ET&E and MEIT at CSEDS and the Production Test Center (PTC). Deliver program to shipyards for first level testing in new construction ships. Conduct demo of 6 Phase III and Computer Program Acceptance Panel. - (U) (\$44.933) Continue code, debug and test (CDT) for 7 Phase I computer program. Continue development of radar handbook and technical manuals associated with introduction of 7 Ph I program. - (U) (\$47.600) Conduct Preliminary Design Review for the Cruiser Conversion Program to incorporate warfighting capabilities including TBMD, AADC, and land attack into Baseline 3 and 4 Cruisers. This includes development of the Baseline 6 Phase IIIC computer program. Begin system definition and engineering to incorporate land attack into Baseline 2 Cruisers. - (U) (\$25.474) Continue to provide the RDT&E share of operations and maintenance of the CSED Site, Program Generation Center, Computer Program Test Site, and Land Based Test Site. 		

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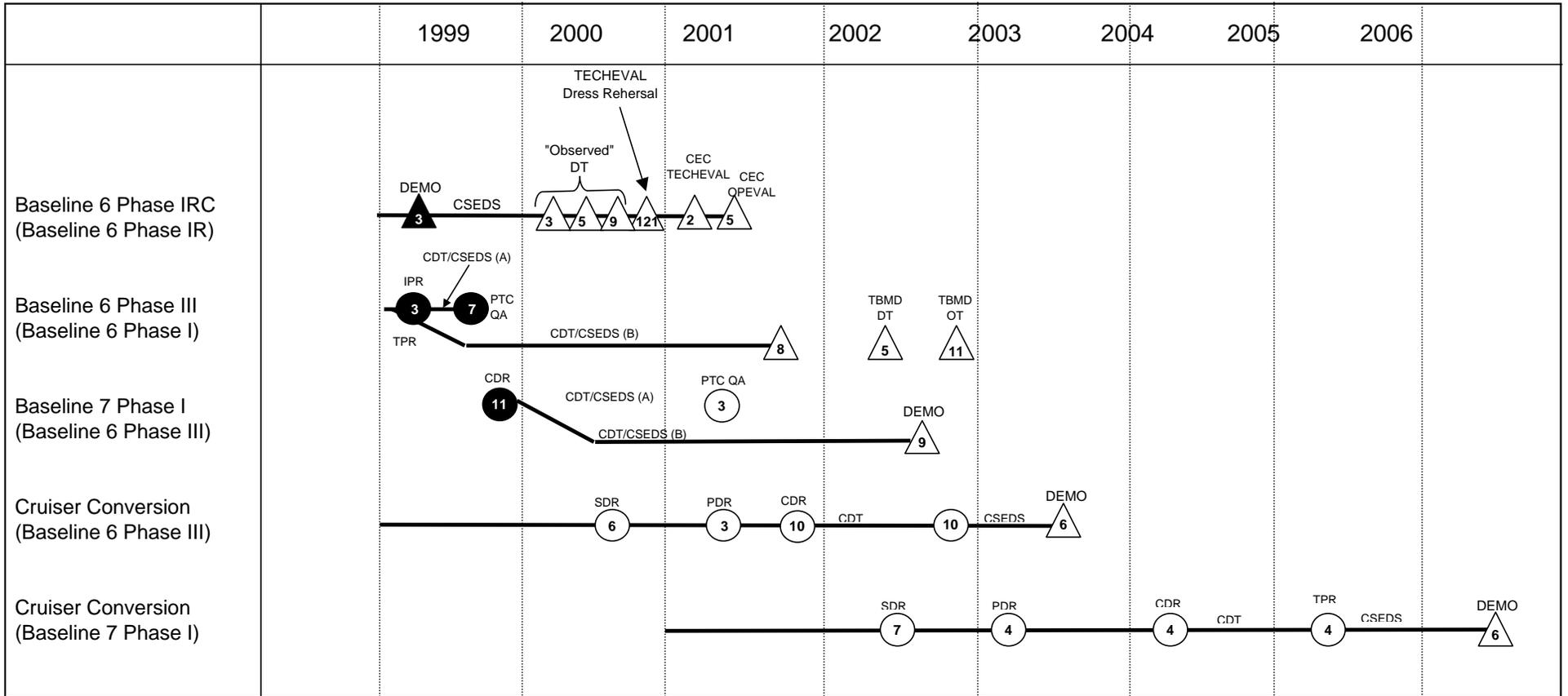
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EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2000
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / 1319 / BA 5	PROGRAM ELEMENT NAME AND NUMBER AEGIS COMBAT SYS ENG PE0604307	PROJECT NAME AND NUMBER SURFACE COMBATANTS COMBAT SYSTEM IMPROVEMENTS - K1447

D. Schedule Profile:



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Exhibit R-3 Cost Analysis (page 1)								DATE: February 2000				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT NAME AND NUMBER			PROJECT NAME AND NUMBER						
RDT&E, N / 1319 / BA 5			AEGIS COMBAT SYS ENG PE0604307			SURFACE COMBATANTS COMBAT SYSTEM IMPROVEMENTS - K1447						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 99 Cost	FY 99 Award Date	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	SS/CPAF	Lockheed, Moorestown, NJ	295.680	99.169	03/99	176.850	03/00	109.723	03/01	CONT.	CONT.	
Systems Engineering	SS/CPFF	APL, Baltimore MD	19.620	2.387	10/98	1.170	10/99	2.100	10/00	CONT.	CONT.	
Systems Engineering	WR/RCP	NSWC, Dahlgren VA	33.590	12.096	12/98	21.398	12/99	8.000	12/00	CONT.	CONT.	
Systems Engineering	SS/CPAF	PCI, VA Beach, VA	0.000	2.325	03/99	2.325	03/00	2.325	03/01	CONT.	CONT.	
Systems Engineering	SS/CPAF	Marconi, Rockville MD	20.120	1.840	03/99	1.840	03/00	1.840	03/01	CONT.	CONT.	
Systems Engineering	WR/RCP	NWAS, Corona CA		1.100	11/98	0.882	11/99	0.703	11/00	CONT.	CONT.	
Systems Engineering	SS/CPAF	Litton		0.997	04/99	0.000	na	0.000	na	CONT.	CONT.	
Systems Engineering	SS/CPAF	Boeing		0.990	04/99	0.000	na	0.000	na	CONT.	CONT.	
Systems Engineering	SS/CPAF	General Dynamics		0.999	04/99	0.000	na	0.000	na	CONT.	CONT.	
Systems Engineering	SS/CPAF	Competitive		0.000	na	10.000	various	16.000	various	CONT.	CONT.	
Systems Engineering	RCP	SPAWAR		2.260	11/98	0.320	11/99	1.400	11/00	CONT.	CONT.	
Systems Engineering	CPFF	Techmatics		0.000	na	0.000	na	2.000	11/00	CONT.	CONT.	
Systems Engineering	WR/RCP	Miscellaneous	30.540	0.382	various	0.805	various	0.800	various	CONT.	CONT.	
Award Fees	SS/CPAF	Lockheed, Moorestown, NJ	41.140	12.978	03/99	17.794	03/00	15.352	03/01	CONT.	CONT.	
Award Fees	SS/CPAF	Marconi, Rockville, MD		0.160	03/99	0.160	03/00	0.160	03/01	CONT.	CONT.	
Award Fees	SS/CPAF	PCI, VA Beach, VA		0.175	03/99	0.175	03/00	0.175	03/01	CONT.	CONT.	
Award Fees	WR/RCP	Miscellaneous	2.790	0.000	na	0.000	na	0.000	na	CONT.	CONT.	
Subtotal Product Development			443.480	137.858		233.719		160.578		CONT.	CONT.	
Remarks:												
Support	CPFF	APL, Baltimore MD		7.396	10/98	0.180	10/99	0.200	10/00	CONT.	CONT.	
Support	WR	NSWC, Pt. Hueneme, CA		0.434	11/98	0.150	11/99	1.050	11/00	CONT.	CONT.	
Support	WR	NSWC, Dahlgren VA		1.617	12/98	0.000	12/99	0.000	12/00	CONT.	CONT.	
Support	WR/RCP	Miscellaneous	3.880	2.048	various	1.628	various	0.545	various	CONT.	CONT.	
Subtotal Support			3.880	11.495		1.958		1.795		CONT.	CONT.	
Remarks:												

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Exhibit R-3, Project Cost Analysis
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APPROPRIATION/BUDGET ACTIVITY							PROJECT NAME AND NUMBER						DATE:
RDT&E, N / 1319 / BA 5			PROGRAM ELEMENT NAME AND NUMBER			SURFACE COMBATANTS COMBAT SYSTEM IMPROVEMENTS - K1447						February 2000	
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 99 Cost	FY 99 Award Date	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Test and Evaluation	SS/CPAF	Lockheed, Moorestown, NJ	0.000	0.000	na	1.000	03/00	3.500	03/01	CONT.	CONT.		
Test and Evaluation	WR	NSWC, Pt. Hueneme, CA	0.000	2.100	11/98	2.000	11/99	2.000	11/00	CONT.	CONT.		
Test and Evaluation	CPFF	APL, Baltimore MD	0.000	0.000	na	0.180	10/99	3.000	10/00	CONT.	CONT.		
Test and Evaluation	WR/RCP	Miscellaneous	5.460	2.444	various	0.363	various	0.788	various	CONT.	CONT.		
Subtotal T&E			5.460	4.544		3.543		9.288		CONT.	CONT.		
Remarks:													
Program Management Support	WR/RCP	Miscellaneous	3.900	2.960	various	2.507	various	3.823	various	CONT.	CONT.		
Subtotal Management			3.900	2.960		2.507		3.823		CONT.	CONT.		
Remarks:													
Total Cost			456.720	156.857		241.727		175.484		CONT.	CONT.		
Remarks:													

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Exhibit R-3, Project Cost Analysis
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EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2000				
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER				PROJECT NAME AND NUMBER:					
RDT&E, N / 1319 / BA 5	AEGIS COMBAT SYS ENG PE0604307				Surface Combatant Weapon System Mod/K1776					
COST (\$ in Millions)		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Project Cost		6.827	4.188	4.200	4.282	4.358	4.444	4.536	CONT.	CONT.
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 1999 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"> - (U) (\$3.000) Continued Radar System Engineering Studies to enable AWS to meet the evolving threat. Investigated combined AAW/TBMD performance and provided optimal integrated design for SPY-1D(V). - (U) (\$1.486) Completed Tactical Environmental Processor (TEP) development/signal processor upgrades. Installed on DDG 77 in Aug 99, testing in Sep-Oct 99. - (U) (\$0.710) Initiated signal processing requirements definition for a common Moving Target Indicator (MTI)/TBMD adjunct processor. - (U) (\$0.350) Developed input/output implementation for new Electronic Counter Measures Analysis (ECMA) architecture. Defined Fault Detection/Fault Isolation requirement for new architecture. - (U) (\$1.281) Continued Operational Readiness Test System (ORTS) Upgrade for Baseline 3, 4, 5 design, development and engineering. <p>FY 2000 PLAN:</p> <ul style="list-style-type: none"> - (U) (\$2.081) Continue Radar System Engineering Studies to enable AWS to meet the evolving threat. Investigate proposed Deceptive Electronic Counter Measures (DECM) changes and integration plans. - (U) (\$0.695) Continue common MTI/TBMD adjunct signal processor definition and design. - (U) (\$1.000) Develop an ECMA transition architecture that migrates from Programmable Computer Interface (PCI) based Field Programmable Gated Arrays (FPGA) design to a more supportable configuration. - (U) (\$0.412) Continue ORTS design efforts and ECMA or Common signal processor implementation impacts. <p>FY 2001 PLAN:</p> <ul style="list-style-type: none"> - (U) (\$2.171) Continue Radar System Engineering Studies to enable AWS to meet the evolving threat. - (U) (\$1.085) Continue common MTI/TBMD adjunct processor design. - (U) (\$0.520) Continue ECMA upgrade effort and develop design package for transition to production. - (U) (\$0.424) Continue ORTS design efforts and support ECMA transition to production. 										

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EXHIBIT R-2a, RDT&E Project Justification

DATE:

February 2000

APPROPRIATION/BUDGET ACTIVITY

RDT&E, N / 1319 / BA 5

PROGRAM ELEMENT NAME AND NUMBER

AEGIS COMBAT SYS ENG PE0604307

PROJECT NAME AND NUMBER:

Surface Combatant Weapon System Mod, K1776

B. Other Program Funding Summary:

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>To Complete</u>	<u>Total Cost</u>
SCN LI2122 - DDG 51	2642.500	2674.700	3070.400	1875.700	1957.900	1994.200	1194.100	Cont	50732.500
OPN LI5246 - AEGIS Supt. Eqp	89.378	91.157	36.848	149.985	294.725	369.676	440.760	Cont	1472.529

Related RDT&E: Not applicable.

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.

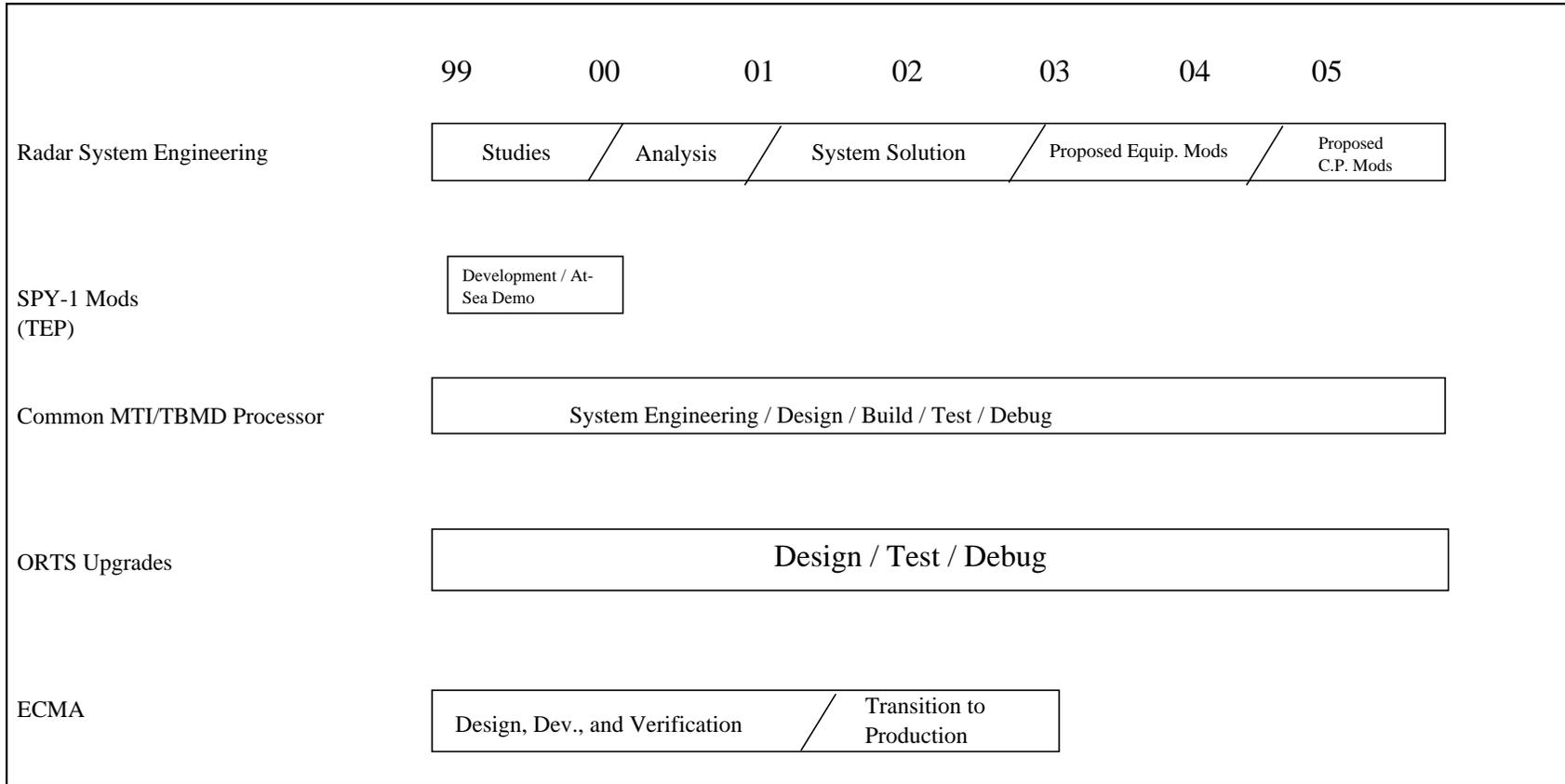
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EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2000
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / 1319 / BA 5	PROGRAM ELEMENT NAME AND NUMBER AEGIS COMBAT SYS ENG PE0604307	PROJECT NAME AND NUMBER: Surface Combatant Weapon System Mod/K1776

D. Schedule Profile:



R-1 SHOPPING LIST - Item No. 96-12 of 96-17

Exhibit R-2a, RDT&E Project Justification
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Exhibit R-3 Cost Analysis (page 1)							DATE: February 2000					
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT NAME AND NUMBER			PROJECT NAME AND NUMBER:						
RDT&E, N / 1319 / BA 5			AEGIS COMBAT SYS ENG PE0604307			Surface Combatant Weapon System Mod/K1776						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 99 Cost	FY 99 Award Date	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	SS/CPAF	Lockheed, Moorestown, NJ	16.800	3.055	03/99	2.152	03/00	2.193	03/01	CONT.	CONT.	
Systems Engineering	WR/RCP	Miscellaneous	3.760	2.274	various	1.198	various	1.175	various	CONT.	CONT.	
Award Fees	SS/CPAF	Lockheed, Moorestown, NJ		0.417	03/99	0.293	03/00	0.299	03/01	CONT.	CONT.	
Award Fees	WR/RCP	Miscellaneous		0.036	various	0.121	various	0.121	various	CONT.	CONT.	
Subtotal Product Development			20.560	5.782		3.764		3.788		CONT.	CONT.	
Remarks:												
Support	WR/RCP	Miscellaneous	1.060	0.000	na	0.000	na	0.000	na	CONT.	CONT.	
Subtotal Support			1.060	0.000		0.000		0.000		CONT.	CONT.	
Remarks:												
Test & Evaluation	WR/RCP	Miscellaneous	0.000	0.000	na	0.000	na	0.000	na	CONT.	CONT.	
Subtotal T&E			0.000	0.000		0.000		0.000		CONT.	CONT.	
Remarks:												
Program Management Support	WR/RCP	Miscellaneous	3.900	1.045	various	0.424	various	0.412	various	CONT.	CONT.	
Subtotal Management			3.900	1.045		0.424		0.412		CONT.	CONT.	
Remarks:												
Total Cost			25.520	6.827		4.188		4.200		CONT.	CONT.	
Remarks:												

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Exhibit R-3, Project Cost Analysis
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CLASSIFICATION:

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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2000			
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER			PROJECT NAME AND NUMBER:						
RDT&E, N / 1319 / BA 5	AEGIS COMBAT SYS ENG PE0604307			Surface Combatant Weapon Development/K1937						
COST (\$ in Millions)		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Project Cost		6.499	7.201	0.000	0.000	0.000	0.000	0.000	0.000	193.659
RDT&E Articles Qty										
<p>A. (U) Mission Description and Budget Item Justification</p> <p>This program is required to develop selected systems and subsystems for the ARLEIGH BURKE (DDG 51) class ships. This project funds development of equipment for the AEGIS Weapon System, as opposed to the costs of integrating elements into the Combat System which is funded in project K1447. The changes are in the transmitter, signal processor, and radar control computer. Two new efforts began in FY 1999:</p> <ol style="list-style-type: none"> 1. Development of the AAW requirements and design for a common signal processor (CSP) which builds upon the risk reduction test beds being developed for Navy Theater Wide (NTW) defense under BMDO funding. This NTW CSP is required to provide exo-atmospheric discrimination capability. The common signal processor effort will incorporate AAW functions into the signal processor functions being developed for NTW. 2. Integration of the AN/SPQ-9B radar into the AEGIS Weapon System to improve capability against the advanced low-altitude threat. <p>FY 1999 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"> - (U) (\$2.859) Initiated expanded common signal processor design for the AN/SPY-1 Radar to include advanced AAW functionality and features. The expanded signal processor design adds AAW functionality to and leverages the common signal processor's TBMD functionality design currently being pursued via TBMD funding. The advanced AAW functionality implements adaptive digital signal processing to improve low altitude clutter rejection performance and Electronic counter-countermeasures (ECCM) capabilities. - (U) (\$3.640) Initiated the design for the integration of the AN/SPQ-9B Radar (or its advanced variant) into the AEGIS Weapon System. The design includes both AAW and Gun Weapons System (GWS) integration schemes and seeks to free-up AN/SPY-1 horizon search resources for above horizon search (i.e. TBMD). <p>FY 2000 PLAN:</p> <ul style="list-style-type: none"> - (U) (\$3.701) Complete the design of the expanded common signal processor for the AN/SPY-1 Radar to include advanced AAW functionality which will improve low altitude clutter rejection and ECCM performance. - (U) (\$3.500) Complete the design for the integration options of the AN/SPQ-9B into the Baseline 6 Phase IIIC AEGIS Weapon System. 										

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Exhibit R-2a, RDT&E Project Justification

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EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2000
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / 1319 / BA 5	PROGRAM ELEMENT NAME AND NUMBER AEGIS COMBAT SYS ENG PE0604307	PROJECT NAME AND NUMBER: Surface Combatant Weapon Development/K1937

B. Other Program Funding Summary:

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>To Complete</u>	<u>Total Cost</u>
SCN LI2122 - DDG 51	2642.500	2674.700	3070.400	1875.700	1957.900	1994.200	1194.100	Cont	50732.500
OPN LI5246 - AEGIS Supt. Eqp	89.378	91.157	36.848	149.985	294.725	369.676	440.760	Cont	1472.529

Related RDT&E: Not applicable.

C. Acquisition Strategy:

- AN/SPQ-9B Integration: Lockheed Martin (LM) is the AEGIS Combat System Engineering Agent and is the sole producer of AEGIS Weapon System (AWS) modifications. It is anticipated that all modifications needed to fully integrate the AN/SPQ-9B into the AWS will be procured from LM.
- Common Signal Processor: As the sole producer of the AN/SPY-1 Radar, LM is taking the lead in AN/SPY-1 signal processor TBMD test bed efforts. LM will be the prime for the development of the common signal processor with advanced AAW functionality, which will be built off of TBMD common signal processor efforts. Some of the portions of the development may be assigned to laboratories. Procurement of the common signal processor will be with LM.

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Exhibit R-2a, RDT&E Project Justification
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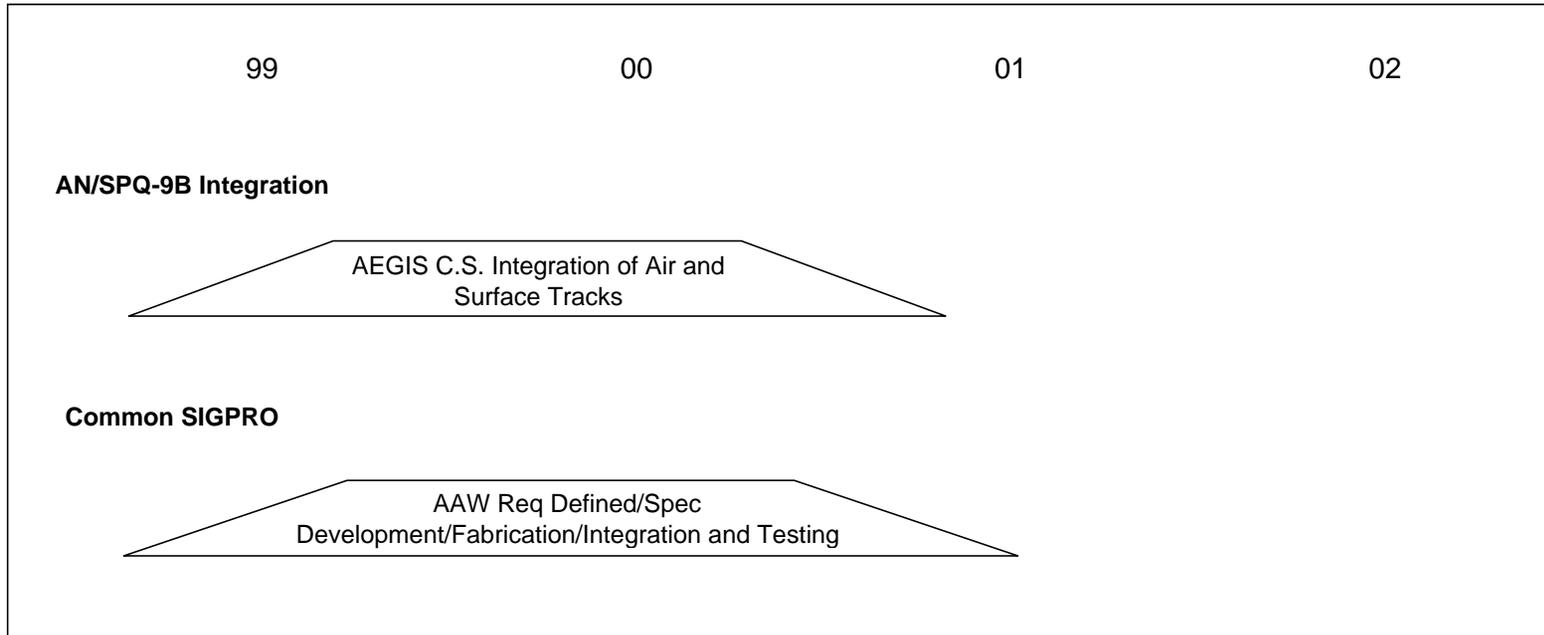
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EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2000
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / 1319 / BA 5	PROGRAM ELEMENT NAME AND NUMBER AEGIS COMBAT SYS ENG PE0604307	PROJECT NAME AND NUMBER: Surface Combatant Weapon Development/K1937

D. Schedule Profile:



R-1 SHOPPING LIST - Item No. 96-16 of 96-17

Exhibit R-2a, RDT&E Project Justification
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CLASSIFICATION:

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Exhibit R-3 Cost Analysis (page 1)										DATE: February 2000		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT NAME AND NUMBER			PROJECT NAME AND NUMBER:						
RDT&E, N / 1319 / BA 5			AEGIS COMBAT SYS ENG PE0604307			Surface Combatant Weapon Development/K1937						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 99 Cost	FY 99 Award Date	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	SS/CPAF	Lockheed, Moorestown, NJ	157.930	3.299	03/99	3.520	03/00	0.000	na	0.000	164.749	
Systems Engineering	WR/RCP	NSWC, Dahlgren, VA	0.000	1.630	12/98	1.697	12/99	0.000	na	0.000	3.327	
Systems Engineering	WR/RCP	Miscellaneous	0.000	0.724	various	0.753	various	0.000	various	0.000	1.477	
Award Fees	SS/CPAF	Lockheed, Moorestown, NJ		0.468	03/99	0.480	03/00	0.000	na	0.000	0.948	
Award Fees	WR/RCP	Miscellaneous	21.940	0.027	various	0.027	various	0.000	na	0.000	21.994	
Subtotal Product Development			179.870	6.148		6.477		0.000		0.000	192.495	
Remarks:												
Development Support Equipment	WR/RCP	Miscellaneous	0.000	0.000	na	0.000	na	0.000	na	0.000	0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Test & Evaluation	WR/RCP	Miscellaneous	0.000	0.000	na	0.000	na	0.000	na	0.000	0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Program Management Support	WR/RCP	Miscellaneous	0.000	0.351	various	0.724	various	0.000	na	0.000	1.075	
Subtotal Management			0.000	0.351		0.724		0.000		0.000	1.075	
Remarks:												
Total Cost			179.870	6.499		7.201		0.000		0.000	193.570	
Remarks:												

R-1 SHOPPING LIST - Item No. 96-17 of 96-17

Exhibit R-3, Project Cost Analysis
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