DEPARTMENT OF THE NAVY
FY 1997 BUDGET ESTIMATES

19960705 044

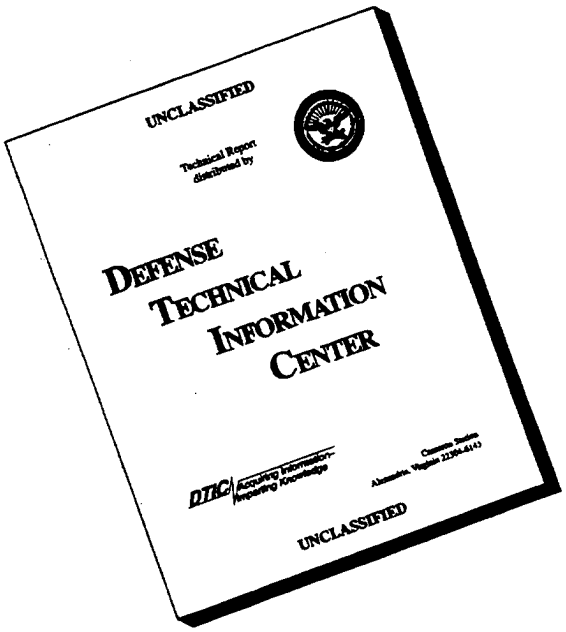
JUSTIFICATION OF ESTIMATES
MARCH 1996

RESEARCH, DEVELOPMENT, TEST & EVALUATION
BUDGET ACTIVITY 5: ENGINEERING & MANUFACTURING DEVELOPMENT

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APPROPRIATION: 1319n Research, Development, Test, and Evaluation, Navy

DATE: 03/21/96

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	BA	Thousands of Dollars FY 1995	FY 1996	FY 1997	SEC
78	0603266N	AH-1T COMP ROTOR BLADE	05	-	11,263	73,080	U
79	0604212N	ASW & Other Helo Development	05	89,009	75,376	40,132	U
80	0604214N	AV8B Aircraft (Eng)	05	9,560	26,063	16,874	U
81	0604215N	Standards Development	05	16,102	10,212	24,698	U
82	0604217N	S-3 Wpn System Improvement	05	13,577	12,469	4,979	U
83	0604218N	Air/Ocean Equipment Engineering	05	5,299	5,928	5,631	U
84	0604221N	P-3 Modernization Program	05	4,994	16,414	2,074	U
85	0604231N	Tactical Command System	05	34,979	23,385	26,989	U
86	0604261N	Acoustic Search Sensors	05	18,416	9,353	12,141	U
87	0604262N	V-22	05	452,669	733,728	576,792	U
88	0604264N	Air Crew Systems Development	05	13,994	16,953	11,089	U
89	0604265N	Air Launched Saturation System	05	2,500	-	-	U
90	0604270N	EW Development	05	94,355	91,742	78,748	U
91	0604301N	MK-92 Fire Control System Upgrade	05	1,692	-	-	U
92	0604307N	AEGIS Combat System Engineering	05	89,508	91,501	89,279	U
93	0604310N	Arsenal Ship	05	-	-	25,000	U
94	0604311N	LPD-17 Development	05	-	-	4,272	
95	0604312N	Tri-Service Standoff Attack Missile	05	31,860	-	-	U
96	0604366N	Standard Missile Improvements	05	14,323	21,865	1,637	U
97	0604372N	New Threat Upgrade	05	1,301	-	-	U
98	0604373N	Airborne MCM	05	19,357	33,379	14,522	U
99	0604503N	Submarine System Equipment Development	05	40,641	67,691	61,395	U

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	BA	Thousands of Dollars FY 1995	FY 1996	FY 1997	SEC
100	0604504N	Air Control	05	7,841	7,577	10,750	U
101	0604507N	Enhanced Modular Signal Processor	05	11,541	14,377	3,718	U
102	0604512N	Shipboard Aviation Systems	05	1,910	10,988	6,571	U
103	0604516N	Ship Survivability	05	8,521	4,755	6,832	U
104	0604518N	CIC Conversion	05	13,172	15,359	10,280	U
105	0604524N	Submarine Combat System	05	84,681	41,831	18,952	U
106	0604558N	New Design SSN Development	05	228,839	336,014	394,000	U
107	0604561N	SSN-21 Development	05	69,160	80,819	91,931	U
108	0604562N	Submarine Tactical Warfare System	05	20,277	37,269	22,899	U
109	0604567N	Ship Contract Design/Live Fire T&E	05	152,254	17,433	7,221	U
110	0604574N	Navy Tactical Computer Resources	05	16,640	14,670	5,237	U
111	0604601N	Mine Development	05	3,161	2,951	2,505	U
112	0604603N	Unguided Conventional Air-launched Weapons	05	73,406	51,833	22,322	U
113	0604610N	Lightweight Torpedo Development	05	10,754	21,336	15,019	U
114	0604612M	MC Mine Countermeasures (Eng)	05	1,465	930	5,742	U
115	0604618N	Joint Direct Attack Munition	05	24,021	29,568	35,130	U
116	0604654N	Jt Serv Explosive Ordnance Dev	05	6,242	5,240	7,346	U
117	0604703N	Personnel, Trng, Simulation & Human Factors	05	1,117	1,013	1,013	U
118	0604710N	Navy Energy Program	05	3,156	2,548	1,983	U
119	0604719M	MC Command/Control/Communications Sys	05	8,061	9,946	-	U
120	0604721N	Battle Group Passive Horizon Extension System	05	14,668	10,639	3,704	U
121	0604727N	Joint Standoff Weapon Systems	05	114,396	79,259	86,266	U

APPROPRIATION: 1319n Research, Development, Test, and Evaluation, Navy

DATE: 03/21/96

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	BA	Thousands of Dollars FY 1995	FY 1996	FY 1997	SEC
122	0604755N	Ship Self Defense	05	208,995	200,324	134,677	U
123	0604761N	Intelligence Engineering	05	3,941	-	-	U
124	0604771N	Medical Development (Engineering)	05	1,681	3,297	3,148	U
125	0604777N	Navigation/ID System	05	67,091	48,398	46,885	U
126	0604784N	Distributed Surveillance System	05	101,904	100,119	35,194	U
TOTAL	Engineering and Manufacturing Development			2,213,031	2,395,815	2,048,657	

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Exhibit R-1 | Department of the Navy | March 1996

APPROPRIATION: 1319n **Research, Development, Test, and Evaluation, Navy**

--- Alphabetic Listing ---

In Thousands of Dollars

P-1 NUMBER	PROGRAM ELEMENT	PROGRAM NAME	BA	FY 1995	FY 1996	FY 1997	C
86	604261	Acoustic Search Sensors	5	18,416	9,353	12,141	U
92	604307	AEGIS Combat System Engineering	5	89,508	91,501	89,279	U
78	603266	AH-1T Comp Rotor Blade	5		11,263	73,080	U
98	604373	Airborne MCM	5	19,357	33,379	14,522	U
100	604504	Air Control	5	7,841	7,577	10,750	U
88	604264	Air Crew Systems Development	5	13,994	16,953	11,089	U
89	604265	Air Launched Saturation System	5	2,500			U
83	604218	Air/Ocean Equipment Engineering	5	5,299	5,928	5,631	U
93	604310	Arsenal Ship	5			25,000	U
79	604212	ASW & Other Helo Development	5	89,009	75,376	40,132	U
80	604214	AV8B Aircraft (Eng)	5	9,560	26,063	16,874	U
120	604721	Battle Group Passive Horizon Extension System	5	14,668	10,639	3,704	U
104	604518	CIC Conversion	5	13,172	15,359	10,280	U
126	604784	Distributed Surveillance System	5	101,904	100,119	35,194	U
101	604507	Enhanced Modular Signal Processor	5	11,541	14,377	3,718	U
90	604270	EW Development	5	94,355	91,742	78,748	U
123	604761	Intelligence Engineering	5	3,941			U
115	604618	Joint Direct Attack Munition	5	24,021	29,568	35,130	U
116	604654	Jt Serv Explosive Ordnance Dev	5	6,242	5,240	7,346	U

Exhibit R-1 | Department of the Navy | March 1996

APPROPRIATION: 1319n | **Research, Development, Test, and Evaluation, Navy**

--- Alphabetic Listing ---

In Thousands of Dollars

P-1 NUMBER	PROGRAM ELEMENT	PROGRAM NAME	BA	FY 1995	FY 1996	FY 1997	C
121	604727	Joint Standoff Weapon Systems	5	114,396	79,259	86,266	U
113	604610	Lightweight Torpedo Development	5	10,754	21,336	15,019	U
94	604311	LPD-17 Development	5			4,272	U
119	604719	MC Command/Control/Communications Sys	5	8,061	9,946		U
114	604612	MC Mine Countermeasures (Eng)	5	1,465	930	5,742	U
124	604771	Medical Development (Engineering)	5	1,681	3,297	3,148	U
111	604601	Mine Development	5	3,161	2,951	2,505	U
91	604301	MK-92 Fire Control System Upgrade	5	1,692			U
125	604777	Navigation/ID System	5	67,091	48,398	46,885	U
118	604710	Navy Energy Program	5	3,156	2,548	1,983	U
110	604574	Navy Tactical Computer Resources	5	16,640	14,670	5,237	U
106	604558	New Design SSN Development	5	228,839	336,014	394,000	U
97	604372	New Threat Upgrade	5	1,301			U
84	604221	P-3 Modernization Program	5	4,994	16,414	2,074	U
117	604703	Personnel, Trng, Simulation & Human Factors	5	1,117	1,013	1,013	U
82	604217	S-3 Wpn System Improvement	5	13,577	12,469	4,979	U
102	604512	Shipboard Aviation Systems	5	1,910	10,988	6,571	U
109	604567	Ship Contract Design/Live Fire T&E	5	152,254	17,433	7,221	U
122	604755	Ship Self Defense	5	208,995	200,324	134,677	U
103	604516	Ship Survivability	5	8,521	4,755	6,832	U

Exhibit R-1
APPROPRIATION: 1319n

Department of the Navy
Research, Development, Test, and Evaluation, Navy

March 1996

--- Alphabetic Listing ---

In Thousands of Dollars

P-1 NUMBER	PROGRAM ELEMENT	PROGRAM NAME	BA	FY 1995	FY 1996	FY 1997	C
107	604561	SSN-21 Development	5	69,160	80,819	91,931	U
96	604366	Standard Missile Improvements	5	14,323	21,865	1,637	U
81	604215	Standards Development	5	16,102	10,212	24,698	U
105	604524	Submarine Combat System	5	84,681	41,831	18,952	U
99	604503	Submarine System Equipment Development	5	40,641	67,691	61,395	U
108	604562	Submarine Tactical Warfare System	5	20,277	37,269	22,899	U
85	604231	Tactical Command System	5	34,979	23,385	26,989	U
95	604312	Tri-Service Standoff Attack Missile	5	31,860			U
112	604603	Unguided Conventional Air-launched Weapons	5	73,406	51,833	22,322	U
87	604262	V-22	5	452,669	733,728	576,792	U

* = These programs contained classified materials and are printed in a separate justification back up book.

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Program and Financing (in thousands of dollars)

Identification code 17-1319-0-1-051	Budget Plan (amounts for RESEARCH, DEV, TEST & EVAL actions programed)			Obligations		
	1995 actual	1996 est.	1997 est.	1995 actual	1996 est.	1997 est.
Program by activities:						
Direct program:						
00.0101 Basic research	408,284	378,929	387,213	406,660	375,172	387,416
00.0201 Applied Research	501,603	543,779	463,465	473,049	570,544	467,424
00.0301 Advanced technology development	481,104	482,865	449,342	461,935	554,524	467,017
00.0401 Demonstration/validation	1,582,957	1,727,209	1,740,955	1,657,137	1,616,331	1,711,012
00.0501 Engineering and manufacturing development	2,213,031	2,405,727	2,048,657	2,270,420	2,425,974	2,091,636
00.0601 Management support	776,356	575,396	558,440	794,005	620,237	560,953
00.0701 Operational system development	2,642,982	2,380,629	1,686,662	2,717,856	2,383,169	1,718,864
00.9101 Total direct program	8,606,317	8,494,534	7,334,734	8,781,062	8,545,951	7,404,322
01.0101 Reimbursable program	111,669	110,000	110,000	122,142	113,659	110,000
10.0001 Total	8,717,986	8,604,534	7,444,734	8,903,204	8,659,610	7,514,322
Financing:						
Offsetting collections from:						
11.0001 Federal funds(-)	-109,801	-110,000	-110,000	-113,237	-110,000	-110,000
13.0001 Trust funds(-)	-128			-133		
14.0001 Non-Federal sources(-)	-1,740			-1,876		
17.0001 Recovery of prior year obligations				-3,023		
Unobligated balance available, start of year:						
21.4002 For completion of prior year budget plans				-758,455	-568,848	-516,272
21.4003 Available to finance new budget plans	-60,902	-11,600		-60,902	-11,600	
21.4009 Reprograming from/to prior year budget plan	-10,989	2,500				
22.0001 Unobligated balance transferred to other acco	18,202	-2,500		18,202	-2,500	
Unobligated balance available, end of year:						
24.4002 For completion of prior year budget plans				568,848	516,272	446,684
24.4003 Available to finance subsequent year budget	11,600			11,600		
25.0001 Unobligated balance expiring	9,489			9,489		
39.0001 Budget authority	8,573,717	8,482,934	7,334,734	8,573,717	8,482,934	7,334,734
Budget authority:						
40.0001 Appropriation	8,627,917	8,573,073	7,334,734	8,627,917	8,573,073	7,334,734
40.3601 Appropriation rescinded (unob bal)		-6,000			-6,000	
41.0001 Transferred to other accounts (-)	-54,200	-84,139		-54,200	-84,139	
43.0001 Appropriation (adjusted)	8,573,717	8,482,934	7,334,734	8,573,717	8,482,934	7,334,734

RDT&E, Navy
Program and Financing (in Thousands of dollars)

00 MAR 96

Identification code 17-1319-0-1-051	Budget Plan (amounts for RESEARCH, DEV, TEST & EVAL actions programed)			Obligations		
	1995 actual	1996 est.	1997 est.	1995 actual	1996 est.	1997 est.
Relation of obligations to outlays:						
71.0001 Obligations incurred				8,787,958	8,549,610	7,404,322
72.1001 Orders on hand, SOY				-169,682	-142,908	
72.4001 Obligated balance, start of year				5,751,294	5,155,440	5,165,061
74.1001 Orders on hand, EOY				142,908		
74.4001 Obligated balance, end of year				-5,155,440	-5,165,061	-4,805,235
77.0001 Adjustments in expired accounts (net)				-124,371		
78.0001 Adjustments in unexpired accounts				-3,023		
90.0001 Outlays (net)				9,229,644	8,397,081	7,764,148

Identification code 17-1319-0-1-051		1995 actual	1996 est.	1997 est.
	Direct obligations:			
	Personnel compensation:			
111.101	Full-time permanent	44,885	45,286	44,835
111.301	Other than full-time permanent	3,717	3,418	3,489
111.501	Other personnel compensation	1,646	1,574	1,558
111.901	Total personnel compensation	50,248	50,278	49,882
112.101	Personnel Benefits: Civilian personnel	9,205	10,176	10,146
113.001	Benefits for former personnel	698	150	150
121.001	Travel and transportation of persons	20,463	21,567	21,938
122.001	Transportation of things	2,136	2,131	2,097
123.301	Communications, utilities, and miscellaneous charges	8,619	8,878	9,144
124.001	Printing and reproduction	724	746	768
125.101	Advisory and assistance services	247,371	276,867	263,316
125.201	Other services with the private sector	5,490,346	5,440,405	4,358,087
	Purchases goods/services (inter/intra) Fed accounts			
125.301	Purchase of goods/services from other Fed agencies	252,858	236,570	226,565
125.302	Payments to foreign national indirect hire personnel	42	20	
125.303	Purchases from revolving funds	2,409,912	2,210,890	2,174,269
126.001	Supplies and materials	17,665	18,194	18,740
131.001	Equipment	15,794	16,268	16,756
132.001	Land and structures	2,905	2,900	2,900
141.001	Grants, subsidies, and contributions	252,076	249,911	249,564
199.001	Total Direct obligations	8,781,062	8,545,951	7,404,322
	Reimbursable obligations:			
	Personnel Compensation:			
211.101	Full-time permanent	32,453	33,454	41,583
211.301	Other than full-time permanent	2,738	868	2,698
211.501	Other personnel compensation	676	673	775
211.901	Total personnel compensation	35,867	34,995	45,056
212.101	Personnel Benefits: Civilian Personnel	6,835	7,138	8,624
221.001	Travel and transportation of persons	2,487	2,750	2,475
222.001	Transportation of things	101	100	100
223.301	Communications, utilities, and miscellaneous charges	1,637	1,635	1,630
224.001	Printing and reproduction	155	150	148
225.201	Other services with the private sector	37,959	26,766	15,882
	Purchases goods/services (inter/intra) Fed accounts			
225.303	Purchases from revolving funds	13,900	17,125	13,090
226.001	Supplies and materials	13,109	13,000	12,990
231.001	Equipment	8,592	8,490	8,480

RDT&E, Navy
Object Classification (in Thousands of dollars)

00 MAR 96

Identification code 17-1319-0-1-051	1995 actual	1996 est.	1997 est.
241.001 Grants, subsidies, and contributions	1,500	1,510	1,525
299.001 Total Reimbursable obligations	122,142	113,659	110,000
999.901 Total obligations	8,903,204	8,659,610	7,514,322

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(Rescission Proposal)
Program and Financing (in Thousands of dollars) SUPPLEMENTAL

Identification code 17-1319-5-1-051	Budget Plan (amounts for RESEARCH, DEV, TEST & EVAL actions programed) 1995 actual	1996 est.	1997 est.	Obligations 1995 actual	1996 est.	1997 est.
Program by activities:						
Direct program:						
00.0101 Basic research		-1,917			-1,801	-116
00.0201 Applied Research		-2,407			-2,262	-145
00.0301 Advanced technology development		-38,135			-35,214	-2,921
00.0401 Demonstration/validation		-10,597			-10,597	
00.0501 Engineering and manufacturing development		-9,912			-9,317	-595
00.0601 Management support		-2,015			-1,894	-121
00.0701 Operational system development		-9,817			-9,227	-590
10.0001 Total		-74,800			-70,312	-4,488
Financing:						
Unobligated balance available, start of year:						
21.4002 For completion of prior year budget plans						4,488
Unobligated balance available, end of year:						
24.4002 For completion of prior year budget plans					-4,488	
40.3501 Budget authority (Appropriation rescinded) (		-74,800			-74,800	
Relation of obligations to outlays:						
71.0001 Obligations incurred					-70,312	-4,488
72.4001 Obligated balance, start of year						-28,499
74.4001 Obligated balance, end of year					28,499	9,425
90.0001 Outlays (net)					-41,813	-23,562

RDT&E, Navy
(Rescission Proposal)
Object Classification (in Thousands of dollars) SUPPLEMENTAL

00 MAR 96

Identification code 17-1319-5-1-051		1995 actual	1996 est.	1997 est.
	Direct obligations:			
125.201	Other services with the private sector		-70,312	-4,488
199.001	Total Direct obligations		-70,312	-4,488
999.901	Total obligations		-70,312	-4,488

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0603266N
PROGRAM ELEMENT TITLE: USMC H-1 UPGRADES

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
H2279/ 4BW/4BN UPGRADE	0	11,263	73,080	87,247	85,627	154,112	109,237	CONT	CONT

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The mission of the AH-1W attack helicopter is to provide rotary wing close air support, anti-armor, armed escort, armed/visual reconnaissance and fire support coordination capabilities under day/night and adverse weather conditions. The mission of the UH-1N utility helicopter is to provide command and control and combat assault support under day/night and adverse weather conditions. Included is special operations support; control, coordination, guidance, supporting fire and aeromedical evacuation. The 4BW/4BN program will replace 2-bladed rotor systems on the AH-1W and UH-1N aircraft, and, in the case of the AH-1W, will phase a fully integrated cockpit into the development after initial work on the drive system is underway. Initial work will consist of simultaneous design efforts for the 4BW and 4BN. Major modifications include: a new rotor system with semi-automatic fold and composite blades, a new performance matched transmission, a new 4-bladed tail rotor and drive system, a more effective elevator, upgraded landing gear, and pylon structural modifications. The 4BW will increase aircraft agility, maximum continuous speed, and payload (ordnance) capability. The fully integrated cockpit will reduce operator workload and improve situational awareness, thus increasing safety. It will provide growth potential for future weapon systems and avionics, which would increase mission effectiveness and survivability. (As discrete systems have been added to the aircraft, pilot workload has progressively worsened.) The cockpit will include integration of on-board mission planning, communications, digital fire control, self navigation, night targeting, and weapons systems in near mirror image crew stations reducing training requirements. The 4BN effort will incorporate the 4BW rotor system into the UH-1N aircraft, maximizing commonality between the two aircraft and providing needed improvements in crew and passenger survivability, payload, power available, endurance, range, airspeed, maneuverability and supportability.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under Engineering and Manufacturing Development because it encompasses Engineering and Manufacturing Development of new end-items prior to production approval decision.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0603266N
PROGRAM ELEMENT TITLE: USMC H-1 UPGRADES
PROJECT NUMBER: H2279
PROJECT TITLE: 4BW/4BN Upgrade

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS: Not Applicable.

2. (U) FY 1995 ACCOMPLISHMENTS:

- (U) Initiated engineering trade studies under P.E. 0604212N.

3. (U) FY 1996 PLAN:

- (U) ($11,008) Continue engineering trade studies, focusing on design configurations, specifications, and Statements of Work. Continue technical and management risk assessments and risk reduction efforts. Obtain 4BW/4BN Milestone II decision and approval for Engineering and Manufacturing Development (E&MD) in fourth quarter FY 1996.
- (U) ($ 0) 4BW/4BN Milestone II decision and approval for E&MD in fourth quarter.
- (U) ($255) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C 638.

4. (U) FY 1997 PLAN:

- (U) ($ 0) Award 4BW/4BN E&MD contract in first quarter.
- (U) ($57,217) Begin 4BW design efforts and conduct 4BW Preliminary Design Review and 4BW Critical Design Review. Begin design and fabrication of tooling. Begin detail parts fabrication and procurement of long lead hardware.
- (U) ($15,863) Begin 4BN design efforts. Conduct 4BN Preliminary Design Review. Continue procurement of long lead hardware designed under the 4BW design effort.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0603266N PROJECT NUMBER: H2279
PROGRAM ELEMENT TITLE: USMC H-1 UPGRADES PROJECT TITLE: 4BW/4BN Upgrade

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	0	0	0
(U) Adjustments from PRESBUDG:	0	+11,263	+73,080
(U) FY 1997 President's Budget Submit:	0	11,263	73,080

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: Adjustments in FY 1996 and FY 1997 reflect a program restructure. The Integrated Weapons System (IWS), P.E. 0604212N, Project H1378, has been terminated and the funding realigned to the 4BW/4BN Upgrade program. The 4BW/4BN Upgrade program includes an integrated cockpit for the AH-1W aircraft. The FY 1996 net reductions contain ($-201 thousand) for Congressional undistributed and inflation adjustments and ($-136 thousand) for revised DoD inflation rates and other minor pricing adjustments. FY 1997 net reductions include Defense Business Operating Fund (DBOF) adjustments (-$3,314 thousand) and minor pricing adjustments ($-2,306 thousand).

(U) Schedule: None.

(U) Technical: None.

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0603266N
PROGRAM ELEMENT TITLE: USMC H-1 UPGRADES

PROJECT NUMBER: H2279
PROJECT TITLE: 4BW/4BN Upgrade

C. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones		4Q 4BW/4BN MSII		2Q/02 4BN MSIII 2Q/03 4BW MSIII
Engineering Milestones		2Q Design Studies/ Risk Assessments	2Q 4BW PDR 3Q 4BN PDR 4Q 4BW CDR	4Q/97 4BN CDR 3Q/99 4BW CU PDR 4Q/99 4BW CU CDR
T&E Milestones				3Q/01 4BN TECHEVAL 3Q/02 4BN OPEVAL 4Q/02 4BW TECHEVAL 4Q/03 4BW OPEVAL
Contract Milestones			1Q 4BW/4BN EMD 1Q/05 4BW FRP	2Q/99 4BW CU Award 2Q/02 4BN LRIP 2Q/03 4BN FRP 2Q/03 4BW LRIP I 2Q/04 4BW LRIP II

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0603266N
PROGRAM ELEMENT TITLE: USMC H-1 UPGRADES

PROJECT NUMBER: H2279
PROJECT TITLE: 4BW/4BN Upgrade

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Hardware Development	0	7,008	65,235
b. Software Development	0	423	3,858
c. Test and Evaluation	0	0	0
d. Engineering & Technical Support	0	2,200	2,129
e. Program Management	0	1,377	1,858
f. SBIR Assessment		255	
Total	0	11,263	73,080

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0603266N
PROGRAM ELEMENT TITLE: USMC H-1 UPGRADES

PROJECT NUMBER: H2279
PROJECT TITLE: 4BW/4BN Upgrade

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Major Contracts:										
Bell Helicopter Fort Worth, TX	SS CPFF	03/96	7,008	7,008			7,008	0	0	7,008
Bell Helicopter Fort Worth, TX	SS CPAF	11/96	520,073	520,073		0	0	65,235	CONT	CONT
In-House Support:										
NAWC-AD, China Lake	WX	03/96	CONT	CONT		0	423	3,858	CONT	CONT
NAWC-AD, Patuxent Rv	WX	03/96	CONT	CONT		0	440	1,465	CONT	CONT
Multiple Field Activities:										
Tech & Engr Spt	WX	03/96	CONT	CONT		0	1,760	664	CONT	CONT
Support and Management										
In-House Support: (Travel)		Various				0	125	175	CONT	CONT

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0603266N
PROGRAM ELEMENT TITLE: USMC H-1 UPGRADES

PROJECT NUMBER: H2279
PROJECT TITLE: 4BW/4BN Upgrade

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Support and Management (cont'd)										
Misc. CS Contracts:	Various					0	1,252	1,683	CONT	CONT
Test and Evalaution Support:	Various					0	0	0	CONT	CONT

GOVERNMENT FURNISHED PROPERTY

Product Development	Not Applicable
Support and Management	Not Applicable
Test and Evaluation	Not Applicable

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0603266N
PROGRAM ELEMENT TITLE: USMC H-1 UPGRADES

PROJECT NUMBER: H2279
PROJECT TITLE: 4BW/4BN Upgrade

	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	0	9,631	71,222	CONT	CONT
Subtotal Support and Management	0	1,377	1,858	CONT	CONT
Subtotal Test and Evaluation	0	0	0	CONT	CONT
SBIR Assessment		255			255
Total Project	0	11,263	73,080	CONT	CONT

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604212N
PROGRAM ELEMENT TITLE: ASW & Other Helo Developments

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
H0485 ALFS	29,729	16,080	3,615	0	0	0	0	0	154,976
H1109 CH/MH-53	6,121	10,224	1,106	5,448	646	956	958	0	79,041
H1378 AH-1 A/C	12,784	3,179	0	0	0	0	0	0	122,219
H1707 LAMPS III IMP	40,375	45,893	35,411	52,605	71,953	53,369	19,511	5,000	454,463
TOTAL	89,009	75,376	40,132	58,053	72,599	54,325	20,469	5,000	810,699

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) H0485 - This program develops ALFS and increases sonobuoy processing capability for the SH-60 helicopter to maintain and improve undersea warfare mission effectiveness against the quiet submarine threat in deep and shallow water environments. This project provides a dipping sonar with demonstrated capabilities typically 3 to 6 times (square miles of ocean searched per hour) the existing deep water capability. This improvement will significantly increase battle group and independent ship protection providing improved survivability and operating flexibility. ALFS provides longer detection ranges and a greater detection capability by using lower frequencies, less signal attenuation, longer pulse lengths, improved processing and increased transmission power. ALFS utilizes the Enhanced Modular Signal Processor, designated UYS-2A, for improved sonobuoy processing capability.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604212N
PROGRAM ELEMENT TITLE: ASW & Other Helo Developments

(U) H1109 - This program develops a Service Life Extension Program (SLEP) with efforts to correct deficiencies in aircraft components and mission systems, such as: engine air particle separators, main rotor head and external cargo handing system. The effort will increase reliability, maintainability, and safety while reducing the cost of ownership.

(U) H1378 - The mission of the AH-1W attack helicopter is to provide close-in-fire support and fire support coordination in aerial ground escort operations during the ship-to-shore phase in amphibious operations and during subsequent operations ashore. The AH-1 Integrated Weapons System (IWS) competition was terminated in FY 1995. Fire control wiring and algorithm implementation is developed in the Stores Management System (SMS) program, providing the AH-1 with an advanced rocket delivery capability.

(U) H1707 - The Block II Upgrade improves the capability of the LAMPS MK III Weapons System to provide battle group protection and to add significant capability in coastal littorals and regional conflicts. The Block II Upgrade represents a significant avionics modification to the SH-60 by enhancing primary mission areas of ASW and Anti-Surface Warfare (ASUW). ALFS will be added to enhance the existing acoustic suite. An added multi-mode radar includes an inverse synthetic aperture radar mode (permits stand-off classification of hostile threats). An improved electronics surveillance measures system (ESM) will enable passive detection and targeting of radar sources not currently detectable.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under Engineering & Manufacturing Development because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604212N
PROGRAM ELEMENT TITLE: ASW & Other Helo Developments

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
H0485 ALFS	29,729	16,080	3,615	0	0	0	0	0	154,976

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program develops Airborne Low Frequency Sonar (ALFS) and increases sonobuoy processing capability for the SH-60 helicopter to maintain and improve undersea warfare mission effectiveness against the quiet submarine threat in deep and shallow water environments. This project provides a dipping sonar with demonstrated capabilities typically 3 to 6 times (square miles of ocean searched per hour) the existing deep water capability. This improvement will significantly increase battle group and independent ship protection providing improved survivability and operating flexibility. ALFS provides longer detection ranges and a greater detection capability by using lower frequencies, less signal attenuation, longer pulse lengths, improved processing and increased transmission power. ALFS utilizes the Enhanced Modular Signal Processor, designated UYS-2A, for improved sonobuoy processing capability.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

(U) ($16,586) Completed software configuration item preparation and testing. Conducted Reliability and Maintainability (R&M) testing. Conducted Environmental Qualification Test (EQT) and Functional Qualification Test (FQT) test periods. Delivered ALFS pre-production EMD units for developmental testing (DT-IIA). Conducted system Electro Magnetic Interference (EMI)testing. Prepared system for DT-IIA lake testing and follow-on flight testing. Continued MSIII logistic support requirements. Implemented congressionally directed shallow water enhancements.

(U) ($7,730) Commenced air vehicle installation equipment design. Developed system Interface Control Document (ICD) for the acoustic system. Delivered ALFS reeling machine pedestal and funnel to support developmental testing (DT-IIA). Wrote processing and display software. Conducted contractor system integration testing.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604212N PROJECT NUMBER: H0485
PROGRAM ELEMENT TITLE: ASW & Other Helo Developments PROJECT TITLE: ALFS

(U) ($5,413) Completed software configuration item testing. Completed R&M, EQT, FQT, and EMI testing. Continued government MSIII logistics requirements. Conducted system-level government acceptance of EDMs. Continued program support. Conducted shallow water enhancement support effort.

2. (U) FY 1996 PLAN:

(U) ($7,318) Conduct DT-IIA lake and flight testing. Conduct OT-IIA flight testing. Complete contractor preparation of MSIII logistics support requirements.

(U) ($6,626) Provide support for DT-IIA and OT-IIA flight testing. Conduct integrated system lab verification. Incorporate human factors lessons learned during flight test period. Commence system level SH-60R/ALFS integration.

(U) ($1,870) Continue government MSIII logistics requirements. Conduct DT-IIA lake and flight testing. Conduct OT-IIA flight testing. Continue program support.

(U) ($266) Portion of program reserved for Small Busines Innovation Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

(U) ($501) Analyze test data and implement fixes identified during DT-IIA and OT-IIA in preparation for system TECHEVAL and OPEVAL.

(U) ($3,114) Complete SH-60R/ALFS system integration development. Complete government logistics requirements. Analyze test data and implement fixes identified during DT-IIA and OT-IIA in preparation for system TECHEVAL and OPEVAL. Complete program support.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604212N PROGRAM ELEMENT TITLE: ASW & Other Helo Developments PROJECT NUMBER: H0485 PROJECT TITLE: ALFS

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	29,747	18,803	4,014
(U) Adjustments from PRESBUDG:	-18	-2,723	-399
(U) FY 1997 President's Budget Submit:	29,729	16,080	3,615

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 95 $-18 thousand decrease reflects allocation reduction for cancelled accounts. FY 96 decrease of $-2,723 thousand includes a Congressional reduction based on the inaccurate comment that the Program Office was budgeting for anticipated congressional reductions. This adjustment reflected a combination of ALFS ($-74 thousand) and Block II ($-2,093 thousand) funding; however, the entire reduction was taken from the ALFS program. A Below Threshhold Reprogramming (BTR) was authorized by the HAC to reverse the reduction and is in process. Of the remaining ($-556 thousand), Congressional undistributed general and inflation reductions are reflected as ($-362 thousand) and revised DoD inflation rates and other minor pricing adjustments account for ($-194 thousand). The FY 97 net reduction of ($-399 thousand) is for Defense Business Operating Fund (DBOF) at ($-844 thousand) and revised inflation estimates and other minor pricing adjustments ($+445 thousand).

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604212N
PROGRAM ELEMENT: ASW & Other Helo Developments

PROJECT NUMBER: H0485
PROJECT TITLE: ALFS

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				2Q MS III FY99
Engineering Milestones				
T&E Milestones		1Q DTIIA 4Q OTIIA		2Q TECHEVAL FY98 4Q OPEVAL FY98
Contract Milestones				

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604212N
PROGRAM ELEMENT TITLE: ASW & Other Helo Development

PROJECT NUMBER: H0485
PROJECT TITLE: ALFS

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Primary Hardware Development	16,586	7,318	501
b. Air Vehicle Integration	7,730	6,626	0
c. Program Management Support	5,413	1,870	3,114
e. Small Business Innovation Research		266	
TOTAL	29,729	16,080	3,615

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604212N
PROGRAM ELEMENT TITLE: ASW & OTHER HELO DEVELOPMENT

PROJECT NUMBER: H0485
PROJECT TITLE: ALFS

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Hughes Fullerton, CA	C/CPIF	Dec 91	71,249	71,249	49,144	14,286	7,318	501	0	71,249
LORAL Owego, NY	SS/CPFF	Aug 93	33,267	33,267	18,911	7,730	6,626	0	0	33,267
AT&T Whippany, NJ	SS/FFP	Mar 91	10,770	10,770	10,770	0	0	0	0	10,770
AT&T Whippany, NJ	T&M	Aug 95	1,700	1,700	0	1,700	0	0	0	1,700
Lockheed Martin/ Sanders Nashua, NH	T&M	Mar 96	600	600	0	600	0	0	0	600
Support and Management										
NAWCWARMINSTER (WX)		Oct 96	16,279	16,279	13,590	1,889	800	0	0	16,279
MISC In-House (WX)		Oct 96	20,322	20,322	12,766	3,372	1,070	3,114	0	20,322
MISC Contracts (PR)		Oct 96	523	523	371	152	0	0	0	523
Test and Evaluation	Included in MISC In-House above.									

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604212N PROJECT NUMBER: H0485

PROGRAM ELEMENT TITLE: ASW & OTHER HELO DEVELOPMENT PROJECT TITLE: ALFS

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development									
Support and Management			NOT APPLICABLE						
Test and Evaluation									

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	78,825	24,316	13,944	501	0	117,586
Subtotal Support and Management	26,727	5,413	1,870	3,114	0	37,124
SBIR Assessment			266			266
Total Project	105,552	29,729	16,080	3,615	0	154,976

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604212N
PROGRAM ELEMENT TITLE: ASW & OTHER HELO DEVELOPMENT

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
H1109 CH/MH-53	6,121	10,224	1,106	5,448	646	956	958	-0-	79,041

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project provides for FY-94 completion of the Main Gearbox Reliability Improvement Program (MGB) and the Global Positioning System (GPS). In FY-95, the project initiates an H-53 Service Life Assessment Program (SLAP), a two year effort, to develop usage and fatigue life profiles, complete with analytical evaluations of airframe dynamic interfaces leading to design recommendations. In FY-96 the program supports a White House requirement to competitively procure, install, test and evaluate an Integrated Mechanical Diagnostic (IMD) system on two Marine Corps CH-53E helicopters as an Early Operational Assessment (EOA). In FY-98 a Service Life Extension Program (SLEP), begins development of efforts to correct deficiencies in aircraft components and mission systems, such as: engine air particle separators, main rotor head and external cargo handling system. FY-98 SLEP efforts will address airframe fatigue issues and extend life of the aircraft as required through 2025.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($ 0) GPS - Completed Operational Test Readiness Reviews (OTRR) and certified ready for Operational Test (OT-IIIC), Feb 95; commenced OT-IIIC Apr 95 and completed May 95.
- (U) ($5,581) SLAP - Awarded a two-year developmental assessment contract Feb 95 to access fatigue and airframe extension issues for the H-53E.
- (U) ($ 540) Commenced in-house travel and field activities funding to support SLAP.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604212N
PROGRAM ELEMENT TITLE: ASW & OTHER HELO DEVELOPMENT

PROJECT NUMBER: H1109
PROJECT TITLE: CH/MH-53

2. (U) FY 1996 ACCOMPLISHMENTS:

- (U) ($6,119) SLAP - Final incremental contract payment for completion of SLAP study Jan 96. Preliminary Report (PRPT) delivered 8 Feb 96.
- (U) ($3,149) IMD-EOA - Award IMD-EOA contract Mar 96. Conduct In-Process Review (IPR) Jul 96.
- (U) ($ 730) In-house travel and field activities funding to support IMD and SLAP programs.
- (U) ($ 226) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($1,106) IMD-EOA - Award contract option Nov 96 and commence EOA Flight Testing (EOAT) Jan 97.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604212N
PROGRAM ELEMENT TITLE: ASW & OTHER HELO DEVELOPMENT

PROJECT NUMBER: H1109
PROJECT TITLE: CH/MH-53

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	6,199	10,554	9,261
(U) Adjustments from PRESBUDG:	-78	-330	-8,155
(U) FY 1997/1998 PRESBUDG Submit:	6,121	10,224	1,106

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY-95 decreased program by $-78 thousand for cancelled account liabilities. The FY-96 net decrease of $-330 thousand reflects Congressional undistributed general and inflation reductions ($-207 thousand); and revised DoD inflation rates and other minor pricing adjustments ($-123 thousand). The FY-97 net decrease of $-8,155 thousand is due to the rescheduling of SLEP ($-8,050 thousand); revised inflation estimates and other minor pricing adjustments ($-80 thousand) and Defense Business Operating Fund (DBOF) ($-25 thousand).

(U) Schedule: Program funding elimination in FY-97 has caused rescheduling of SLEP and contract award to FY-98.

(U) Technical: "Not applicable"

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604212N PROGRAM ELEMENT TITLE: ASW & OTHER HELO DEVELOPMENT PROJECT NUMBER: H1109 PROJECT TITLE: CH/MH-53

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) APN 5 Line 27 (SLEP)	0	0	0	0	0	2,500	5,000	CONT	CONT
(GPS)	11,160	8,329	13,566	15,795	23,999	1,807	974	0	80,759

(U) RELATED RDT&E: NOT APPLICABLE

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	2Q OTRR GPS	4Q IMD-EOA IPR		
Engineering Milestones		2Q SLAP PRPT		
T&E Milestones	3Q OT GPS		2Q IMD EOAT	
Contract Milestones	2Q SLAP AWD	2Q IMD-EOA AWD	1Q IMD-EOA OPT AWD	1Q/98 SLEP AWD

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604212N
PROGRAM ELEMENT TITLE: ASW & OTHER HELO DEVELOPMENT

PROJECT NUMBER: H1109
PROJECT TITLE: CH/MH-53

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Travel	193	200	75
b. Miscellaneous	274	445	0
c. Reliability, Maintainability and Availability	5,581	6,119	0
d. Engineering Support	45	0	25
e. Program Management Support	28	125	125
f. Engineering Development	0	3,109	802
g. Development Test and Evaluation	0	0	0
h. Software Development	0	0	0
i. Operational Test and Evaluation	0	0	79
j. SBIR Assessment		226	
Total	6,121	10,224	1,106

UNCLASSIFIED

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604212N
PROGRAM ELEMENT TITLE: ASW & OTHER HELO DEVELOPMENT

PROJECT NUMBER: H1109
PROJECT TITLE: CH/MH-53

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development:										
EER-Global Positioning Systems (GPS) Integration										
Vienna, VA										
N0001989C0166	SS-CPIF	8/90	22,764	22,764	22,764					22,764
SIKORSKY-Service Life Assessment Program (SLAP)										
Stratford, CT										
N0001992G0196	SS-CPFF	3/95	11,700	11,700		5,581	6,119			11,700
TBD-Service Life Extension Program (SLEP)										
	SS-TBD	12/97	TBD	4,658					4,658	4,658
TBD-Integrated Mechancial Diagnostics (IMD)										
TBD	C-FFP	3/96	TBD	5,953			3,109	802	2,000	5,911
Miscellaneous (less than 1 million)										
	VARIOUS	VARIOUS	27,886	27,886	25,974	467	645	75	725	27,886
Support and Management:										
Miscellaneous (less than 1 million)										
	VARIOUS	VARIOUS	4,304	4,304	3,631	73	125	150	325	4,304

UNCLASSIFIED

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5
PROGRAM ELEMENT: 0604212N
PROGRAM ELEMENT TITLE: ASW & OTHER HELO DEVELOPMENT
PROJECT NUMBER: H1109
PROJECT TITLE: CH/MH-53

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Test and Evaluation:										
Miscellaneous (less than 1 million)										
VARIOUS	VARIOUS		1,592	1,592	1,213	0	0	79	300	1,592

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development									
Support and Management			NOT APPLICABLE						
Test and Evaluation									

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	48,738	6,048	9,873	877	7,383	72,919
Subtotal Support and Management	3,631	73	125	150	325	4,304
Subtotal Test and Evaluation	1,213	0	0	79	300	1,592
SBIR Assessment			226			226
Total Project	53,582	6,121	10,224	1,106	8,008	79,041

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604212N
PROGRAM ELEMENT TITLE: ASW & OTHER HELO DEVELOPMENT

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
H1378/ AH-1 A/C	12,784	3,179	0	0	0	0	0	0	122,219

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The mission of the AH-1W attack helicopter is to provide close-in-fire support and fire support coordination in aerial ground escort operations during the ship-to-shore phase in amphibious operations and during subsequent operations ashore. AH-1W Integrated Weapons System (IWS) emphasizes cockpit workload reduction to increase margin of safety. Integration included communications, navigation, night targeting and weapons systems. On 19 July 1995, the IWS competition was terminated. The fire control wiring and algorithm implementation is developed in the Stores Management System (SMS) program, providing the AH-1W with an advanced rocket delivery capability.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 1995 ACCOMPLISHMENTS:

- (U) ($1,946) Initiated and completed milestone support and contractor proposal evaluation prior to termination of IWS program.
- (U) ($2,970) Initiated engineering trade studies. Conducted technical and management risk assessments and risk reduction efforts.
- (U) ($6,768) SMS/fire control wiring prototype incorporation.
- (U) ($1,100) Began and completed software development for the incorporation of AH-1W TAMPS mission plan modules.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604212N PROJECT NUMBER: H1378
PROGRAM ELEMENT TITLE: ASW & OTHER HELO DEVELOPMENT PROJECT TITLE: AH-1 AIRCRAFT

2. FY 1996 PLAN:

- (U) ($3,162) SMS field activity and test support.
- (U) ($17) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C 638.
- (U) This program will be completed in FY 1996.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	11,484	14,908	41,898
(U) Adjustments from PRESBUDG:	+1,300	-11,729	-41,898
(U) FY 1997 President's Budget Submit:	12,784	3,179	0

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: On 19 July 1995, the IWS competition was terminated. Funding was realigned to PE 0603266N Project H2279 to suppport the 4BW/4BN Upgrade program for USMC H-1 aircraft. The 4BW/4BN upgrade program includes an integrated cockpit for the AH-1W. The net increase in FY 1995 of +1,300 thousand reflects a $3,500 thousand reprogramming for SMS rebaselining required to support an early operational assessment phase as well as incorporation of an Air Data Sensor; and $2,200 thousand reduction for a ship cost adjustment (SCA). The net decrease in FY 1996 of ($-11,729 thousand) reflects a realignment of funds budgeted for IWS to the 4BW/4BN (PE 0603266N) ($-11,600 thousand); Congressional undistributed general and inflation reductions ($-91 thousand); and revised DoD inflation rates and other minor pricing adjustments ($-38 thousand). The net decrease in FY 1997 of ($-41,898 thousand) reflects a realignment of funds to the new 4BW/4BN PE ($-39,889 thousand); revised inflation estimates and other minor pricing adjustments ($-63 thousand), and Defense Business Operating Fund (DBOF) related adjustments ($-1,946 thousand).

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604212N PROGRAM ELEMENT TITLE: ASW & OTHER HELO DEVELOPMENT PROJECT NUMBER: H1378 PROJECT TITLE: AH-1 AIRCRAFT

(U) Schedule: A repriorization of the USMC Helicopter Light Attack requirements led to the termination of IWS on 19 July 1995. Consequently, all requirements for IWS have been deleted from this budget submission.

(U) Technical: None.

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not Applicable.

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	4Q IWS Terminated			
Engineering Milestones				
T&E Milestones				
Contract Milestones				

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604212N PROJECT NUMBER: H1378
PROGRAM ELEMENT TITLE: ASW & OTHER HELO DEVELOPMENT PROJECT TITLE: AH-1 AIRCRAFT

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Hardware Development	4,673	2,122	0
b. Engineering Trade Study	2,970	0	0
c. Software Development	2,429	0	0
d. Test and Evaluation	850	190	0
e. Engineering & Technical Support	1,624	850	0
f. Program Management	238	0	0
g. SBIR Assessment		17	
Total	12,784	3,179	0

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604212N
PROGRAM ELEMENT TITLE: ASW & OTHER HELO DEVELOPMENT
PROJECT NUMBER: H1378
PROJECT TITLE: AH-1 AIRCRAFT

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Major Contracts:										
DRAPER Cambridge, MA	SS CPFF	12/92	12,503	12,503	5,708	4,673	2,122	0	0	12,503
BELL HELICOPTER Fort Worth, TX	SS CPFF	12/95	2,970	2,970	0	2,970	0	0	0	2,970
In-House Support:										
NAWC-WD, China Lake (includes TAMPS in FY 95)	WX	03/96	3,809	3,809	1,380	2,429	0	0	0	3,809
Various - Field Activity Technical Support	Spt WX	03/96	4,285	4,285	1,811	1,624	850	0	0	4,285
Support and Management										
In-House Support: (Travel)	Various				152	48	0	0	0	200
Misc. CS Contracts:	Various				81	190	0	0	0	271
Test and Evaluation Support	Various				45	850	190	0	0	1,085

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604212N
PROGRAM ELEMENT TITLE: ASW & OTHER HELO DEVELOPMENT
PROJECT NUMBER: H1378
PROJECT TITLE: AH-1 AIRCRAFT

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development		Not Applicable							
Support and Management		Not Applicable							
Test and Evaluation		Not Applicable							

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	8,899	11,696	2,972	0	0	23,567
Subtotal Support and Management	233	238	0	0	0	471
Subtotal Test and Evaluation	45	850	190	0	0	1,085
Other FY 1993 & Prior Costs	97,079					97,079
SBIR Assessment			17			17
Total Project	106,256	12,784	3,179	0	0	122,219

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604212N
PROGRAM ELEMENT TITLE: ASW & Other Helo Developments

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
H1707 LAMPS III IMP	40,375	45,893	35,411	52,605	71,953	53,369	19,511	5,000	454,463

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Block II Upgrade improves the capability of the LAMPS MK III Weapons System to provide battle group protection and adds significant capability in coastal littoral and regional conflicts. The Block II Upgrade entered Engineering and Manufacturing Development (EMD) in FY93 and represents a significant avionics modification to the SH-60B greatly enhancing both primary mission areas of ASW and ASUW. The ALFS will be added to enhance the existing acoustic suite. ASUW effectiveness will be improved with the addition of a multi-mode radar which includes an inverse synthetic aperture radar mode to permit stand-off classification of hostile threats. An improved ESM system will enable passive detection and targeting of radar sources not detectable with the current system. Aircrew and aircraft survivability in hostile environments will be significantly improved through software integration of the self-defense equipments. Provisions for a tactical data transfer system to improve platform interoperability by rapid, secure transfer of mission information between multiple air and surface units is included in the upgrade.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

(U) ($38,414) Continued EMD including continuation of system level design leading to a system Preliminary Design Review (PDR); continued high level laboratory simulation/stimulation; system software high level design initiated, continued airframe modification design analysis; conducted System Software Review (SSR).

(U) ($1,705) Navy system engineering field support for system PDR, continued hardware and software IV&V; deliver ALFS EDMs and travel.

(U) ($256) Prepared for initial ASW/ALFS developmental testing (DTIIA).

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604212N PROJECT NUMBER: H1707
PROGRAM ELEMENT TITLE: ASW & Other Helo Developments PROJECT TITLE: LAMPS III IMP

2. (U) FY 1996 PLAN:

(U) ($42,098) Complete system PDR, install and integrate prototype data handling equipment in lab, continue laboratory simulation/stimulation, commence air vehicle modifications, prepare and submit documentation to support a system Critical Design Review (CDR), begin high level software coding and test, continue laboratory simulation/stimulation testing.

(U) ($1,773) Navy system engineering support in preparation for CDR, and program management and travel.

(U) ($1,082) Support for conduct of ALFS/ASW developmental testing (DTIIA).

(U) ($940) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

(U) ($32,789) Conduct system CDR, complete system software coding and test, complete laboratory simulation/stimulation testing, commence system integration and test, conduct engineering development tests on prototype multi-mode radar, begin avionics installation on prototype aircraft, commence high level design of Post Low Rate Initial Production Test processing software.

(U) ($1,622) Navy system engineering support during CDR, limited Integrated Test Team planning, program management and travel.

(U) ($1,000) Test Readiness Review (TRR) in preparation for DTIIB.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604212N PROJECT NUMBER: H1707
PROGRAM ELEMENT TITLE: ASW & Other Helo Developments PROJECT TITLE: LAMPS III IMP

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	40,866	47,538	37,973
(U) Adjustments from PRESBUDG:	-491	-1,645	-2,562
(U) FY 1997 President's Budget Submit:	40,375	45,893	35,411

(U) CHANGE SUMMARY EXPLANATION:
(U) Funding: The net reduction of $-491 in FY 95 reflects Department of the Navy's distribution of SBIR assessments and Major Range Test Facility Base adjustments. The scheduled PDR moved from Jul 1995 to Nov 1995 based on the funding adjustments. The net reduction of $-1,645 in FY 96 reflects Congressional undistributed general and inflation reductions ($-1,043); revised DoD inflation rates and other minor pricing adjustments ($-558); and Major Range Test Facility Bases ($-44). As a result, government participation in logistics and test requirements planning, and critical long-lead non-recurring development effort in software areas will not occur. The net reductiion in FY 97 of $-2,562 reflects adjustments for revised inflation estimates and other minor pricing adjustments ($-1,093); and, Defense Business Operating Fund (DBOF) ($-1,469). This decrease in program funding will further reduce in-house government support (current government in-house budget is 8% of annual development budget versus historical average of 24.8% for DoD development programs) of Critical Design Review, and full participation in System Integration and Test IPT preparations for FY 98 development test periods. A BTR of FY 96 Navy funds is being aggressively pursued in order to maintain an understood level of risk. However, risk assessments of on-going Acquisition Reform initiatives to reduce dependence on government in-house participation in development efforts are being conducted with a program focus to apply reduced resources toward accomplishment of "best value added" activities.
(U) Schedule: Milestone III adjusted from 3Q FY 01 to 1Q FY 02 to accommodate the acquisition processing and documentation requirements necessary to achieve an NPDM and Milestone III decision after completion of OPEVAL. Milestone OTIIB (4Q FY98) was reflected in the FY96/97 President's Budget as OTIIA. The milestone date remains the same, however, the title was changed after APBA approval in Jun 95 combined ALFS (H0485) and Block II (H1707) into one program baseline. In the APBA, OTIIA refers to ALFS testing thus requiring a new designation for Block II related testing.
As noted in the Funding section above, the cumulative effects of a loss of $4,207 of FY 96 and 97 funding to a uniquely low level of government participaption in a major development effort, does increase programmatic risk which has the potential to impact current APBA milestones reflected in Section D. This risk is currently assumed manageable, and if successful, may provide a future guideline for level of government support required for major DoD development efforts.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604212N PROJECT NUMBER: H1707
PROGRAM ELEMENT TITLE: ASW & Other Helo Developments PROJECT TITLE: LAMPS III IMP

U) Technical: Not applicable

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	PROGRAM TOTAL
(U) APN-1	LINE 11								
	0	0	0	77,220	241,560	352,554	368,894	3,169,488	4,209,716
(U) APN-6	LINE 47								
	0	0	0	0	8,925	34,233	27,872	CONT	CONT

(U) RELATED RDT&E:
(U) PE 0604212N, (ASW and Other Helo Developments, H0485, ALFS)
(U) PE 0604507N, (Enhanced Modular Signal Processor)
(U) PE 0604261N, (Acoustic Search Sensors)

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestone				1Q MS III FY02 4Q IOC FY01
Engineering Milestones	1Q SSR	1Q PDR	1Q CDR	2Q TRR FY 98
T&E Milestones		1Q DT-IIA		2Q DTIIB FY 98 4Q OTIIB FY 98 2Q TECHEVAL FY 00 1Q OPEVAL FY01
Contract Milestones				1Q LRIP FY99

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604212N PROJECT NUMBER: H1707
PROGRAM ELEMENT TITLE: ASW & Other Helo Developments PROJECT TITLE: LAMPS III IMP

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Hardware/Software Development	38,414	42,098	32,789
b. Program Management Support	1,593	1,691	1,537
c. Development Test & Evaluation	256	1,082	1,000
d. Travel	112	82	85
e. Small Business Innovation Research		940	
Total	40,375	45,893	35,411

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604212N PROJECT NUMBER: H1707
PROGRAM ELEMENT TITLE: ASW & Other Helo Developments PROJECT TITLE: LAMPS III IMP

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Loral Owego, NY	SS/CPFF	Aug 93	319,231	319,231	54,335	38,414	42,098	32,789	151,595	319,231
Hughes Fullerton, CA	C/CPIF	Dec 91	6,805	6,805	6,805	0	0	0	0	6,805
TBD	CPI/FF	Oct 98	20,814	20,814					20,814	20,814
Support and Management										
NAWCADWARMINSTER (WX)		Oct 96	14,131	14,131	12,989	446	0	232	464	14,131
MISC In-house (WX)		Oct 96	23,236	23,236	8,438	1,093	1,678	1,290	10,737	23,236
MISC Contracts (PR)		Oct 96	1,745	1,745	366	166	95	100	1,018	1,745
Test and Evaluation										
NAWCADPAX (WX)		Oct 96	20,148	20,148	0	256	1,082	1,000	17,810	20,148

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5
PROGRAM ELEMENT: 0604212N
PROGRAM ELEMENT TITLE: ASW & Other Helo Developments
PROJECT NUMBER: H1707
PROJECT TITLE: LAMPS III IMP

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development Support and Management Test and Evaluation			NOT APPLICABLE						

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	61,140	38,414	42,098	32,789	172,409	346,850
Subtotal Support and Management	21,793	1,705	1,773	1,622	12,219	39,112
Subtotal Test and Evaluation	0	256	1,082	1,000	17,810	20,148
Other FY93 and Prior Costs	47,413					47,413
SBIR Assessment			940			940
Total Project	130,346	40,375	45,893	35,411	202,438	454,463

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604214N
PROGRAM ELEMENT TITLE: AV-8B Aircraft

PROJECT NUMBER: H0652
PROJECT NAME: AV-8B

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
H0652 AV-8B	9,560	26,063	16,874	11,132	11,024	5,749	0	0	1,551,468

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The program provides AV-8B integration and testing of various weapons aircraft improvements including: incorporation of common integrated night attack/radar software; redesigned Inlet Guide Vane Controller for the F402-RR-406A/406B/408A engines; airframe vulnerability, susceptability and survivability improvements; Combined Missile Warning System (CMWS) integration; flight test modifications that improve aircraft flight performance; and limited evaluation of advance concepts and activities to coordinate with ongoing independent advance weapons development. The AN/APG-65 software and associated avionics will be upgraded to provide wiring, controllers and relays for advanced weapon interface. C-1 software is a combined Operational Flight Progrtam (OFP) for the Night Attack and Radar Aircraft which establishes the baseline OFP for future weapons. C-2 OFP will take advantage of MIL-STD-1760B armament wiring development funded under the program by integrating the Joint Direct Attack Munition (JDAM) 1000 lb variant. Advanced weapons coordination includes requirements and interface liaison with efforts such as Joint Stand Off Weapon (JSOW), AIM-9X, Digital Multiple Carriage Bomb Rack (DMCBR), Advanced Expendables and Electronic Warfare suite upgrades.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604214N
PROGRAM ELEMENT TITLE: AV-8B Aircraft

PROJECT NUMBER: H0652
PROJECT NAME: AV-8B

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($672) Continued advanced studies/advanced weapon projects.
- (U) ($5,985) Completed DT/OT testing and released Block 3 (R3) Radar Software to the USMC and GOI. Continued development and commenced integration of common-configuration, integrated night attack/radar software (C1.0).
- (U) ($2,397) Conducted aircraft handling investigations.
- (U) ($506) Conducted Survivability and Vulnerability (S&V) studies to determine most cost effective approaches/alternatives.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604214N
PROGRAM ELEMENT TITLE: AV-8B Aircraft

PROJECT NUMBER: H0652
PROJECT NAME: AV-8B

2. (U) FY 1996 PLAN:

- (U) ($250) Continue engineering studies/engineering weapon projects.
- (U) ($514) Conduct engine inlet guide vane controller studies.
- (U) ($411) Conduct flight performance testing of various modifications, including engine modifications.
- (U) ($300) Conduct preliminary airframe installation/integration design for joint Common Missile Warning System (CMWS).
- (U) ($200) Determine airframe installation/integration requirements for the joint CMWS.
- (U) ($6,211) Continue development and begin testing of common integrated night attack/radar software (C1.0).
- (U) ($300) Commence second version of common integrated night attack radar software (C2.0).
- (U) ($1,363) Continue aircraft handling investigations.
- (U) ($1,450) Continue S&V studies to determine most cost effective approaches/alternatives.
- (U) ($14,681) Conduct preliminary airframe installation/integration development of MIL-STD-1760B armament wiring.
- (U) ($383) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C 638.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604214N
PROGRAM ELEMENT TITLE: AV-8B Aircraft

PROJECT NUMBER: H0652
PROJECT NAME: AV-8B

4. (U) FY 1997 PLAN:

- (U) ($400) Continue engineering studies/engineering weapons projects.
- (U) ($376) Continue preliminary airframe installation/integration designs for joint CMWS.
- (U) ($325) Complete DT/OT testing and release of common integrated night attack/radar software (C1.0).
- (U) ($1,800) Continue development of common integrated night attack/radar software (C2.0).
- (U) ($1,500) Continue aircraft handling investigations.
- (U) ($1,313) Continue S&V studies.
- (U) ($400) Complete engine inlet guide vane controller development.
- (U) ($10,760) Continue airframe installation/integration development of MIL-STD-1760B armament wiring.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604214N
PROGRAM ELEMENT TITLE: AV-8B Aircraft

PROJECT NUMBER: H0652
PROJECT NAME: AV-8B

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	10,617	11,309	6,362
(U) Adjustments from PRESBUDG	-1,057	+14,754	+10,512
(U) FY 1997 President's Budget Submit:	9,560	26,063	16,874

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The reduction from PRESBUDG in Fiscal Year 1995 reflects the rescission of funds for Bol Chaff ($1 million)and a reduction for cancelled accounts liability ($.057 million). The increase from PRESBUDG in Fiscal Year 1996 reflects funds provided for incorporation of MIL-STD-1760B ($+15.6 million); Congressional undistributed general and inflation reductions ($-.529 million); and revised DoD inflation rates and other minor pricing adjustments ($-.317 million). The increase in FY-97 reflects funds provided for continuation of the MIL-STD-1760B incorporation ($+11.2 million); net revised inflation estimates and other minor pricing ($+.619 million); and Defense Business Operating Fund (DBOF) reductions of ($-1.307 million).

(U) Schedule: Not Applicable

(U) Technical: Not Applicable

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604214N
PROGRAM ELEMENT TITLE: AV-8B Aircraft

PROJECT NUMBER: H0652
PROJECT NAME: AV-8B

(U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
• (U) APN-1/Line 1/2/AV-8B									
	131,018	243,156	304,911	324,232	470,042	446,354	130,104	0	2,169,601
QTY	4	8	10	12	16	16	0		72
• (U) APN-5/Line 21/AV-8 Series									
	22,642	15,524	22,852	34,439	53,075	60,377	38,999	CONT.	CONT.
• (U) APN-6/Spares									
	977	8,522	13,951	26,507	27,345	23,500	23,136	0	130,198

(U) RELATED RDT&E: Not Applicable

(U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				
Engineering Milestones	1Q R3 S/W DT/OT COMPLETE		1Q C1.0 DT/OT COMPLETE	1Q FY99 C2.0 DT/OT COMPLETE
T&E Milestones	1Q R3 S/W RTF		1Q C1.0 S/W RTF	1Q FY99 C2.0 S/W RTF
Contract Milestones				

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604214N
PROGRAM ELEMENT TITLE: AV-8B Aircraft

PROJECT NUMBER: H0652
PROJECT NAME: AV-8B

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. CONTRACTS	85	174	125
CS (NON-ADD)	85	174	125
b. TECHNICAL SUPPORT	7,868	23,354	14,201
c. TRAVEL	350	400	380
d. T&E	1,257	1,752	2,168
e. SBIR ASSESSMENT		383	
Total	9,560	26,063	16,874

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604214N
PROGRAM ELEMENT TITLE: AV-8B Aircraft

PROJECT NUMBER: H0652
PROJECT NAME: AV-8B

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development:										
NAWC-WD, CHINA LAKE, CA	WX	11/96	80,214	80,214	17,373	6,801	19,420	11,765	24,855	80,214
NAWC,AD, PATUXENT RIVER, MD	WX	10/96	4,612	4,612	2,047	685	780	350	750	4,612
MISC/CONTRACTS	Var	10/96	2,716	2,716	0	152	1,272	914	378	2,716

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604214N
PROGRAM ELEMENT TITLE: AV-8B Aircraft

PROJECT NUMBER: H0652
PROJECT NAME: AV-8B

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
MISC. in-house	WX	10/96	7,136	7,136	2,827	580	1,927	1,172	630	7,136
Support and Management	WX	N/A	43,538	43,538	43,538	0	0	0	0	43,538
Misc/Contracts	Var	Var	1,659	1,659	900	85	174	125	375	1,659
Misc/In-House	Var	Var	1,000	1,000	1,000	0	0	0	0	1,000
Test and Evaluation:										
NAWC-WD, CHINA LAKE, CA	WX	10/96	12,202	12,202	7,616	900	1,331	1,763	592	12,202
NAWC,AD, PATUXENT RIVER, MD	WX	10/96	4,431	4,431	2,924	357	450	500	200	4,431

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604214N
PROGRAM ELEMENT TITLE: AV-8B Aircraft

PROJECT NUMBER: H0652
PROJECT NAME: AV-8B

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Total Delivery Date	FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development		Not Applicable							
Support and Management		Not applicable							
Test and Evaluation									
Misc.	WX	10/96	12/96	37,682	0	326	285	125	38,418

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	22,247	8,218	23,399	14,201	26,613	94,678
Subtotal Support and Management	45,438	85	174	125	375	46,197
Subtotal Test and Evaluation	48,222	1,257	2,107	2,548	917	55,051
Other FY-93 and Prior Costs	1,355,159	0	0	0	0	1,355,159
SBIR Assessment			383			383
Total Project	1,471,066	9,560	26,063	16,874	27,905	1,551,468

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604215N
PROGRAM ELEMENT TITLE: Standards Development

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
S1857 Calibration Standards	4,572	2,959	2,021	2,072	2,614	2,607	2,675	CONT.	CONT.
W0572 Joint Services/Navy Standard Avionics Components and Subsystems	11,530	7,253	22,677	27,081	32,066	30,121	30,686	CONT.	CONT.
TOTAL	16,102	10,212	24,698	29,153	34,680	32,728	33,361		

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Project W0572, Joint Services/Navy Standard Avionics Components and Subsystems addresses the proliferation in Naval Aviation of unique avionics equipment that increases with each new or modified aircraft. This proliferation of unique Contractor Furnished Equipment (CFE), due to non-availability of off-the-shelf Government Furnished Equipment (GFE), has resulted in a growing cost burden in the areas of development, procurement, logistics, and maintenance. This project addresses the issue by developing common avionics for new programs and retrofit programs. All acquisition approaches are followed for the least-cost solution to this need, including joint programs, GFE breakout of peculiar items for broad use, foreign and non-development item investigations (funded under those headings when appropriate) and, when practicable and cost effective, dedicated development efforts. These products have application to new architecture "integrated avionics" aircraft, and also older technology "black box" or federated aircraft with major new efforts directed at bridging the gap between these technologies. This forward and retrofit application of common avionics technology is required to maximize aircraft capabilities at a minimum procurement and support cost. The program will address in-service-out-of-production avionics with costly reliability and maintainability deficiencies and includes planning for the development of components/subsystems which have high reliability, are easily maintained and have low life cycle costs. An example of a past successful task under this project is the Standard Central Air Data Computer (SCADC) jointly developed with the Air Force and now in production as a common system on Navy and Air Force aircraft. Using an integrated common module approach, the reliability of SCADC is 10 to 50 times greater than the 13 types of air data computers it replaced. This project also funds Navy participation and activities involving the Joint Services Review Committee (JSRC) for Avionics Standardization.

(U) Project S1857, Calibration Standards: This project is a Navy-wide program to develop required calibration standards (hardware) in all major measurement technology areas. It funds Navy lead-service responsibilities in the DoD metrology RDT&E program.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604215N
PROGRAM ELEMENT TITLE: STANDARDS DEVELOPMENT

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
S1857 CALIBRATION STANDARDS	4,572	2,959	2,021	2,072	2,614	2,607	2,675	CONT.	CONT.
TOTAL	4,572	2,959	2,021	2,072	2,614	2,607	2,675	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project is a Navy-wide program to develop required calibration standards (hardware) in all major measurement technology areas. It funds Navy lead-service responsibilities in the DoD metrology RDT&E program.

(U) JUSTIFICATION FOR BUDGET ACTIVITY 5: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604215N
PROGRAM ELEMENT TITLE: STANDARDS DEVELOPMENT

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
S1857 CALIBRATION STANDARDS	4,572	2,959	2,021	2,072	2,614	2,607	2,675	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project provides the engineering development of measurement reference/calibration standards (hardware) required to ensure measurement accuracy in support/maintenance of new advanced technology weapon systems and associated support equipment. These individual tasks have been assigned to the Navy as lead-service responsibilities as part of a Joint Service/DoD program.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($1,243) Completed development (to 100%) of 9 calibration standards (hardware) in support of fiber optic hydrophones, fiber optic detectors, fiber optic communication, radar systems, piston gauges, primary resistance measurements, and low pressure gauges in nuclear facilities.
- (U) ($1,476) Continued development (to 66% completion) of 8 calibration standards (hardware) supporting laser targeting systems, missile hydraulic systems, fiber optic communication systems, screw thread gauges, long-line hydrophones, radar systems, chemical and biological warfare sensors.
- (U) ($1,853) Began development (to 33% completion) of 8 calibration standards (hardware) in support of infrared dynamic scene generators, polarization based target identifiers/trackers, fiber optic communications, infrared target illuminators, radar systems, and night vision goggles.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604215N PROJECT NUMBER: S1857
PROGRAM ELEMENT TITLE: STANDARDS DEVELOPMENT PROJECT TITLE: CALIBRATION STANDARDS

2. (U) FY 1996 PLAN:

- (U) ($1,028) Complete development (to 100%) of 8 calibration standards (hardware) in support of missile hydraulic systems, fiber optic communication systems, screw thread gauges, long line hydrophones, radar systems, chemical and biological warfare sensors and laser targeting systems.
- (U) ($1,522) Continue development (to 66% completion) of 8 calibration standards (hardware) in support of infrared dynamic scene generators, polarization based target identifiers/trackers, fiber optic communications, infrared target illuminators, radar systems, and night vision goggles.
- (U) ($ 409) Begin development (to 33% completion) of 3 calibration standards in support of Mines and Mine sweepers, ship temperature gage calibration, and MILSTAR hazard probes.

3. (U) FY 1997 PLAN:

- (U) ($1,643) Complete development (to 100%) of 8 calibration standards (hardware) in support of infrared dynamic scene generators, polarization based target identifiers/trackers, fiber optic communications, infrared target illuminators, radar systems, and night vision goggles.
- (U) ($ 378) Continue development (to 66% completion) of 3 calibration standards in support of Mines and Mine sweepers, ship temperature gage calibration and MILSTAR hazard probes.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604215N PROGRAM ELEMENT TITLE: STANDARDS DEVELOPMENT PROJECT NUMBER: S1857 PROJECT TITLE: CALIBRATION STANDARDS

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	4,572	3,053	2,446
(U) Adjustments from PRESBUDG:	0	(94)	(425)
(U) FY 1997 PRESBUDG Submit:	4,572	2,959	2,021

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: No change in FY 95. FY 1996 Congressional undistributed general and inflation reductions ($59); and revised DoD inflation rates and other minor pricing adjustments ($35).
FY 1997: Revised inflation estimates and other minor pricing adjustments ($425).

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604215N
PROGRAM ELEMENT TITLE: STANDARDS DEVELOPMENT

PROJECT NUMBER: S1857
PROJECT TITLE: CALIBRATION STANDARDS

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in Thousands)

Not applicable.

(U) RELATED RDT&E:

(U) PE 0604215N Joint Services/Navy Standard Avionics Components and Subsystems

D. (U) SCHEDULE PROFILE: Not applicable.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604215N PROGRAM ELEMENT TITLE: Standards Development PROJECT NUMBER: W0572 PROJECT TITLE: Joint Services/Navy Standard Avionics Components and Subsystems

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
W0572 Joint Services/Navy Standard Avionics Components and Subsystems	11,530	7,253	22,677	27,081	32,066	30,121	30,686	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Joint Services/Navy Standard Avionics Components and Subsystems project provides for the identification, design, development, test, evaluation and qualification of standard avionics for Navy use, and wherever practicable, use across all services. Standard avionics systems under development include the Ground Proximity Warning System (GPWS) for Tactical Aircraft (TACAIR); Compass/Attitude Heading Reference System (C/AHRS), a joint service program development with the Air Force; Low Probability of Intercept (LPI) Altimeter, a joint service Embedded Global Positioning System (GPS)/Inertial Navigation System (EGI), Tactical Aircraft Moving Map Capability (TAMMC), GPS Guidance Package (GGP), Flight Avionics Displays (FAD), Common Forward Looking Infrared (COMFLIR), Integrated Modules and Joint Combat Information Terminal (JCIT).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($2,098) Delivered four (4) E&MD units; completed C/AHRS program.
- (U) ($3,184) Began TECHEVAL for GPWS Helo.

- (U) ($1,418) Released Request for Information (RFI) and Request for Proposal (RFP) for LPI Altimeter and prepared milestone documentation.
- (U) ($ 957) Developed GPWS TACAIR algorithm for integration into F/A-18 and AV-8B aircraft. Worked plans for F-14.
- (U) ($1,985) Participated in JSRC tri-service coordination to promote commonality and joint programs.
- (U) ($1,388) Conducted risk assessment for TAMMC.
- (U) ($ 290) Conducted risk assessment for GGP.
- (U) ($ 210) Provided development oversight and system testing for EGI.

2. (U) FY 1996 PLAN:

- (U) ($ 250) Continue risk assessment for GGP.
- (U) ($ 810) Continue GPWS TACAIR missionization for AV-8B, F/A-18 and F-14 aircraft.
- (U) ($2,855) Award E&MD contract and begin development/integration efforts for LPI Altimeter.
- (U) ($ 913) Conduct risk assessment for FAD; release RFP.
- (U) ($1,285) Release RFP; conduct source selection for TAMMC E&MD contract.
- (U) ($1,065) Participate in JSRC tri-service coordination to promote commonality and joint programs.
- (U) ($ 75) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638 (f) (1).

3. (U) FY 1997 PLAN:

- (U) ($ 800) Continue development of the generic GPWS TACAIR, including incorporation of advanced sensors.
- (U) ($3,930) Conduct Preliminary Design Review (PDR) and Critical Design Review (CDR); continue development/integration efforts for LPI Altimeter.
- (U) ($ 950) Release RFP for GGP.
- (U) ($3,620) Achieve Milestone II and award E&MD contract for FAD.

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604215N PROGRAM ELEMENT TITLE: Standards Development PROJECT NUMBER: W0572 PROJECT TITLE: Joint Services/Navy Standard Avionics Components and Subsystems

- (U) ($8,185) Achieve Milestone II and award E&MD contract for TAMMC (This project now includes efforts formerly performed under Common Tactical Mission Recorder (CTMR)).
- (U) ($1,435) Participate in JSRC tri-service coordination to promote commonality and joint programs.
- (U) ($1,777) Correct deficiencies found during the baseline integration of GPWS TACAIR into the F/A-18 A/B "12A" Operational Flight Program (OFP).
- (U) ($1,402) Correct deficiencies found during the baseline integration of GPWS TACAIR into the F/A-18 C/D "13C" OFP.
- (U) ($ 428) Modify the F/A-18 GPWS TACAIR algorithm to incorporate aerodynamic differences for the F/A-18 E/F.
- (U) ($ 150) Complete the installation of GPWS TACAIR into the AV-8B C-1 OFP.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604215N PROGRAM ELEMENT TITLE: Standards Development PROJECT NUMBER: W0572 PROJECT TITLE: Joint Services/Navy Standard

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	10,760	7,514	20,565
(U) Adjustments from PRESBUDG:	+770	-261	+2,112
(U) FY 1997 President's Budget Submit:	11,530	7,253	22,677

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995: $770 increase was a Below Threshold Reprogramming for the Ground Proximity Warning System (Helo) Program. FY 1996: $174 was taken for Congressional undistributed reductions and $87 was taken for economic and miscellaneous program adjustments. FY 1997: $7,112 increase was provided to develop GPWS TACAIR algorithms into various platforms. This increase is offset by reduced program requirements ($-700); and revised DOD inflation estimates and other minor pricing adjustments (-4300).

(U) Schedule: LPI Altimeter sustained a two quarter slip due to a requirement for an additional draft RFI to industry as a result of the Department of Defense's specifications/standards reform. The CTMR program has been absorbed into TAMMAC. TAMMAC milestones apply.

(U) Technical: Not applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604215N
PROGRAM ELEMENT TITLE: Standards Development

PROJECT NUMBER: W0572
PROJECT TITLE: Joint Services/Navy Standard Avionics Components and Subsystems

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands): Not applicable.

(U) RELATED RDT&E:

(U) PE 0604201F Common Avionics (Joint AF program with C[redacted]AHRS)

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones		3Q LPIA MS II	2Q MS II FAD 1Q MS II TAMMC	
Engineering Milestones			1Q LPIA PDR 3Q LPIA CDR	
T&E Milestones	4Q GPWS HELO DT			
Contract Milestones		3Q EMD AWD LPIA	3Q EMD AWD FAD 2Q EMD AWD TAMMC	

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604215N
PROGRAM ELEMENT TITLE: Standards Development

PROJECT NUMBER: W0572
PROJECT TITLE: Joint Services/Navy Standard Avionics Components and Subsystems

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Program Planning	930	575	750
b. Technical Program Management Support	260	185	390
c. Prime Equipment/E&MD Prime Contract	2,760	1,200	10,372
d. Platform Integration	200	150	1,650
e. System T&E/OT&E	2,000	659	1,565
f. System Engineering	2,161	1,358	2,870
g. Documentation	390	300	900
h. ILS	185	127	300
i. Support Equipment	60	60	125
j. Travel	150	130	155
k. Contract Services	2,434	2,434	3,600
l. SBIR Assessment		75	
Total	11,530	7,253	22,677

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604215N PROJECT NUMBER: W0572
PROGRAM ELEMENT TITLE: Standards Development PROJECT TITLE: Joint Services/Navy Standard Avionics Components and Subsystems

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	TO Complete	Total Program
Product Development										
Smiths Ind. Michigan	CPIF	6/28/92	9,510	9,510	8,530	980	0	0	0	9,510
Cubic Corp. Los Angeles, CA	CPFF	8/17/93	4,441	4,441	2,478	1,963	0	0	0	4,441
TBD (LPIA)	TBD	TBD	TBD	TBD	0	0	1,200	2,600	CONT.	CONT.
TBD (FAD)	TBD	TBD	TBD	TBD	0	0	0	1,872	CONT.	CONT.
TBD (TAMMC)	TBD	TBD	TBD	TBD	0	0	0	5,900		
NAWC-ADI	Various	Various	Various	Various	6,529	2,467	1,670	2,795	CONT.	CONT.
Miscellaneous	"	Various	Various	Various	3,454	1,525	1,215	2,000	CONT.	CONT.
NAWC-WD	Various	Various	Various	Various				919	CONT.	CONT.
NAWC-AD	Various	Various	Various	Various				1,491	CONT.	CONT.
Support and Management		Various	Various	Various	2,571	2,434	2,434	3,600	CONT.	CONT.
Test and Evaluation		Various	Various	Various	5,110	2,161	659	1,500	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY: Not Applicable

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604215N
PROGRAM ELEMENT TITLE: Standards Development

PROJECT NUMBER: W0572
PROJECT TITLE: Joint Services/Navy Standard Avionics Components and Subsystems

	Total FY 1994 & Prior*	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	20,991	6,935	4,085	17,577	CONT.	CONT.
Subtotal Support and Management	2,571	2,434	2,434	3,600	CONT.	CONT.
Subtotal Test and Evaluation	5,110	2,161	659	1,500	CONT.	CONT.
SBIR Assessment			75			
TOTAL PROJECT	28,672*	11,530	7,253	22,677		

*FY 94 & prior includes program information from FY 90 through FY 94 on programs still remaining in the FYDP years.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604217N
PROGRAM ELEMENT TITLE: S-3 Weapon System Improvement

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
H0489 S-3 WSIP	13,577	12,469	4,979	3,872	4,312	0	0	0	297,405
W2217 Common Support Aircraft (CSA) - (proposed)	0	0	0	3,865	23,855	95,256	131,828	CONT	CONT
TOTAL	13,577	12,469	4,979	7,737	28,167	95,256	131,828	CONT	CONT

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: H0489 S-3 WSIP - The current program provides continuation of a series of progressive modular improvements which began with the S-3 Weapon System Improvement Program (WSIP) Phase I (S-3A modified to S-3B configuration). Based upon the S-3 WSIP Operational Requirement, the full program achieves the required multi-mission operational capability through time-phased, selective mission avionics/processing upgrades that are pursued in priority order. Initial Nunn-funded development focused on the Co-Processor Memory Unit (CPMU) hardware, a joint U.S./Canadian industrial base development program which provides the core processing capability and open architecture required for future modular S-3B modification. This program will complete CPMU integration and test and rewrite existing Tactical Mission Program (TMP) code into Ada high order language.

(U) W2217 COMMON SUPPORT AIRCRAFT (CSA) - This project replaces the S-3B/ES-3A/E-2C/C-2 aircraft. The CSA project will study and determine the optimum aircraft design to provide a multi-place, common airframe/engine/core-avionics aircraft having sufficient internal volume, internal and external carriage capability, and provisions for mission-specific avionics, sensors, stores and weapons. In addition to meeting the aircraft requirement of the S-3B/ES-3A/E-2C/C-2 aircraft, the common support airframe will be a primary candidate for the organic tanker mission.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604217N
PROGRAM ELEMENT TITLE: S-3 Weapon System Improvement

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
H0489 S-3 WSIP	13,577	12,469	4,979	3,872	4,312	0	0	0	297,405

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The current program provides continuation of a series of progressive modular improvements which began with the S-3 Weapon System Improvement Program (WSIP) Phase I (S-3A modified to S-3B configuration). Based upon the S-3 WSIP Operational Requirement, the full program achieves the required multi-mission operational capability through time-phased, selective mission avionics/processing upgrades that are pursued in priority order. Initial Nunn-funded development focused on the Co-Processor Memory Unit (CPMU) hardware, a joint U.S./Canadian industrial base development program which provides the core processing capability and open architecture required for future modular S-3B modification. This program will complete CPMU integration and test and rewrite existing Tactical Mission Program (TMP) code into Ada high order language.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($1,274) Performed CPMU EDM Hardware developmental testing.
- (U) ($8,026) Continued Ada software development for the CPMU.
- (U) ($4,277) Continued hardware and software development and integration.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604217N PROJECT NUMBER: H0489
PROGRAM ELEMENT TITLE: S-3 Weapon System Improvement PROJECT TITLE: S-3 WSIP

2. (U) FY 1996 PLAN:

- (U) ($11,446) Continue Ada software development for the CPMU.
- (U) ($606) Continue hardware and software development and integration.
- (U) ($150) Perform Follow on Test and Evaluation (FOT&E) of CPMU.
- (U) ($267) Portion of program reserved for Small Business Innovation Research Assessment in accordance with 15 U.S.C.638.

3. (U) FY 1997 PLAN:

- (U) ($3,879) Continue Ada software development for the CPMU.
- (U) ($395) Complete hardware and software development and integration.
- (U) ($705) Perform Navy combined developmental and operation (DT/OT) testing of CPMU.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604217N
PROGRAM ELEMENT TITLE: S-3 Weapon System Improvement

PROJECT NUMBER: H0489
PROJECT TITLE: S-3 WSIP

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	13,586	12,872	5,404
(U) Adjustments from PRESBUDG:	-9	-403	-425
(U) FY 1997 President's Budget Submit:	13,577	12,469	4,979

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY95 reduction of $9 thousand is for a cancelled account contract liability. FY96 reductions of $403 thousand are due to various undistributed reductions. FY97 reduction of $425 thousand consists of $264 thousand for Defense Business Operating Fund (DBOF); $150 thousand for DOD inflation adjustment and $11 thousand for minor pricing adjustments.

(U) Schedule: Not Applicable

(U) Technical: Not Applicable

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) APN S-3* (OSIP 04-96) Co-Processor Memory Unit	0	4,227	7,913	6,873	8,390	9,443	7,452	35,359	79,657

* These are the dollar amounts for the Co-Processor Memory Unit Only.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604217N PROJECT NUMBER: H0489
PROGRAM ELEMENT TITLE: S-3 Weapon System Improvement PROJECT TITLE: S-3 WSIP

(U) RELATED RDT&E:

(U) PE 0604261N (Air Deployed Active Receiver (ADAR)/Low Frequency Active (LFA))
(U) PE 0603790D ((NUNN Funds)-Co-Processor Memory Unit (CPMU) (previously Mass Memory Unit))

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				2Q/98 CPMU MS-III
Engineering Milestones				
T&E Milestones	1Q/CPMU EDM's Hardware DT II		2Q/CPMU DT II	1Q/98 CPMU OT-II
Contract Milestones				

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604217N
PROGRAM ELEMENT TITLE: S-3 Weapon System Improvement

PROJECT NUMBER: H0489
PROJECT TITLE: S-3 WSIP

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Developmental Testing	1,274	150	705
b. Travel	25	25	25
c. Technical Support (CS)	733	200	100
d. Software Development	11,545	11,827	4,149
e. SBIR Assessment	0	267	0
Total	13,577	12,469	4,979

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604217N PROJECT NUMBER: H0489
PROGRAM ELEMENT TITLE: S-3 Weapon System Improvement PROJECT TITLE: S-3 WSIP

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Canadian Commercial Corp.	CPFF/Competition	7/91	14,500*	14,500*	1,933	250	0	0	0	2,183
*Includes NUNN Amendment funding (RDT&E, Defense Agencies, P.E. 0603700N) and Canadian Funding (Joint Venture)										
Loral Egan, MN.	CPAF/ Sole Source	1/95	27,185	27,185	0	8,026	11,246	3,779	4,134	27,185
Other Contracts less than $1.0M		Var	11,073	11,073	3,133	3,269	581	370	3,720	11,073
Support and Management										
Other Contracts less than $1.0M		Var	1,553	1,553	115	758	225	125	330	1,553
Test and Evaluation										
Other Contracts less than $1.0M		Var	2,129	2,129	0	1,274	150	705	0	2,129

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Not Applicable									

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604217N PROJECT NUMBER: H0489
PROGRAM ELEMENT TITLE: S-3 Weapon System Improvement PROJECT TITLE: S-3 WSIP

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	5,066	11,545	11,827	4,149	7,854	40,441
Subtotal Support and Management	115	758	225	125	330	1,553
Subtotal Test and Evaluation	0	1,274	150	705	0	2,129
SBIR Assessment	0	0	267	0	0	267
Other FY94 and Prior Costs	253,015	0	0	0	0	253,015
Total Project	258,196	13,577	12,469	4,979	8,184	297,405

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604218N
PROGRAM ELEMENT TITLE: Air/Ocean Equipment Engineering

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X0532 FLEET AIR OCEAN EQUIPMENT	1,806	2,477	1,661	2,114	3,519	3,636	3,714	CONT.	CONT.
R1740 AIR/OCEAN SURVEY ENGINEERING	1,241	1,218	1,797	1,930	2,134	2,126	2,125	CONT.	CONT.
X1752 TACTICAL ENVIRONMENTAL SUPPORT SYSTEM - TESS (ENG)	2,252	2,233	2,173	2,273	2,746	2,750	2,812	CONT.	CONT.
TOTAL	5,299	5,928	5,631	6,317	8,399	8,512	8,651	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This Program Element (PE) provides for the engineering development of sensors, communication interfaces, and processing and display equipment to measure, ingest, store, distribute and display atmospheric and oceanographic parameters essential to the optimum employment of Naval warfare systems. The PE also develops increased capabilities for the shipboard and shore based Tactical Environmental Support System - TESS(3). Engineering development of oceanographic survey sensors is also performed under this PE.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604218N PROJECT NUMBER: X0532
PROGRAM ELEMENT TITLE: Air/Ocean Equipment Engineering PROJECT TITLE: Fleet Air Ocean Equipment

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X0532 FLEET AIR OCEAN EQUIPMENT	1,806	2,477	1,661	2,114	3,519	3,636	3,714	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project provides for the development of Non-ACAT sensors, communication interfaces, and processing and display equipment to measure, ingest, store, distribute and display atmospheric and oceanographic parameters. Major emphasis areas include the Navy Integrated Tactical Environmental Subsystem (NITES), Automated Surface Observing System (ASOS), the Marine Corps Meteorological Mobile Facility (METMF), the AN/SMQ-11 satellite receiver/recorder and other satellite ground equipment, weather radars and the development of new sensors such as active and passive atmospheric profilers for incorporation into the Shipboard Meteorological and Oceanographic Observing System (SMOOS).

(U) PROGRAM ACCOMPLISMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($519) Completed development of NITES to comply with the JMCIS command environment.
- (U) ($587) Completed development of ASOS to incorporate Navy-unique requirements; continued system development of METMF and AN/SMQ-11.
- (U) ($600) Continued development of LIDAR atmospheric profiler to incorporate latest laser and optics technologies. Includes ($108K) Forward financing of FY 96 requirements due to poor expenditures in FY 95.

- (U) ($100) Began system development for weather radar that will detect and monitor severe weather phenomena at airfields where Next Generation Radar (NEXRAD) is unavailable.

2. (U) FY 1996 PLAN:

- (U) ($26) Portion of extramural program reserved for Small Business Innovation research assessment in accordance with 15 U.S.C.638.
- (U) ($600) Begin test, evaluation and adapation of non-developmental items (NDI) development in support of data connectivity, interfaces and C2 systems.
- (U) ($502) Begin engineering development of the Navy Tactical Applications Computer Version 4 (TAC-4) Tactical Environmental Support System (TESS(3)) Upgrade/NITES workstation.
- (U) ($359) Continue system engineering of AN/SMQ-11.
- (U) ($600) Continue system engineering of METMF (Replacement).
- (U) ($290) Conduct at-sea evaluation of LIDAR atmospheric profiler prototype. Includes ($108) forward financing of FY 97 requirements due to poor expenditures in FY 95.
- (U) ($100) Continue system development for weather radar.

3. (U) FY 1997 PLAN:

- (U) ($210) Continue test, evaluation and adaptation of NDI in support of data connectivity, interfaces and C2 systems. FY 97 funding was reduced ($108K) due to poor expenditures in FY 95.
- (U) ($215) Complete engineering development of the TAC-4 TESS(3) Upgrade/NITES workstation.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604218N PROJECT NUMBER: X0532
PROGRAM ELEMENT TITLE: Air/Ocean Equipment Engineering PROJECT TITLE: Fleet Air Ocean Equipment

- (U) ($236) Begin engineering development of the TAC-3 TESS(3) Upgrade/NITES workstation.
- (U) ($500) Continue system engineering of AN/SMQ-11
- (U) ($400) Complete system engineering of METMF (Replacement)
- (U) ($100) Complete system development for supplemental weather radar.

B.(U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/97 President's Budget:	1,806	2,622	2,657
(U) Adjustments from PRESBUDG:		-145	-996
(U) FY 1997 President's Budget Submit:	1,806	2,477	1,661

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1996: Congressional undistributed general and inflation reductions (-$50K); and revised DOD inflation rates and other minor pricing adjustments (-$95K). FY 1997: Revised inflation estimates and other minor pricing adjustments (-$996K).

(U) Schedule: Availability of a production LIDAR Atmospheric Profiler is delayed one year.

(U) Technical: Not applicable.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604218N PROJECT NUMBER: X0532
PROGRAM ELEMENT TITLE: Air/Ocean Equipment Engineering PROJECT TITLE: Fleet Air Ocean Equipment

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN line 4226	12,956	7,448	5,691	9,508	11,149	10,910	10,540	CONT.	CONT.

(U) RELATED RDT&E: PE 0603207N, Air/Ocean Tactical Applications.

D. (U) SCHEDULE PROFILE: Not applicable.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604218N PROJECT NUMBER: X0532
PROGRAM ELEMENT TITLE: Air/Ocean Equipment Engineering PROJECT TITLE: Fleet Air Ocean Equipment

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Sensor Development	778	902	320
b. System Engineering	738	1,255	991
c. Contractor Engineering Support	250	275	300
d. Travel	40	45	50
Total	1,806	2,477	1,661

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Various	Various	N/A	CONT.	CONT.	12,313	1,304	1,952	1,136	CONT.	CONT.
Support and Management										
SSA, Wash, DC	7/90 MR	Nov FY	CONT.	CONT.	3,002	502	525	525	CONT.	CONT.
Test and Evaluation										

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604218N PROJECT NUMBER: X0532
PROGRAM ELEMENT TITLE: Air/Ocean Equipment Engineering PROJECT TITLE: Fleet Air Ocean Equipment

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development									
Support and Management									
Test and Evaluation									
Subtotal Product Development				12,313	1,304	1,952	1,136	CONT.	CONT.
Subtotal Support and Management				3,002	502	525	525	CONT.	CONT.
Subtotal Test and Evaluation									
Total Project				15,315	1,806	2,477	1,661	CONT.	CONT.

C. (U) FUNDING PROFILE: Not Applicable

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604218N PROJECT NUMBER: R1740
PROGRAM ELEMENT TITLE: Air/Ocean Equipment Engineering PROJECT TITLE: Air/Ocean Survey Engineering

(U) COST (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R1740 Air/Ocean Survey Engineering	1,241	1,218	1,797	1,930	2,134	2,126	2,125	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: R1740, Air/Ocean Survey Engineering: The project engineering development for fleet transition of potential 6.3 sponsored projects of highly specialized ultra-high resolution instrumentation systems and measurement techniques in support of CNO endorsed requirements. The objectives are to ruggedize and package systems, sensors and instruments to survive the harsh and demanding requirements of fleet operational use. Engineering is accomplished in the Research, Development Test and Evaluation (RDT&E) phase to meet requirements for 1) air and safety certification for deployment from fleet aircraft or ships, and 2) proper data formats for integration into existing or planned communications and displays. The end products are ruggedized sensors and systems that will 1) provide the military near real-time, in-situ meteorology and oceanography (METOC) assessment capability in littoral regions 2) field a capability to provide the regional commander with continuous METOC data for operational use, and 3) provide baseline data for predictive models in areas of potential interest. Real-time METOC data is needed because climatological forecasting does not work in the littoral. The major challenges include instrumentation for collection and dissemination of data in highly variable meteorological and oceanographic conditions under stressful METOC situations in denied or inaccessible areas over relatively long periods of time.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($1241) Continued development of combined 300 meter thermistor chain/ambient noise sensors for AN/WSQ-6 buoys (NAVY designator for Mine Drifting Data Buoys (MDDB)). Began transition of buoy procurement to NAVAIR PMA 264 for Operational Test and Evaluation (OT&E).

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET Date: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604218N PROJECT NUMBER: R1740
PROGRAM ELEMENT TITLE: Air/Ocean Equipment Engineering PROJECT TITLE: Air/Ocean Survey Engineering

2. (U) FY 1996 ACTUALS:

- (U) ($888) AN/WSQ-6 Buoy Sensors. Transition XAN1 meteorological variant to PMA 264. Continue development of XAN-4 variant, 120m thermistor chain.
- (U) ($316) Initiate Budget Activity 6.5 development of wave/wind sensor package for AN/WSQ-6 buoys.
- (U) ($14) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($1,134) Continue sensor development/transition plans on AN/WSQ-6 buoys. Continue wind/wave buoy sensor development for AN/WSQ-6, XAN-5 and XAN-6 variants.
- (U) ($663) Tactical Air Vehicle METOC sensors; transition Tactical Dropsonde sensors from 6.4 Ocean Measurement Sensors (OMS) program to 6.5 development for Tactical Aircraft applications.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/97 President's Budget:	1,241	1,256	1,356
(U) Adjustments from PRESBUDG:	0	-38	+441
(U) FY 1997 President's Budget Submit:	1,241	1,218	1,797

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1996: Congressional undistributed general and inflation reductions (-$24K); and revised DOD inflation rates and other minor pricing adjustments (-$14K). FY 1997: Revised inflation estimates and other minor pricing adjustments (+$441K).

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604218N PROJECT NUMBER: R1740
PROGRAM ELEMENT TITLE: Air/Ocean Equipment Engineering PROJECT TITLE: Air/Ocean Survey Engineering

(U) Schedule: Not applicable.

(U) Technical: Increase FY 1997 funding reflects support for micro weather sensors/unmanned underwater vehicles sensors.

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not Applicable.

(U) OTHER RDT&E: PE 0602435N (Ocean and Atmospheric Technology)
PE 0603207N (Air/Ocean Tactical Applications)

D. (U) SCHEDULE PROFILE: Not Applicable.

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

Date: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604218N
PROGRAM ELEMENT TITLE: Air/Ocean Equipment Engineering

PROJECT NUMBER: R1740
PROJECT TITLE: Air/Ocean Survey Engineering

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Primary Hardware Development	1,224	1,193	1,772
b. Travel	17	25	25
Total	1,241	1,218	1,797

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
NRL	WX	N/A	CONT.	CONT.	8,327	1,241	1,218	1,797	CONT.	CONT.
Support and Management										
Test and Evaluation										

GOVERNMENT FURNISHED PROPERTY

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

Date: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604218N
PROGRAM ELEMENT TITLE: Air/Ocean Equipment Engineering

PROJECT NUMBER: R1740
PROJECT TITLE: Air/Ocean Survey Engineering

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development									
Support and Management									
Test and Evaluation									
Subtotal Product Development				8,327	1,241	1,218	1,797	CONT.	CONT.
Subtotal Support and Management									
Subtotal Test and Evaluation									
Total Project				8,327	1,241	1,218	1,797	CONT.	CONT.

C. (U) FUNDING PROFILE: NOT APPLICABLE

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UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604218N PROJECT NUMBER: X1752
PROGRAM ELEMENT TITLE: Air/Ocean Equipment Engineering PROJECT TITLE: Tactical Environmental

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X1752 TACTICAL ENVIRONMENTAL SUPPORT SYSTEM - TESS (ENG)	2,252	2,233	2,173	2,273	2,746	2,750	2,812	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project develops improvements to the Navy's computer-based tactical shipboard and shore capability used to predict and assess the impact of the atmospheric and oceanographic environment on the performance of platforms, weapons and sensor systems. Pre-Planned Product Improvement (P3I) provides for the testing of newly developed application software to meet the evolutionary requirements of the fleet and also enable TESS to maintain compatibility with common software standards and operating environments.

(U) PROGRAM ACCOMPLISMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($631) Continued NRL Lead Laboratory tasks of software integration, assisting model developers and providing technical assistance to other activities.
- (U) ($808) Completed Phase II software build integration. Began integration of Phase III software build in accordance with the TESS(3) SIP.
- (U) ($638) Continued software P3I. Began engineering development of next generation TESS(3) hardware suite.
- (U) ($250) Completed X-Windows implementation.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604218N PROJECT NUMBER: X1752
PROGRAM ELEMENT TITLE: Air/Ocean Equipment Engineering PROJECT TITLE: Tactical Environmental

2. (U) FY 1996 PLAN:

- (U) ($17) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C.638.
- (U) ($685) Continue NRL Lead Laboratory tasks of software integration, assisting model developers and providing technical assistance to other activities.
- (U) ($348) Complete integration of Phase III software build in accordance with the TESS(3) SIP.
- (U) ($633) Begin integration of Phase IV software build in accordance with the TESS(3) SIP.
- (U) ($550) Begin convergence of TESS(3) and NITES software.

3. (U) FY 1997 PLAN:

- (U) ($790) Continue NRL Lead Laboratory tasks of software integration, assisting model developers and providing technical assistance to other activities.
- (U) ($285) Complete integration of Phase IV software build in accordance with the TESS(3) SIP.
- (U) ($528) Begin integration of Phase V software build in accordance with the TESS(3) SIP.
- (U) ($570) Continue convergence of TESS(3) and NITES software.

B.(U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/97 President's Budget:	2,327	2,304	2,413
(U) Adjustments from PRESBUDG:	-75	-71	-240
(U) FY 1997 President's Budget Submit:	2,252	2,233	2,173

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604218N PROJECT NUMBER: X1752
PROGRAM ELEMENT TITLE: Air/Ocean Equipment Engineering PROJECT TITLE: Tactical Environmental

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995: Decrease of $75K to fund Major Range Test Facility Base (MRTFB) shortfall. FY 1996: Congressional undistributed general and inflation reductions (-$45K); and revised DOD inflation rates and other minor pricing adjustments (-$26K). FY 1997: Revised inflation estimates and other minor pricing adjustments (-$240K).

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN line 4226	2,933	8,376	7,392	7,166	10,640	8,476	7,761	CONT.	CONT.

(U) RELATED RDT&E: PE 0603207N, Air/Ocean Tactical Applications.

D. (U) SCHEDULE PROFILE: Not applicable.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604218N PROJECT NUMBER: X1752
PROGRAM ELEMENT TITLE: Air/Ocean Equipment Engineering PROJECT TITLE: Tactical Environmental

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. System Engineering	2,152	2,133	2,064
b. Travel	100	100	109
Total	2,252	2,233	2,173

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
NRL	WX	VAR.	CONT.	CONT.	8,215	710	993	918	CONT.	CONT.
NISE West	WX	VAR.	CONT.	CONT.	397	1,067	1,015	995	CONT.	CONT.
Various	Various	VAR.	CONT.	CONT.	280	325	75	110	CONT.	CONT.
Support and Management										
SSA/BAH Wash, DC	MR	VAR.	CONT.	CONT.	4,843	150	150	150	CONT.	CONT.
Test and Evaluation										

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604218N PROJECT NUMBER: X1752
PROGRAM ELEMENT TITLE: Air/Ocean Equipment Engineering PROJECT TITLE: Tactical Environmental

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development									
Support and Management									
Test and Evaluation									
Subtotal Product Development				8,892	2,102	2,083	2,023	CONT.	CONT.
Subtotal Support and Management				4,843	150	150	150	CONT.	CONT.
Subtotal Test and Evaluation									
Total Project				13,735	2,252	2,233	2,173	CONT.	CONT.

C. (U) FUNDING PROFILE: NOT APPLICABLE

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 05

PROGRAM ELEMENT: 0604221N
PROGRAM ELEMENT TITLE: P-3 Modernization Program

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
H1152 P-3 Sensor Integration	4,994	16,414	2,074	0	2,344	2,397	2,461	CONT	CONT

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program provides upgrades to P-3C aircraft systems to enhance surface and subsurface tracking, classification, and attack capabilities. The P-3C Sensor Integration project develops software necessary to integrate advanced sensors into embedded P-3C Update III computer systems.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($3,091) Completed coding and debugging of Tactical Mission Software (TMS)/Broadband (software version A4.8/C4.8).
- (U) ($1,050) Awarded OMNIBUS contract for systems engineering support.
- (U) ($853) Began integration of TMS/Broadband (software version A4.8/C4.8).

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 05 PROGRAM ELEMENT: 0604221N PROJECT NUMBER: H1152
PROGRAM ELEMENT TITLE: P-3 Modernization Program PROJECT TITLE: P-3 Sensor Integration Program

2. (U) FY 1996 PLAN:

- (U) ($1,045) Complete integration of TMS/Broadband (software version A4.8/C4.8).
- (U) ($500) Exercise option for Systems Engineering Support.
- (U) ($200) Begin Developmental Testing of TMS/Broadband (software version A4.8/C4.8).
- (U) ($3,460) Improved Extended Echo Ranging (IEER) Acceleration. $2,764 thousand is to be used in FY98 to continue activity previously eliminated. This maintains continuity for IEER development through FY 01.
- (U) ($3,000) Stores Management System (SMS).
- (U) ($7,860) Antisurface Warfare Improvement Program (AIP) Acceleration.
- (U) ($349) Portion of the Program reserved for Small Business Innovation Research Assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($1,574) Conduct Developmental and Operational Testing of TMS/Broadband (software version A4.8/C4.8).
- (U) ($500) Exercise option for Systems Engineering Support.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 05 PROGRAM ELEMENT: 0604221N PROJECT NUMBER: H1152
PROGRAM ELEMENT TITLE: P-3 Modernization Program PROJECT TITLE: P-3 Sensor Integration Program

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	4,995	1,945	2,801
(U) Adjustments from PRESBUDG:	-1	14,469	-727
(U) FY 1997 President's Submit:	4,994	16,414	2,074

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY95 prior year funding adjustments.
FY96 adjustment of -$531 thousand reflects various undistributed congressional reductions.
FY96 adjustment of +$15,000 thousand reflects congressional plus-up for AIP Acceleration and Stores Management System (SMS).
FY97 -$727 thousand reflects reduction of $630 thousand for Defense Business Operating Fund R&D activities and $97 thousand for economic adjustments.

(U) Schedule: Not Applicable

(U) Technical: Not Applicable

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEETDATE: March 1996

BUDGET ACTIVITY: 05 PROGRAM ELEMENT: 0604221N PROJECT NUMBER: H1152
PROGRAM ELEMENT TITLE: P-3 Modernization Program PROJECT TITLE: P-3 Sensor Integration Program

C. (U) OTHER PROGRAM FUNDING SUMMARY: None

(U) RELATED RDT&E:

(U) PE 0604261N (Acoustic Search Sensors developing software and acoustic algorithms).

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				
Engineering Milestones				4Q/98 ADAR CDR
T&E Milestones		4Q/TMS/Broadband DT III	3Q/TMS/Broadband OT III	1Q/02 ADAR DT III 3Q/02 ADAR OT III
Contract Milestones	1Q/OMNI AWD			

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 05 PROGRAM ELEMENT: 0604221N PROJECT NUMBER: H1152
PROGRAM ELEMENT TITLE: P-3 Modernization Program PROJECT TITLE: P-3 Sensor Integration
Program

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Systems Engineering Support	3,884	15,305	0
b. Technical Support (CS)	1,050	500	500
c. Travel	60	60	60
d. Test and Evaluation	0	200	1,514
e. SBIR Assessment	0	349	0
Total	4,994	16,414	2,074

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 05 PROGRAM ELEMENT: 0604221N PROJECT NUMBER: H1152
PROGRAM ELEMENT TITLE: P-3 Modernization Program PROJECT TITLE: P-3 Sensor Integration

Program

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
RBC (Arl, VA)	C/FFP	8/89	4,894	4,894	4,894	0	0	0	0	4,894
RBC (Arl, VA)	C/FFP	11/94	7,226	7,226	0	1,050	500	500	5,176	7,226
Loral (Egan, MN)	SS	3/96					7,860	0	CONT	CONT
CDI(Bloomington,MN)	SS	5/96					3,000	0	CONT	CONT
Other contracts less than $1.0M		Var			5,172	1,216	0	0	CONT	CONT
Lab/Field Activity		10/96			5,150	2,668	4,445	0	CONT	CONT
Support and Management										
Lab/Field Activity		10/96			149	60	60	60	CONT	CONT
Test and Evaluation										
Lab/Field Activity		10/96			0	0	200	1,514	CONT	CONT

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program

Product Development: Not Applicable
Support and Management: Not Applicable
Test and Evaluation: Not Applicable

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 05 PROGRAM ELEMENT: 0604221N PROJECT NUMBER: H1152
PROGRAM ELEMENT TITLE: P-3 Modernization Program PROJECT TITLE: P-3 Sensor Integration Program

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	15,216	4,934	15,805	500	CONT	CONT
Subtotal Support and Management	149	60	60	60	CONT	CONT
Subtotal Test and Evaluation	0	0	200	1,514	CONT	CONT
Subtotal SBIR Assessment			349			349
Total Project	15,365	4,994	16,414	2,074	CONT	CONT

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY:5

PROGRAM ELEMENT: 0604231N
PROGRAM ELEMENT TITLE: Tactical Command System

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
E2213 Mission Planning	0	2,554	2,360	2,350	9,138	10,398	17,203	CONT.	CONT.
R2295 JDISS	0	0	2,614	2,415	2,304	2,094	1,892	CONT.	CONT.
X0486 TSC	4,361	2,907	3,033	3,224	3,442	3,315	3,420	CONT.	CONT.
X0709 NTCS-A	11,478	7,598	6,699	6,793	10,496	10,579	11,644	CONT.	CONT.
X2009 OBU/OSG	2,640	2,006	1,283	2,092	2,449	2,244	2,296	CONT.	CONT.
X2041 Operations Support System (OSS)	11,392	5,625	6,402	7,681	7,665	7,773	8,172	CONT.	CONT.
X0521 Shipboard Tactical Intelligence Processing (STIP)	5,108	2,695	4,598	5,182	6,261	6,390	6,551	CONT.	CONT.
X2215 Joint Interoperability	0	0	0	0	5,100	4,472	3,864	CONT.	CONT.
X2216 C4I for Joint Littoral Warfare (JLW)	0	0	0	0	10,894	14,311	24,969	CONT.	CONT.
TOTAL	34,979	23,385	26,989	29,737	57,749	61,576	80,011	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Tactical Command System (TCS) upgrades the Navy's Command Control, Computer and Intelligence (C^3I) systems and processes C^3I information for all warfare mission areas including planning, direction and reconstruction of missions for peacetime, wartime and times of crises. Included among these C^3I systems are: the unified command centers of CINCPAC and CINCLANT, the Navy Command Center, the fleet command centers of

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY:5

PROGRAM ELEMENT: 0604231N
PROGRAM ELEMENT TITLE: Tactical Command System

CINCLANTFLT, CINCUSNAVEUR, the Submarine Operating Authority (SUBOPAUTH), command centers supporting the Ashore Sector Commander, the Joint Intelligence Center (JIC) and a Fleet Ocean Surveillance Information Facility (FOSIF), Tactical Flag Command Center (TFCC) afloat and the command and control suites of various combatant ship classes. The TFCC and ship command and control suites have been consolidated in the Navy Tactical Command System - Afloat (NTCS-A) program. C^3I of Naval aircraft operations afloat and shore are supported by the TCS. Mission planning capabilities will be implemented for air control and attack operations using TCS components in the TAMPS program. All these projects develop information processing and display systems for afloat and ashore commanders providing decision makers the ability to make rapid, informed tactical decisions. TCS develops systems which fuse tactical data between shipboard organic sensors and ashore and space-based non-organic sensors. TCS provides the ashore and afloat pillars of the Copernicus architecture, the interoperability tenants of "C^4I for the warrior" and supports the Global Command and Control System (GCCS) architecture. Additionally, TCS supports the Joint Maritime Command Information System (JMCIS) acquisition and development strategy for providing a standard/common operating environment to standardize operational and logistical support. Further, data from the Joint Tactical Information Distribution System (JTIDS), Joint Defense Intelligence Support Services (JDISS) and systems employing the Department of Defense Intelligence Information System (DODIIS) standards are used for the exchange of data with joint and combined forces. The Tactical Aircraft Mission Planning System (TAMPS) is the Naval standard unit level aircraft mission planning system and provides data loading capabilities for all aviation platforms and subsystems. TAMPS is interoperable with and uses TCS components for data feed.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: These programs are funded under ENGINEERING AND MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N
PROGRAM ELEMENT TITLE: Tactical Command System

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
E2213 Mission Planning	0	2,554	2,360	2,350	9,138	10,398	17,203	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Tactical Aircraft Mission Planning System (TAMPS) is the Naval standard unit level aircraft mission planning system. It loads data for the following aviation platforms and subsystems: F/A-18, F-14, E-2C, V-22, C-2, KC-130, EA-6B, AV-8B, AH-1, SH-60, MH-53, HH-60, CH-46, UH-1, VH-1, E-6, ES-3A, T-45, S-3B, P-3C, High-speed Anti Radiation Missile (HARM), Joint Stand-Off Weapon (JSOW), Joint Directed Attack Munitions (JDAM), Stand-off Land Attack Missile (SLAM), Stores Planning and Weaponeering Module (SPWM), Joint Tactical Information and Distribution System (JTIDS), Global Positioning System (GPS) (includes Coast Guard aviation GPS loading requirements), ARC-210, ALE-47, ALR-45/50, ALR-67, ALE-39, ALQ-126B, Tactical Aircraft Moving Map System (TAMMS), Forward Area Minefield Planner (FAMP), Naval Special Warfare Mission Planning. TAMPS loads the F/A-18 Data Storage Unit (DSU) with route of flight data (way points, sequential steering files), air-to-air radar presets, Tactical Aircraft Navigation Aid (TACAN) and channel identification files. The DSU in turn provides this TAMPS information to the F/A-18 flight software. Without the TAMPS load of "independent overlays" for the aircraft software and bulk files for missile software, weapons such as SLAM, JSOW and JDAM will be unusable. TAMPS currently is the primary means of loading JTIDS data for the F-14D/E-2C. Future systems such as GPS are planned to use TAMPS for mission planning and data loads. In keeping with the Assistant Secretary of Defense C^{3}I direction, TAMPS has been identified as a migration system. Various platform-specific aircraft mission planning systems (e.g., Tactical EA-6B Mission Support System (TEAMS), Map Operator and Maintenance Station(MOMS), Common Helicopter Aviation Mission Planning System (CHAMPS), MOMS/AV-8B Maintenance Data System, ES-3 Mission Planning System, Tactical Electronic Reconnaissance Processing and Evaluation System (TERPES) are planned to neck down into TAMPS. TAMPS is interoperable with and uses the Joint Maritime Command Information System (JMCIS) for data feeds. FY 96 is the first year of RDT&E funding for this project.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1.(U) FY 1995 ACCOMPLISHMENTS: Not applicable.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: E2213
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Mission Planning

2.(U) FY 1996 PLAN:

Unit-Level Mission Planning

- (U) ($2,540) Develop and integrate TAMPS software upgrade 6.1. Efforts will include: Capability to scan mapping products; ability to process Intelligence Data Base in Standard Extract Format; study and develop the requirements to integrate with platforms (i.e., ARC-210, F-14, E-2C improvements); computer based training; training scenarios; automatic route construction; and full duplex security. Continue TAMPS 7.0 architecture studies to integrate TAMPS into the Joint Maritime Command Information System (JMCIS) and Global Command and Control System (GCCS)common operating environment.

  (U) TAMPS has a software release strategy which accommodates major and minor releases. A minor release (i.e. TAMPS 6.1, 6.2) is defined as a set of software requirements that does not drive design changes to external Mission Planning Modules (MPMs), but is required to integrate new weapon system and stovepipe mission planning systems. TAMPS plans to conduct annual minor software releases.

  (U) A major release (i.e. TAMPS 7.0) is defined as a set of changes to the core TAMPS software architecture that further drive software design changes to external weapon system application modules. Although the basic mission planning functions of TAMPS still exist, a major release is required to implement emerging technology that exceeds the existing TAMPS software capabilities but meets fleet requirements (i.e. B1/B2 security, dynamic MPM-MPM communication, etc.). Major software releases will occur approximately every three years.

- (U) ($14) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638 (f)(1).

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: E2213
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Mission Planning

3. (U) FY 1997 PLAN:

Unit-Level Mission Planning

- (U) ($2,360) Develop and integrate TAMPS 6.2. Efforts to include the integration of: SPWM; TAMMAC functionality; Air-to-Air Warfare module; Electronic Warfare module; JDAM mission planning interface; and system security. Design TAMPS 7.0 software architecture to integrate TAMPS into the JMCIS and GCCS common operating environment, and to interface with the Digital Imagery Workstation to provide support for Precision Guided Munitions.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: E2213
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Mission Planning

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	0	2,635	2,599
(U) Adjustments from PRESBUDG:		-81	-239
(U) FY 1997 President's Budget:	0	2,554	2,360

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding:

FY96: Congressional undistributed general and inflation reductions (-$52K); and revised DoD inflation rates and other minor pricing adjustments (-$29K)
FY97: Revised inflation estimates and other minor pricing adjustments (-$239K)

(U) Schedule: Not Applicable

(U) Technical: Not Applicable

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN LINE 166	11,025	4,801	7,131	7,879	48,351	8,960	15,520	CONT	CONT
(U) O&MN	1,441	2,060	2,549	3,074	5,127	5,626	5,568	CONT	CONT

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: E2213
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Mission Planning

(U) RELATED RDT&E:
(U) PE 0204229N (TOMAHAWK)
(U) PE 0604231N (NTCS-A)

D. (U) SCHEDULE PROFILE: Not Applicable.

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: E2213
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Mission Planning

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. SOFTWARE DEVELOPMENT	0	2,540	2,360
b. SBIR ASSESSMENT	0	14	0
Total	0	2,554	2,360

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: E2213
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Mission Planning

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands):
PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
NAWC Pt Mugu	WX	4/96			0	0	1,584	1,110		
Misc.	WX	4/96			0	0	356	632	Cont	Cont
Support and Management										
Misc	FP	3/96			0	0	600	618	Cont	Cont
Test and Evaluation					0	0	0	0	Cont	Cont
Subtotal Product Development					0	0	1,940	1,742	Cont	Cont
Subtotal Support and Management					0	0	600	618	Cont	Cont
Subtotal Test and Evaluation					0	0	0	0	Cont	Cont
SBIR					0	0	14	0	Cont	Cont
Total Project					0	0	2,554	2,360	Cont	Cont

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: E2213
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Mission Planning

C. (U) FUNDING PROFILE:

1. (U) FISCAL YEAR OBLIGATION/EXPENDITURE ACTUALS AND PLANS (BY QUARTER) ($ in thousands): Not Applicable.

2. (U) FY 1995 OBLIGATIONS/EXPENDITURES ($ in thousands): *Not Applicable.

* FY 96 is the first year of RDT&E,N funding for this project.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N
PROGRAM ELEMENT TITLE: Tactical Command System

A. (U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R2295 Joint Deployable Intelligence Support System (JDISS)	0	0	2,614	2,415	2,304	2,094	1,892	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This new start program is being established as part of the Joint Military Intelligence Program (JMIP) and will integrate the JDISS and the Linked Operations-Intelligence Centers Europe (LOCE) into one integrated system. The JDISS/LOCE system will be a set of commercial off-the-shelf (COTS) software applications. Funds will be used to develop a JDISS/LOCE software package that will either be an independent "standalone" software package, or a segment for installation into existing C4I architectures. Research and development to support CINC requirements for a deployable coalition system will also be addressed. The development of JDISS/LOCE into the Defense Information Infrastructure will support warfighters with near real-time intelligence information.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS: Not applicable.

2. (U) FY 1996 PLAN: Not applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: R2295
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: JDISS

3. (U) FY 1997 PLAN:

(U) ($2,614) Work will begin to create a centralized office that provides a single solution for interoperability for intelligence sharing at special compartmented information, collateral and NATO levels, and sustains current capabilities. JDISS/LOCE research and development is required to develop interfaces to new theater and national intelligence platforms and sources. The JDISS/LOCE development will ensure interoperability with the Navy's Joint Maritime Command Information System, Army's All Source Analysis System, Air Force's CIS, and the USMC's Interactive Analysis System, while all systems continue to evolve to a common Defense Information Infrastructure. Effort will also focus on development of a coalition system integration that allows for varying releasability levels on a single network.

B. (U) PROGRAM CHANGE SUMMARY

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	0	0	0
(U) Adjustments from FY 1996 PRESBUDG:	0	0	+2,614
(U) FY 1997 PRESBUDG:	0	0	2,614

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1997: Programmatic adjustment (+$2,614)

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: R2295
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: JDISS

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E: Not applicable.

D. (U) SCHEDULE PROFILE: Not applicable.

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N
PROGRAM ELEMENT TITLE: Tactical Command System

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. JDISS/LOCE Development	0	0	2,614
Total	0	0	2,614

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands):

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development:										
NSMA	RCP	10/96	N/A	N/A	0	0	0	2,614	CONT.	CONT.

Support and Management: Not applicable.

Test and Evaluation: Not applicable.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N
PROGRAM ELEMENT TITLE: Tactical Command System

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	0	0	0	2,614	CONT.	CONT.
Subtotal Support and Management	0	0	0	0	0	0
Subtotal Test and Evaluation	0	0	0	0	0	0
Total Project	0	0	0	2,614	CONT.	CONT.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N
PROGRAM ELEMENT TITLE: Tactical Command System

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X0486 Tactical Support Centers (TSC)	4,361	2,907	3,033	3,224	3,442	3,315	3,420	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Tactical Support Centers are nodes of the Navy Command and Control System (NCCS) Ashore, with fixed sites and mobile components (Mobile Operations Control Center (MOCCs)), provide the Maritime Sector Commander (Ashore) with the capability to plan, direct and control the tactical operations of joint and Naval Expeditionary Forces and other assigned units within his respective area of responsibility. These operations include littoral and open ocean surveillance, anti-surface warfare, over-the-horizon targeting, counter-drug operations, power projection, antisubmarine warfare, mining, search and rescue, and special operations. TSCs consist of C^4I systems (based on the Joint Maritime Command Information System (JMCIS) common architecture) which will evolve to the Navy's implementation of the Global Command and Control System (GCCS); air-ground, satellite and point-to-point communications systems; sensor analysis capabilities; avionics and weapons system interfaces and facilities equipment. MOCC is a rapidly-deployable, self-contained, take-what-you-need C^4I system which can be transported in two fleet-configured P-3 aircraft for contingency operations. The ongoing TSC C^3 Modernization (TMS) Program will: support expeditionary warfare requirements; replace a centralized computer system with Navy-standard desktop computers and a distributed data base on a local area network to provide a fused, all-source tactical data display with detailed source data and relevant tactical decision/planning aids; provide ELINT, imagery and ACINT sensor analysis capabilities; automate communications functions/interfaces and facilitate rapid data exchange with key Navy, joint, other service and allied forces ashore, afloat and airborne with connectivity to the Secret Internet Protocol Routing Network (SIPRNET); and develop automated interfaces to evolving tactical weapons/sensor/ avionics systems and additional USN/USAF/allied aircraft. This program assures the existing TSC system remains interoperable with updated aircraft, sensors and weapons systems while following the Copernicus Forward Architecture.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X0486
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: TSC

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($150) Completed DTIIA at TSC Brunswick and updated TMS to an operational test configuration.
- (U) ($65) Completed OTIIA at TSC Brunswick leading to a Milestone IIIA (Q4 FY95) decision for Fleet Release of TMS 1.0 (i.0.5.x).
- (U) ($362) Installed Incremental Release 1.X at TSC sites.
- (U) ($201) Developed common JMCIS software updates, in conjunction with other programs.
- (U) ($665) Upgraded data server to operate on a TAC-3; included additional USMTF, Link 11 message data, and technical data (ESM, acoustic, Naval Warfare Tactical Data Base (NWTDB)).
- (U) ($244) Captured/integrated tactical decision aids updates.
- (U) ($376) Developed/integrated TMS Local Area Network (LAN) interface to the Fast Time Analysis System (FTAS--acoustic processor) for improved post mission data analysis and reconstruction.
- (U) ($264) Continued development/integration of Sensor Analysis Workstations, incorporating ESM, ISAR, and Imagery data processing.
- (U) ($201) Started development/integration of Tactical Environmental Support System (TESS) interface.
- (U) ($93) Captured/integrated a Common User Data Information Exchange System (CUDIXS) interface capability.
- (U) ($269) Continued development/integration of communications automation to include an integrated technical control capability and Defense Information Systems Agency (DISA) - certified NAVMACS II Ashore System. Designed Wide Area Network (WAN) system to connect TSCs via NCCS network to SIPRNET.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X0486
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: TSC

- (U) ($1,197) Began system integration, testing, documentation, training for Increment II (Incremental Fleet Release 2.0) to incorporate updated mission planning, communication, and post mission analysis capabilities, as well as interoperability among post-mission analysis, aircrew brief, PID, and tactical planning modules in both TSC and MOCC configurations.
- (U) ($240) Prepared for DT IIB (FY96) at TSC Brunswick.
- (U) ($34) Provided security certification of Incremental Release 2.0.

2. (U) FY 1996 PLAN:

- (U) ($130) Update common JMCIS software, in conjunction with other programs.
- (U) ($463) Continue to upgrade data server to operate on standard tactical computer workstations; include additional USMTF, Link 11 message data, and technical data (Electronic Warfare Support Measures (ESM), acoustic, NWTDB).
- (U) ($167) Capture/integrate tactical decision aids updates for ASW and ASUW support.
- (U) ($67) Capture and apply available trusted software technology and improvements.
- (U) ($224) Update TMS Local Area Network (LAN) interface to the Fast Time Analyzer System (FTAS) for improved post-mission data analysis and reconstruction to support shallow water ASW and low frequency active analysis.
- (U) ($134) Update Sensor Analysis Workstation (ESM, ISAR, Imagery) functionality in TMS software.
- (U) ($101) Update Tactical Environmental Support System (TESS)/NITES interface as required.
- (U) ($1,134) Continue system integration, testing, documentation, training for Increment II (Incremental Fleet Release 2.0) to incorporate updated mission planning, communication, and post mission analysis capabilities, as well as interoperability among post-mission analysis, aircrew brief, PID, and tactical planning modules in both TSC and MOCC configurations.

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- (U) ($54) Migrate to GCCS Common Operating Environment (COE) Communications from NAVMACS II Ashore Baseline. Consolidate MOCC/TSC software into common architecture. Integrate JMCIS AMHS source message pipeline into TSC/MOCC.
- (U) ($63) Capture and incorporate WAN capabilities into TSC MOCC for interface via SIPRNET and other media to other JMCIS/GCCS systems.
- (U) ($38) Support security accreditation of Incremental Release 2.0.
- (U) ($310) Support DT IIB and OT IIB leading to a Milestone IIIB decision (Q3) for Fleet Release of TMS 2.0, which is a common TSC/MOCC release.
- (U) ($22) Portion of extramural program reserved for Small Business Innovation Research (SBIR) assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($184) Update common JMCIS/GCCS software, in conjunction with other programs.
- (U) ($509) Continue to upgrade data server to operate on standard tactical computer workstations; include additional USMTF, Link 11 message data, technical data (ESM, acoustic, NWTDB) and utilize the JMCIS/GCCS core software.
- (U) ($202) Capture/integrate tactical decision aids updates with maximum utilization of existing segments.
- (U) ($84) Continue to capture and apply available trusted software technology.
- (U) ($283) Update TMS LAN/WAN interface to the NCCS Ashore system and SIPRNET.
- (U) ($209) Update ESM Analysis Workstation functionality in TMS software.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X0486
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: TSC

- (U) ($762) System integration, testing, documentation, training for Increment III (Incremental Fleet Release 3.0) to incorporate updated mission planning, communication, and post mission analysis capabilities, as well as interoperability among post-mission analysis, aircrew brief, PID, and tactical planning modules in both TSC and MOCC configurations. Continue TSC migration to multi TADIL interfaces.
- (U) ($232) Adapt a TADIXS B interface to the TSC software for use by the ESM workstation.
- (U) ($363) Develop system achievement of major effectiveness parameters of the OR in areas of mission-supported and communications system performance for Increment III. Migrate to GCCS/COE, integrate JMCIS AMHS single message pipeline into TSC/MOCC and consolidate TSC/MOCC software into common architecture.
- (U) ($67) Complete security certification and support security accreditation for Incremental Release 3.0.
- (U) ($138) Continue progress to DTIIC and update the TSC at Brunswick to an operational test configuration; support OT IIC leading to a Milestone IIIC decision for Fleet Release of TMS 3.0 which will be GCCS compliant. Capture and incorporate additional WAN capabilities into TSC/MOCC for interface to other JMCIS/GCCS systems.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	4,361	3,004	3,327
(U) Adjustments from PRESBUDG:	-0-	-97	-294
(U) FY 1997 President's Budget:	4,361	2,907	3,033

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding:

FY 1996: Congressional undistributed general and inflation reductions (-$59K); and revised DoD inflation rates and other minor pricing adjustments (-$38K).

FY 1997: Revised inflation estimates and other minor pricing adjustments (-$294K).

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X0486
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: TSC

(U) Schedule: OT-IIB moved to Q4FY96 to match concurrent fleet operations to test TSC/MOCC systems in TSC Brunswick's area of operations. DT-IIC moved Q4FY97 to take advantage of GCCS COE availability.

(U) Technical: Not Applicable

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
• (U) OPN LI 2246	3,257	8,101	10,126	7,113	8,646	8,496	8,651	CONT.	CONT.
• (U) OPN LI 2906 (Subset)	1,409	1,370	1,435	3,682	3,871	3,440	3,542	CONT.	CONT.
• (U) OMN AG/SAG 1C1C	6,480	7,125	7,870	7,610	6,923	7,299	7,375	CONT.	CONT.
• (U) OMN AG/SAG 4B7N	2,763	3,418	4,909	4,983	4,453	3,822	4,177	CONT.	CONT.

(U) RELATED RDT&E:

- (U) PE 0604261N: (Acoustic Search Sensors): TSC maintains interoperability with S-3 weapon systems and future improvements.
- (U) PE 0604221N: (P-3 Modernization): TSC maintains interoperability with, and fully supports P-3 system changes and enhancements.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X0486
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: TSC

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	Q4 IIIA	Q3 IIIB		CONT.
Engineering Milestones	Q1 MOCC Q2 ORE TMS 2.0 CDR	Q3 TMS REL 2.0	Q1 TMS REL 2.x CDR	CONT.
T&E Milestones	Q2 DTIIA Q3 OTIIA	Q2 DTIIB Q4 OTIIB	Q4 DTIIC	CONT.
Contract Milestones				

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X0486
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: TSC

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Project Management	389	401	413
b. Software Engineering	2,655	1,598	1,672
c. Hardware Analysis/Design	439	294	329
d. Hardware/Software Integration	813	549	574
e. Test & Evaluation	65	65	45
Total	4,361	2,907	3,033

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
NISE, E STI*					11,573	3,467	1,722	1,817	Cont.	Cont.
Other Contracts					2,500	440	719	758	Cont.	Cont.
Support and Management										
Other Contracts					1,870	389	401	413	Cont.	Cont.
Test and Evaluation										
OPTEVFOR					247	65	65	45	Cont.	Cont.

*NOTE: This line is total effort by this single field activity. No single contract exceeds $1.0M

GOVERNMENT FURNISHED PROPERTY: Not applicable.

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X0486
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: TSC

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	14,073	3,907	2,441	2,575	Cont.	Cont.
Subtotal Support and Management	1,870	389	401	413	Cont.	Cont.
Subtotal Test and Evaluation	247	65	65	45	Cont.	Cont.
Total Project	16,190	4,361	2,907	3,033	Cont.	Cont.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N
PROGRAM ELEMENT TITLE: Tactical Command System

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X0709 NTCS-A	11,478	7,598	6,699	6,793	10,496	10,579	11,644	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Navy Tactical Command System-Afloat (NTCS-A), AN/USQ-119(V), is the afloat component of the Joint Maritime Command Information System (JMCIS) architecture. NTCS-A meets the requirements of the tactical commander for a near real-time, fused common tactical picture with integrated intelligence services and data bases. NTCS-A supports the Command, Control, Communication, Computers and Intelligence (C^4I) mission requirements of the Numbered Fleet Commanders (NFC), Officer in Tactical Command/Composite Warfare Commander (OTC/CWC), Commander Amphibious Task Force(CATF), Commander Landing Force (CLF), Ship's Commanding Officer/Tactical Action Officer (CO/TOA), and Joint Task Force(JTF) Commanders. It also integrates both joint and service-unique command and control projects in order to support joint task force and Navy afloat requirements. Efforts include design, integration, and test of Tactical Decision Aids (TDAs) and Tactical Intelligence Analytical Aids (TIAAs), in a multi-level secure mode to provide the Battle Group/Force Commanders with warfighting Command and Control capabilities.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 Accomplishments:

- (U) ($1,600) Developed, integrated and tested the FY 1995 software release.
- (U) ($1,000) Initiated development of Artificial Intelligence (AI) analysis tools for incorporation into GENSER and SCI software for analyst workstations.
- (U) ($1,290) Completed development and integration of Cryptologic Combat Support software tools.
- (U) ($200) Incorporated advanced mapping and geodesy capabilities into NTCS-A.
- (U) ($1,838) Continued the incorporation of necessary aspects of multi-level security within the NTCS-A system.
- (U) ($850) Continued development of the architecture necessary to support distributed world-wide data base access to all fleet users to support the "Pull" tenet of the Copernicus Architecture.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X0709
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: NTCS-A

- (U) ($3,255) Initiated integration of Marine Corps, USAF and other joint intelligence systems into NTCS-A/JMCIS to meet DOD standardization requirements.
- (U) ($1,445) Initiated the development of the Joint Collection Management Tools (JCMT) executive agent.

2. (U) FY 1996 PLAN:

- (U) ($1,033) Develop, integrate and test FY 1996 software release to meet Increment III ORD requirements.
- (U) ($726) Continue development of intelligence analysis tools for incorporation into GENSER and SCI software for analyst workstations.
- (U) ($1,851) Develop and implement segment applications software in an open systems architecture to include integration of joint C4I requirements working toward a common/consistent joint tactical picture consistent with JCS mandated GCCS standards.
- (U) ($500) Implementation of Domain Name Server which will preclude NTCS-A system connection to the JWICS, SIPRNET and other intelligence networks.
- (U) ($454) Refine the Joint Force Air Component Command (JFACC)/Contingency Tactical Air Control Automated Planning System (CTAPS) interfaces to JMCIS.
- (U) ($898) Continue integration and test of security capabilities in the NTCS-A system.
- (U) ($684) Continue investigation and development of Marine Corps, Coast Guard, USAF and other Joint Command Control, Intelligence and Imagery systems interfaces with NTCS-A/JMCIS to meet DOD standardization requirements.
- (U) ($635) Procure development hardware to support hardware evaluation and software development.
- (U) ($727) Implement JMCIS migration to tactical Electronic Order of Battle (TEOB), Modernized Integrated Data Base (MIDB), Generic Area Limitation Environment (GALE), and Joint Deployable Intelligence Support Services (JDISS).
- (U) ($90) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X0709
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: NTCS-A

3. (U) FY 1997 PLAN:

- (U) ($965) Develop integrate and test FY 1997 software release.
- (U) ($151) Continue development of intelligence analyses tools for incorporation into GENSER and SCI software for analyst workstations.
- (U) ($1,740) Continue development and implementation of segment applications software in a GCCS compliant open system architecture to include integration of joint C^{4}I requirements working toward a common/consistent joint tactical picture.
- (U) ($309) Implement and test JFACC/CTAPS hardware and software interfaces with NTCS-A/JMCIS.
- (U) ($700) Continue integration and test of security capability in the NTCS-A/JMCIS system.
- (U) ($873) Continue to develop the architecture to support world wide data base access to all fleet users to support the full tenet of the Copernicus Architecture.
- (U) ($665) Continue investigation and development of Marine Corps, Coast Guard and other Joint Command, Control, Intelligence and Imagery systems interface with NTCS-A/JMCIS to meet DOD standardization requirements.
- (U) ($437) Procure development hardware to support hardware evaluation and software development.
- (U) ($350) Continue development of Domain Name Server which will preclude NTCS-A system connection to the JWICS, SIPRNET and other intelligence networks.
- (U) ($509) Continue JMCIS migration to Tactical Electronic Order of Battle (TEOB), Modernized Integrated Data Base (MIDB), Generic Area Limitation Environment (GALE), and Joint Deployable Intelligence Support Services (JDISS).

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X0709
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: NTCS-A

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	11,483	8,941	7,247
(U) Adjustments from President's Budget:	-5	-1,343	-548
(U) FY 1997 President's budget:	11,478	7,598	6,699

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding:

FY 1995: Minor pricing adjustments (-$5K).
FY 1996: Specific Congressional reduction (-$1,089K)Congressional undistributed general and inflation reductions (-$153K); revised DoD inflation rates and other minor pricing adjustments (-$101K).
FY 1997: Revised inflation estimates and other minor pricing adjustments (-$548K).

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

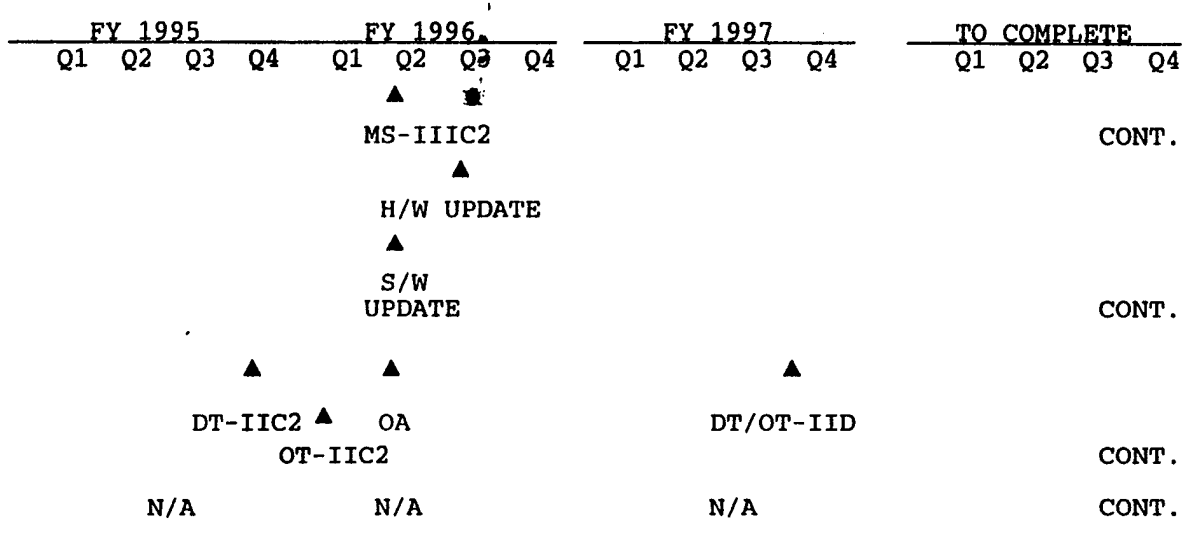
	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN LINE 2608	20,735	14,862	23,941	19,700	19,889	18,230	18,789	CONT.	CONT.
(U) O&MN	12,161	10,234	10,404	10,649	10,850	11,012	11,135	CONT.	CONT.

(U) RELATED RDT&E: PE 0604231N (Tactical Command Systems) Shipboard Tactical Intelligence Processing

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X0709
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: NTCS-A

D. (U) SCHEDULE PROFILE:



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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X0709
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: NTCS-A

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. PROJECT MANAGEMENT	393	331	350
b. SYSTEMS ENGINEERING	3,357	2,023	730
c. SOFTWARE DEVELOPMENT	7,128	4,022	4,591
d. HARDWARE DEVELOPMENT	0	622	428
e. SYSTEM TEST & EVALUATION	600	600	600
Total	11,478	7,598	6,699

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X0709
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: NTCS-A

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Actual	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
CLASSIFIED/ NAVSUP	W/OPT	VAR			7,043	2,191	1,420	1,250	Cont.	Cont.
ALL OTHER CONTRACTS	W/OPT	VAR			2,256	3,661	1,926	1,147	Cont.	Cont.
IN HOUSE/LABS	WX	VAR			3,230	3,608	2,506	2,352	Cont.	Cont.
INRI,Reston,Va	SS-CPFF	Dec 93			1,866	1,525	1,315			4,706
TBD	CPFF	VAR						1,000	Cont.	Cont.
Support and Management										
Various	W/OPT	VAR			648	393	331	350	Cont.	Cont.
Test and Evaluation										
OPTEVFOR	PD	VAR			283	100	100	600	Cont.	Cont.

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N
PROGRAM ELEMENT TITLE: Tactical Command System

PROJECT NUMBER: X0709
PROJECT TITLE: NTCS-A

GOVERNMENT FURNISHED PROPERTY - Not applicable.

	Total FY 1994 & Prior	FY 1995 Actual	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	14,395	10,985	7,167	5,749	Cont.	Cont.
Subtotal Support and Management	648	393	331	350	Cont.	Cont.
Subtotal Test and Evaluation	283	100	100	600	Cont.	Cont.
Total Project	15,326	11,478	7,598	6,699	Cont.	Cont.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N
PROGRAM ELEMENT TITLE: Tactical Command System

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X2009 OSIS BASELINE UPGRADE (OBU)	2,640	2,006	1,283	2,092	2,449	2,244	2,296	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Ocean Surveillance Information System (OSIS) Baseline Upgrade (OBU) development is a subsystem of the Navy Command and Control System (NCCS) Ashore. OBU provides for the analysis of intelligence information from multiple sources to produce a comprehensive report of foreign forces and potential hostile activity. The system is required to be able to generate multiple, automated near-real-time event-by-event (NRT EBE) data streams at various classification/releasability levels, tailorable to unique customer requirements and capable of being transmitted over multiple communications paths (including DSNET) simultaneously. In addition, it is required to provide near-real-time (NRT) all-source fusion, correlation and analysis tools (including robust graphics presentation and geospatial analysis capabilities), directly feeding automated reporting capabilities. OSIS provides positional data and operational intelligence to commanders at all levels. It consists of two Joint Intelligence Centers, one Joint Intelligence Center Detachment, and one Fleet Ocean Surveillance Information Facility (FOSIF), a software support activity, and a training site. OBU functions encompass establishing and maintaining characteristics and performance data on hostile weapons platforms systems, collecting non-organic data from ashore and afloat sensors, developing an all-source tactical picture, and analyzing intelligence information. The data derived from this process is disseminated as an Operation Intelligence (OPINTEL) product to the operating forces for tactical threat warnings, decision making support, and support of Over-the-Horizon-Targeting.

(U) OBU uses the Joint Logistics Commander's Guidance of March 1987 on Evolutionary Acquisition (EA) as the strategy for future software development which includes a plan for incremental achievement of desired capability building on the core system provided by OBU Phases I and II. The OBU Phase III EA strategy will provide a mechanism for adding future capabilities including the incorporation of proven fleet initiated prototypes.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X2009
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: OBU

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($400) Continued to develop prototype and update baseline.
  Included above is $200K available due to low expenditures to forward finance FY 1996 requirements.
- (U) ($355) Continued evaluation of prototype functional enhancements.
  Included above is $100K available due to low expenditures to forward finance FY 1996 requirements.
- (U) ($300) Continued Phase III software development.
- (U) ($650) Continued transition to file server architecture.
- (U) ($300) Addressed OT-IID discrepancies.
- (U) ($635) Began software development to meet Joint interoperability standards.
  Included above is $273K available due to low expenditures to forward finance FY 1996 requirements.

2. (U) FY 1996 PLAN:

- (U) ($150) Prepare for DT-IIE and OT-IIE for major OBU upgrades.
- (U) ($983) Continue to develop and prototype software to evolve baseline to a secure UNIX environment.
- (U) ($650) Develop software to interoperate with Joint customers.
- (U) ($223) Continue to evaluate prototypes for incorporation into baseline.

3. (U) FY 1997 PLAN:

- (U) ($200) Conduct DT-IIE and OT-IIE for major OBU upgrades.
- (U) ($843) Continue development of software required to evolve baseline to a secure UNIX environment.
- (U) ($240) Continue to evaluate prototypes for incorporation into baseline.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X2009
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: OBU

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	2,640	2,661	2,090
(U) Adjustments from PRESBUDG:		-655	-807
(U) FY 1997 President's Submit:	2,640	2,006	1,283

(U) CHANGE SUMMARY EXPLANATION:

(U Funding:
FY 1996: Congressional undistributed general and inflation reductions (-$52K); and revised DoD inflation rates and other minor pricing adjustments (-$603K).

FY 1997: Revised inflation estimates and other minor pricing adjustments (-$807K).

(U Schedule: S/W development and test schedule for evolving baseline to secure UNIX environment and to provide other multi-level security functions will be delayed by 9 months.

(U) Technical: Stringent security and performance requirements for multi-level secure system will be deferred resulting in increased security risk and performance degradation.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
OPN LI#2906	2,675	555	170	252	451	521	572	CONT.	CONT.
OMN 1C1C/4B7N	2,569	2,519	2,305	2,083	1,600	1,303	1,291	CONT.	CONT.

(U) RELATED RDT&E: Not applicable.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X2009
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: OBU

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	ARB		NPDM	CONT.
Engineering Milestones	SDR	SDR	SDR	CONT.
T&E Milestones			DT-IIE	CONT.
			OT-IIE	CONT.
Contract Milestones	N/A	N/A	N/A	CONT.

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X2009
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: OBU

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. SYSTEMS ENGINEERING	635	650	530
b. SOFTWARE DEVELOPMENT	1855	1206	603
c. SYSTEM TEST AND EVALUATION	150	150	150
Total	2640	2006	1283

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X2009
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: OBU

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development					1,050				0	1,050
NAVSUP	RADIUS	12/93			1,343				0	1,343
OTHER		OPTIONS			127	1,855	1,206	603	CONT.	CONT.
Support and Management										
OTHER	WX				1,939	635	650	530	CONT.	CONT.
Test and Evaluation										
OPTEVFOR	PD				300	150	150	150	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development									
Support and Management									
Test and Evaluation									
Subtotal Product Development				2,520	1,855	1,206	603	CONT.	CONT.
Subtotal Support and Management				1,939	635	650	530	CONT.	CONT.
Subtotal Test and Evaluation				300	150	150	150	CONT.	CONT.
Total Project				4,759	2,640	2,006	1,283	CONT.	CONT.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY:5

PROGRAM ELEMENT:0604231N
PROGRAM ELEMENT TITLE:Tactical Command System

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X2041 OSS	11,392	5,625	6,402	7,681	7,665	7,773	8,172	Cont.	Cont.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Chief of Naval Operations (CNO), Fleet Commanders in Chief (CINCs) and Unified Commanders (USCINCLANT and USCINCPAC) require a single, integrated command and control system at the Navy Command Center (NCC), Fleet Command Centers (FCC), and the Unified Command Centers, respectively, to receive, process, display and assess the readiness and disposition of own, neutral, and potentially hostile forces. The Operations Support System (OSS) Program uses the Joint Logistics Commanders Guidance of March 1987 on Evolutionary Acquisition (EA) as the strategy for development. The EA concept includes a plan for incremental achievement of desired capability, early fielding of initial incremental operational capability and continual feedback from the users. OSS Increment I integrated existing prototype command center support systems on a Local Area Network (LAN) and provides a baseline command center support capability to designated OSS sites. Increment II developed an integrated, logistically supportable, and cost effective single system, which includes Ocean Surveillance Information System (OSIS) Baseline Upgrade (OBU) interface, Navy Worldwide Military Command and Control System (WWMCCS) Software Standardization (NWSS) replacement, Status of Forces data (Status of Readiness and Training System (SORTS), Casualty Reporting (CASREP), Movement Reporting (MOVREP), and Employment Scheduling (EMPSKD)) current system functionality improvement, and latest state-of-the-art Commercial Off The Shelf (COTS) technologies to local as well as remote users. Increment III will transition Shore Targeting Terminal (STT) and Force High Level Terminal (FHLT) functionality to OSS and will incorporate Employment Scheduling System (ESS) and Information Presentation and Distribution System (IPDS) capabilities. Increment IV (FY 96-99) will continue the evolutionary development of OSS in response to emergent Joint and Navy C^{4}I requirements, the changing threat and new technology. Multi-Level Security (MLS) features will be incorporated as they become commercially available. International, as well as intra and inter-service Command, Control, Communication and Computer integration, will be established and achieved through the implementation of OSS at selected NATO and U.S. Navy sites and Unified Commands. OSS is being developed and implemented in conjunction with the open system C^{4}I For The Warrior (C^{4}IFTW), Global Command and Control System (GCCS) and Joint Maritime Command Information System (JMCIS) architectures.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X2041
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: OSS

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($460) Conducted Developmental Testing, Interoperability Testing and Operational Testing (OT-IIB) on OSS increment II (NWSS transition to OSS complete) and resolve outstanding deficiencies.
- (U) ($1,950) Completed development and testing of any remaining Increment II functionality required to satisfy outstanding Navy Command and Control Systems Change Requests (NCRs) and emergent user requirements. Release 95-1 will be the final Increment II release.
- (U) ($1,500) Continued developing, testing and fielding incremental FHLT, STT (OSS replacements) and ESS upgrades.
- (U) ($210) Explored requirements for expanding the scope of OSS to include additional Joint, Allied (NATO and other), Foreign (through FMS cases) and Navy users. Continued execution of Cooperative Development with SACLANT.
- (U) ($650) Continued to integrate/analyze OSS sites in conjunction with TAC-3/TAC-4 hardware upgrades, and state-of-the-art displays, video distribution systems and briefing aids (including multimedia, 3-D visualization and very high resolution images). Continued security engineering efforts.
- (U) ($1,250) Continued enhancing UB software to satisfy OSS requirements; integrated successive UB releases into OSS baseline.
- (U) ($2,488) Continued integrating OSS into the GCCS, C4IFTW, and JMCIS architectures.
- (U) ($750) Continued efforts to improve distribution of data between OSS sites, provide seamless access of disparate and separate data bases, and improve the depth, quality and type of data available to OSS users.
- (U) ($685) Continued efforts to improve and extend OSS network throughout command center/headquarters at all OSS sites. Continued development of network prototypes, and performed modelling and analysis of LANs, Wide Area Networks (WANs) and Metropolitan Area Networks (MANs).

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N
PROGRAM ELEMENT TITLE: Tactical Command System

PROJECT NUMBER: X2041
PROJECT TITLE: OSS

- (U) ($150) Commenced efforts to incorporate super computer and/or parallel processor solutions into OSS to improve system performance.
- (U) ($150) Continued systems engineering and prototype development on AI/Expert System driven decision aids to provide real time decision making support to operational commanders.
- (U) ($724) Performed Navy and Joint Interoperability Certification Tests and resolved technical deficiencies.
- (U) ($175) Developed and upgraded joint requirements in support of the CCIP, JCMS/JCAT and TCCS.
- (U) ($250) Performed system engineering and analysis to upgrade the OSS LAN to a GOSIP compliant architecture in conjunction with IPDS.

2. (U) FY 1996 PLAN:

- (U) ($250) Conduct Developmental Testing and Beta Testing on OSS software releases.
- (U) ($200) Develop integrated interface using a common architecture for OSS users to existing DOD Data bases.
- (U) ($300) Continue to explore requirements for expanding the scope of OSS to include additional Joint, Allied NATO and other), Foreign (through FMS cases) and Navy users. Continue execution of Cooperative Development with SACLANT.
- (U) ($100) Continue implementation of appropriate MLS features.
- (U) ($300) Continue to integrate/analyze OSS sites in conjunction with COTS hardware upgrades, and state-of-the art displays, video distribution systems and briefing aids (including multimedia, 3-D visualization and very high resolution images). Continue security engineering efforts.
- (U) ($893) Continue enhancing Unified Build (UB) software to satisfy OSS requirements; integrate successive OSS releases into JMCIS baseline.
- (U) ($1,030) Maintain OSS/JMCIS architectural compatibility with GCCS, C⁴I For the Warrior (C⁴IFTW) and JMCIS.
- (U) ($100) Participate in GCCS prototyping efforts.

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- (U) ($250) Begin interfacing and integration with readiness data from other Navy sources.
- (U) ($350) Implement detailed PC EMPSKD message capability to assist units to create error free CASREP, SORTS and MOVREP messages.
- (U) ($400) Plan, develop and begin integration of Navy specific United States message text format (USMTF) SORTS message set lines.
- (U) ($300) Plan, develop and begin implementation of USMTF MOVREP messages.
- (U) ($200) Initiate collaborative planning.
- (U) ($100) Coordinate development efforts among Navy Ashore Programs.
- (U) ($200) Study USN message and data flow. Recommend changes as necessary.
- (U) ($150) Continue efforts to incorporate super computer and/or parallel processor solutions into OSS to improve system performance.
- (U) ($150) Continue systems engineering and prototype development on AI/Expert System driven decision aids to provide real time decision making support to operational commanders.
- (U) ($250) Perform Navy and Joint Interoperability Certification Tests and resolve technical deficiencies.
- (U) ($102) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($450) Conduct Developmental Testing and Beta Testing on OSS software release.
- (U) ($225) Complete testing and fielding of FHLT, STT and ESS prototype upgrades to reach full functional baseline.
- (U) ($300) Continue to explore requirements for expanding the scope of OSS to include additional Joint, Allied

(NATO and other), Foreign (through FMS cases) and Navy users. Continue execution of Cooperative Development with SACLANT.

- (U) ($200) Develop integrated interface using a common architecture for OSS users to existing DOD Data bases.
- (U) ($1,380) Continue implementation of appropriate MLS features.
- (U) ($300) Continue to integrate/analyze OSS sites in conjunction with COTS hardware upgrades, and state-of-the art displays, video distribution systems and briefing aids (including multimedia, 3-D visualization and very high resolution images). Continue security engineering efforts.
- (U) ($520) Continue enhancing UB software to satisfy OSS requirements; integrate successive OSS releases into OSS/JMCIS baseline.
- (U) ($250) Maintain OSS architectural compatibility with GCCS, C^{4}IFTW and JMCIS.
- (U) ($300) Implement Navy unique USMTF SORTS and MOVREP Messages.
- (U) ($300) Plan, develop and begin implementation of USMTF CASREP and EMPSKD Messages.
- (U) ($150) Coordinate development efforts among Navy Ashore Programs.
- (U) ($100) Plan additional collaborative planning efforts.
- (U) ($377) Complete testing of any remaining Increment III functionality required to satisfy outstanding NCRs and emergent user requirements.
- (U) ($250) Continue to incorporate state-of-the-art technologies such as distributed data bases, virtual reality and interactive video.
- (U) ($250) Complete system integration and review of USN message and data flow.
- (U) ($150) Continue interfacing/integrating with readiness data from other Navy Sources.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X2041
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: OSS

- (U) ($350) Complete and field PC EMPSKD message capability to assist units to create error free CASREP, SORTS and MOVREP messages.
- (U) ($150) Continue efforts to incorporate super computer and/or parallel processor solutions into OSS to improve system performance.
- (U) ($150) Continue systems engineering and prototype development on AI/Expert System driven decision aids to provide real time decision making support to operational commanders.
- (U) ($250) Perform Navy and Joint Interoperability Certification Tests and resolve technical deficiencies.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	11,392	7,365	6,864
(U) Adjustments from PRESBUDG:		-1,740	-462
(U) FY 1997 President's Budget:	11,392	5,625	6,402

(U) CHANGE SUMMARY EXPLANATION:

(U Funding:

FY 1996: Specific Congressional reduction (-$1,550K); Congressional undistributed general and inflation reductions (-$114K); revised DoD inflation rates and other minor pricing adjustments (-$76K).

FY 1997: Revised inflation estimates and other minor pricing adjustments (-$462K).

(U) Schedule: Increment III will deliver on schedule, but without Force High Level Terminal/Shore Targeting Terminal functionality.

(U) Technical: Not applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N
PROGRAM ELEMENT TITLE: Tactical Command System

PROJECT NUMBER: X2041
PROJECT TITLE: OSS

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
OPN 2906 (OSS Only)	7,864	5,578	3,921	5,944	5,788	8,702	8,836	CONT.	CONT.
OMN	11,031	14,078	12,471	13,796	13,976	13,708	13,115	CONT.	CONT.

(U) RELATED RDT&E:

(U) PE (0604231N) OSIS Baseline Upgrade, Tactical Support Center, NTCS-A Tactical Flag Command Center.

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	NPDM Q4 M/S III B		NPDM Q4 M/S IIIC	CONT.
Engineering Milestones	INC III/IV Q2-Q3 PDR/CDR	INC III/IV Q2-Q3 PDR/CDR	INC III/IV Q2-Q3 PDR/CDR	CONT.
T&E Milestones	DT-IIB Q3-Q4 OT-IIB Q3-Q4		DT-IIC Q3-Q4 OT-IIC Q3-Q4	CONT.
Contract Milestones		INC IV Contract awards		CONT.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: July 1995

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X2041
PROGRAM ELEMENT TITLE: Tactical Command System (TCS) PROJECT TITLE: Operations Support System

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Project Management	384	325	280
b. Software Development	7,072	4,677	4,420
c. Systems Engineering	3,786	523	1,502
d. Test and Evaluation	150	100	200
Total	11,392	5,625	6,402

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands): NOT APPLICABLE

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N
PROGRAM ELEMENT TITLE: Tactical Command Systems

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X0521 STIP	5,108	2,695	4,598	5,182	6,261	6,390	6,551	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Shipboard Tactical Intelligence Processing (STIP) system is an integrated tactical intelligence shipboard processing system which is the central data base for the Tactical Flag Command Center (TFCC), Space and Electronic Warfare Commander (SEWC) and tactical mission planning systems. Development of this integrated data base server provides for data distribution (dynamic update of Naval Warfare Tactical Data Base (NWTDB)) and military integration with digital map and imagery systems. STIP began interface development with the Joint Services Imagery Processing - Navy (JSIPS) in FY 1990.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($350) Continued development and integration of multimedia capabilities into NTCS-A.
- (U) ($828) Continued development of data base support for TDAs in the Central Data Base Server (CDBS).
- (U) ($830) Completed integration of mission planning requirements into the CDBS.
- (U) ($586) Completed integration of Marine Corps requirements into NTCS-A.
- (U) ($581) Developed, integrated and tested advanced digital image processing capabilities into FY 95 software release.
- (U) ($1,483) Developed, integrated and tested CDBS/Automated Message Handler (AMH) and intelligence applications into FY 95 software release.
- (U) ($150) Continued integration of compartmented workstation functionality.

- (U) ($300) Developed, integrated and tested Air Task Order (ATO) message format into Contingency Tactical Air Control Auto Planning System (CTAPS).

2. (U) FY 1996 PLAN:

- (U) ($1,545) Develop, integrate and test CDBS/AMH and intelligence applications for FY 96 software release.
- (U) ($100) Develop, integrate and test advanced digital imagery applications for FY 96 software release.
- (U) ($166) Complete integration and test of compartmented mode workstation.
- (U) ($375) Continue development of data base support for TDAs on the CDBS.
- (U) ($332) Commence development of object oriented data base.
- (U) ($166) Commence investigation and development of CIO, USMC, USCG, USAF, USA and other joint intelligence and imagery systems interfaces with NTCS-A to meet DOD standardization requirements.
- (U) ($11) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($1,502) Develop, integrate and test an MIDB based CDBS/AMH and associated intelligence applications.
- (U) ($1,000) Develop, integrate and test advanced digital imagery applications to keep pace with CIO and DARO evolving imagery architectures.
- (U) ($500) Continue development and integration of multi-media display technologies into Video Display System.
- (U) ($694) Continue to develop data base support for TDAs.
- (U) ($575) Continue object oriented data base development.
- (U) ($327) Continue to investigate and develop USMC, USCG, USAF, USA and other joint intelligence and imagery systems interfaces with NTCS-A to meet DOD standardization requirements.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N
PROGRAM ELEMENT TITLE: Tactical Command System

PROJECT NUMBER: X0521
PROJECT TITLE: STIP

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	4,812	2,783	4,903
(U) Adjustments from PRESBUDG:	+296	-88	-305
(U) FY 1997 President's Budget:	5,108	2,695	4,598

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding:

FY 1995: Minor pricing adjustments (+$296K)
FY 1996: Congressional undistributed general and inflation reductions (-$54K); and revised DoD inflation rates and other minor pricing adjustments (-$34K).
FY 1997: Revised inflation estimates and other minor pricing adjustments (-$305K).

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X0521
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: STIP

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
OPN LI 2608	20,735	14,862	23,941	19,700	19,889	18,230	18,789	CONT.	CONT.
O&MN	0	0	0	0	0	0	0		

Note: O&M,N for FY 95-01 and CONT. is integrated into NTCS-A

(U) RELATED RDT&E:

(U) PE 0604231N (Tactical Command Systems) Navy Tactical Command System - Afloat (NTCS-A)

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

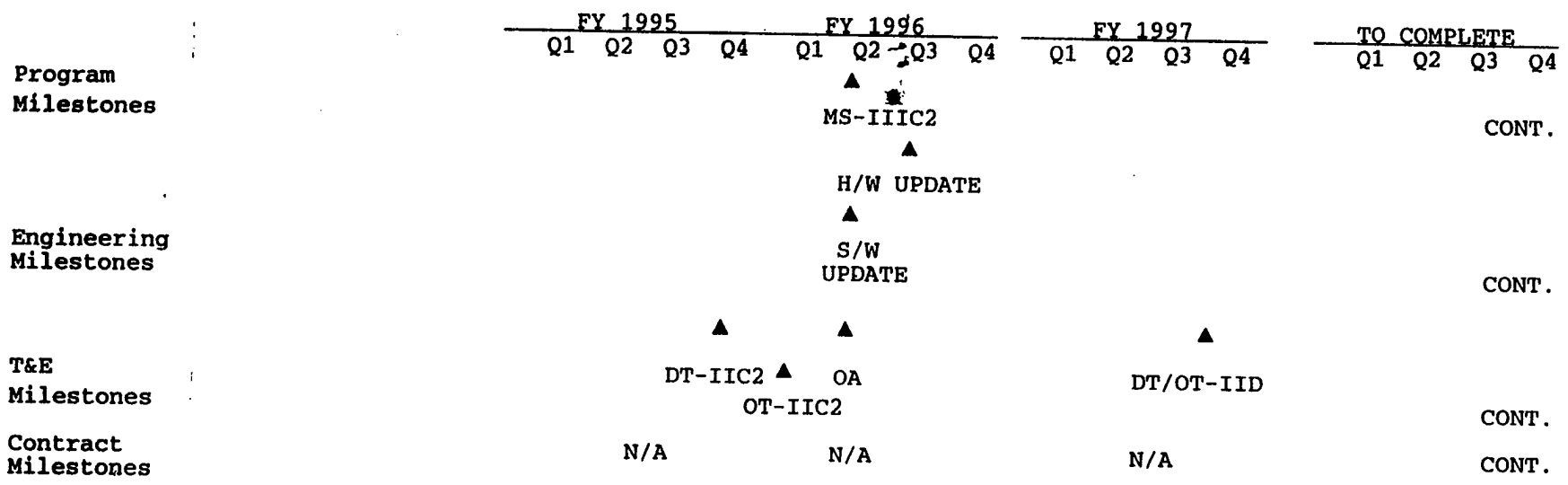
DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N
PROGRAM ELEMENT TITLE: Tactical Command System

PROJECT NUMBER: X0521
PROJECT TITLE: STIP

D. (U) SCHEDULE PROFILE:



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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X0521
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: STIP

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
Project Management	195	205	215
Systems Engineering	704	700	1,364
Software Development	3,684	1,274	2,311
Hardware Development	175	166	358
System Test & Evaluation	350	350	350
Total	5,108	2,695	4,598

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Actual	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
NRAD	WX	VAR				2,521	1,239	2,119	CONT.	CONT.
All Other Contracts	W/OPT	VAR			6,510	2,042	901	1,914	CONT.	CONT.
Support and Management Various		VAR			294	195	205	215	CONT.	CONT.
Test and Evaluation OPTEVFOR		VAR			281	350	350	350	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N
PROGRAM ELEMENT TITLE: Tactical Command System

PROJECT NUMBER: X0521
PROJECT TITLE: STIP

	Total FY 1994 & Prior	FY 1995 Actual	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	6,510	4,563	2,140	4,033	CONT.	CONT.
Subtotal Support and Management	294	195	205	215	CONT.	CONT.
Subtotal Test and Evaluation	281	350	350	350	CONT.	CONT.
Total Project	7,085	5,108	2,695	4,598	CONT.	CONT.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 05

PROGRAM ELEMENT: 0604261N
PROGRAM ELEMENT TITLE: Acoustic Search Sensors

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
H0480 ASW Sensors & Processing	4,520	1,142	3,787	12,717	29,127	40,326	33,339	CONT.	CONT.
H2000 Air Deployed Active Receiver (ADAR)	13,896	8,211	8,354	3,260	0	0	0	0	92,016
TOTAL	18,416	9,353	12,141	15,977	29,127	40,326	33,339	0	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) (H0480) - This project provides improved air Anti-Submarine Warfare (ASW) mission effectiveness through engineering development of hardware and software associated with acoustic systems, sensors, processing, post-processing, data recording and displays for air ASW platforms. Key objectives: improved detection, classification, localization and tracking; and increased capacity and flexibility to handle multi-sensor data. Programs being funded during the period identified are the Generic Acoustic Stimulation System (GASS) which is an ocean, sensor and target-modeling system that will add shallow water and range dependent capabilities to all ASW trainers and the Advanced Extended Echo Ranging (AEER) system to provide an improved bistatic acoustic source and signal processing for harsh water environments. A future program planned for this project is the Shallow Water ASW Localization and Attack System (SWALAS) to provide improved localization and attack in regional conflict environments.

(U) (H2000) - The Air Deployed Active Receiver (ADAR) sonobuoy is an expendable air-launched acoustic receiver utilized by ASW aircraft. The ADAR sonobuoy functions as the acoustic receiver for the Improved Extended Echo Ranging (IEER) system. IEER is a mono/multistatic acoustic sensor system that utilizes an ASW aircraft, supporting acoustic source, and acoustic receiver in a coordinated ASW search and surveillance mission against conventionally powered submarines operating in shallow water environments as well as all submarines operating in deep water. The ADAR Sonobuoy will also be capable of functioning in a passive mode to detect high speed targets.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 05

PROGRAM ELEMENT: 0604261N
PROGRAM ELEMENT TITLE: Acoustic Search Sensors

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
H0480 ASW Sensors & Processing	4,520	1,142	3,787	12,717	29,127	40,326	33,339	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project provides improved air Anti-Submarine Warfare (ASW) mission effectiveness through engineering development of hardware and software associated with acoustic systems, sensors, processing, post-processing, data recording and displays for air ASW platforms. Key objectives: improved detection, classification, localization and tracking; and increased capacity and flexibility to handle multi-sensor data. Programs being funded during the period identified are the Generic Acoustic Stimulation System (GASS) which is an ocean, sensor and target-modeling system that will add shallow water and range dependent capabilities to all ASW trainers and the Advanced Extended Echo Ranging (AEER) system to provide an improved bistatic acoustic source and signal processing for harsh water environments.

A future program planned for this project is the Shallow Water ASW Localization and Attack System (SWALAS) to provide improved localization and attack in regional conflict environments.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 05 PROGRAM ELEMENT: 0604261N PROJECT NUMBER: H0480
PROGRAM ELEMENT TITLE: Acoustic Search Sensors PROJECT TITLE: ASW Sensors & Processing

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

(U) GASS

- (U) ($1,403) Completed prototype lab demonstration and analysis.
- (U) ($ 329) Provided engineering to support follow-on use of the two GASS prototypes for S-3B/ADAR integration/training and stimulation for the Interactive Multisensor Assessment Trainer (IMAT).
- (U) ($1,790) Continued development of GFE environmental software.
- (U) ($ 998) Provided other engineering support and contract support services.

2. (U) FY 1996 PLAN:

- (U) ($ 14) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.

(U) GASS

- (U) ($ 379) Complete EMD contract source selection.
- (U) ($ 571) Complete integration of GFE environmental software into the GASS prototype.
- (U) ($ 178) Provide other engineering support and contractor support services.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 05

PROGRAM ELEMENT: 0604261N
PROGRAM ELEMENT TITLE: Acoustic Search Sensors

PROJECT NUMBER: H0480
PROJECT TITLE: ASW Sensors & Processing

4. (U) FY 1997 PLAN:

(U) GASS

- (U) ($2,185) Complete Milestone II; award EMD contract and initiate system design.
- (U) ($ 390) Continue GFE environmental software development to reduce EMD risk.
- (U) ($ 250) Provide engineering oversight of EMD contractor.
- (U) ($ 510) Provide other engineering support and contractor support services.

(U) AEER

- (U) ($ 452) Prepare EMD solicitation and system specification.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 05

PROGRAM ELEMENT: 0604261N
PROGRAM ELEMENT TITLE: Acoustic Search Sensors

PROJECT NUMBER: H0480
PROJECT TITLE: ASW Sensors & Processing

B.(U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	4,250	1,203	3,899
(U) Adjustments from PRESBUDG:	0	-61	-112
(U) FY 1997 President's Budget submit:	4,520	1,142	3,787

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 1996 decrease of $-61 thousand reflects Congressional undistributed general and inflation reductions ($-49 thousand); and revised DoD inflation rates and other minor pricing adjustments ($-12 thousand). The FY 1997 net decrease of $-112 thousand consists of an increase for the GASS EMD effort ($+3,350 thousand); Defense Business Operating Fund (DBOF) reduction of ($-335 thousand); and a balancing adjustment of ($-3,127 thousand).

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 05

PROGRAM ELEMENT: 0604261N
PROGRAM ELEMENT TITLE: Acoustic Search Sensors

PROJECT NUMBER: H0480
PROJECT TITLE: ASW Sensors & Processing

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands) - Not applicable.

(U) RELATED RDT&E:

(U) PE 0603254N (ASW Systems Development)

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones			1Q GASS Milestone II	1Q/98 AEER MS-II 3Q/02 GASS MS-III 4Q/00 SWALAS MS-II
Engineering Milestones	3Q GASS Proto Demo			1Q/99 GASS PDR #1 2Q/99 GASS PDR #2-4 1Q/00 GASS CDR #1 3Q/00 GASS CDR #2-4 4Q/98 AEER SDR 4Q/00 AEER PDR 4Q/01 AEER CDR
T&E Milestones				2Q/02 GASS TTPRR 2Q/03 AEER TECHEVAL 4Q/03 AEER OPEVAL
Contract Milestones			1Q GASS EMD Contract Award	2Q/98 AEER EMD Contract Award 1Q/01 SWALAS EMD Contract Award

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 05 PROGRAM ELEMENT: 0604261N
PROGRAM ELEMENT TITLE: Acoustic Search Sensors
PROJECT NUMBER: H0480
PROJECT TITLE: ASW Sensors & Processing

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Software Development	3,523	571	2,575
b. System Engineering	235	236	174
c. Government Engineering Support	235	161	583
d. Program Management Support	0	0	135
e. Contractor Support Services	527	160	320
f. SBIR Assessment		14	
Total	4,520	1,142	3,787

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 05

PROGRAM ELEMENT: 0604261N
PROGRAM ELEMENT TITLE: Acoustic Search Sensors

PROJECT NUMBER: H0480
PROJECT TITLE: ASW Sensors & Processing

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
APLABS San Diego, CA	C/CPFF	7/93	5,469	5,469	3,735	1,403	331	0	0	5,469
SAIC McLean, VA	C/CPFF	6/91	4,860	4,860	2,905	1,705	0	250	0	4,860
EMD Contractor	TBD	2/97	TBD	57,521	0	0	0	2,185	55,336	57,521
Misc/In House	WX	10/96	TBD	TBD	12,352	885	637	897	CONT	CONT
Support and Management										
Misc/In House	WX	10/96	TBD	TBD	1,269	0	0	135	CONT	CONT
Misc/	Contracts C/CPFF	10/96	TBD	TBD	2,805	527	160	320	CONT	CONT

Test and Evaluation: Not Applicable

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development									
Not Applicable									
Support and Management									
Not Applicable									
Test and Evaluation									
Not Applicable									

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 05

PROGRAM ELEMENT: 0604261N
PROGRAM ELEMENT TITLE: Acoustic Search Sensors

PROJECT NUMBER: H0480
PROJECT TITLE: ASW Sensors & Processing

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	18,992	3,993	968	3,332	CONT	CONT
Subtotal Support and Management	4,074	527	160	455	CONT	CONT
Subtotal Test and Evaluation	0	0	0	0	CONT	CONT
SBIR Assessment			14			14
Total Project	23,066	4,520	1,142	3,787	CONT	CONT

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 05

PROGRAM ELEMENT: 0604261N
PROGRAM ELEMENT TITLE: Acoustic Search Sensors

PROJECT NUMBER: H2000
PROJECT TITLE: Air Deployed Active Receiver

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
H2000 Air Deployed Active Receiver (ADAR)	13,896	8,211	8,354	3,260	0	0	0	0	92,016

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Air Deployed Active Receiver (ADAR) sonobuoy is an expendable air-launched acoustic receiver utilized by ASW aircraft. The ADAR sonobuoy functions as the acoustic receiver for the Improved Extended Echo Ranging (IEER) system. IEER is a mono/multistatic acoustic sensor system that utilizes an ASW aircraft, supporting acoustic source, and acoustic receiver in a coordinated ASW search and surveillance mission against conventionally powered submarines operating in shallow water environments as well as all submarines capable of operating in deep water. The ADAR Sonobuoy will also be capable of functioning in a passive mode to detect high speed targets.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS

- (U) ($6,537) Completed Engineering and Manufacturing Development (EMD) contractor subassembly and full-up airdrop Contractor Engineering Tests (CETs) and Preliminary Design Review (PDR).
- (U) ($1,432) Completed ADAR/ACAP performance enhancement CDR. Completed ADAR/ACAP code, unit and module test. Initiated Independent Verification and Validation (IV&V) test.
- (U) ($2,669) Completed S-3B/ADAR performance enhancement SDR. Completed S-3B/ADAR high level and detail design. Initiated code and unit test.
- (U) ($3,258) Continued other engineering support and contractor support services.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 05 PROGRAM ELEMENT: 0604261N
PROGRAM ELEMENT TITLE: Acoustic Search Sensors
PROJECT NUMBER: H2000
PROJECT TITLE: Air Deployed Active Receiver

2. (U) FY 1996 PLAN:

- (U) ($ 97) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.
- (U) ($4,265) Complete airdrop Contractor Demonstration Tests (CDTs). Complete EMD Contractor CDR and initiate build and delivery of TECHEVAL/OPEVAL test units.
- (U) ($1,892) Complete ACAP and S-3B subsystems and integrate ADAR/ACAP into the S-3B/ADAR system. Initiate S-3B/ADAR system test.
- (U) ($ 632) Initiate training materials and equipment for TECHEVAL/OPEVAL and for Fleet Introduction Team (FIT).
- (U) ($1,325) Provide other engineering support and contract support services.

3. (U) FY 1997 PLAN:

- (U) ($2,950) Complete build and delivery of TECHEVAL and OPEVAL test units.
- (U) ($1,855) Complete S-3B/ADAR integration test and conduct system flight test.
- (U) ($ 990) Complete training materials and equipment for TECHEVAL/OPEVAL. Initiate Generic Acoustic Stimulator System (GASS) prototype integration into S-3B Weapon System Trainer (WST) for FIT training.
- (U) ($1,329) Conduct TECHEVAL of the IEER system.
- (U) ($1,230) Provide other engineering support and contract support services.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 05 PROGRAM ELEMENT: 0604261N
PROGRAM ELEMENT TITLE: Acoustic Search Sensors

DATE: March 1996
PROJECT NUMBER: H2000
PROJECT TITLE: Air Deployed Active Receiver

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	13,896	8,477	6,387
(U) Adjustments from PRESBUDG:	0	-266	+1,967
(U) FY 1997 OSD Budget Submit:	13,896	8,211	8,354

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The net decrease of $-266 thousand in FY 1996 consists of Congressional undistributed general and inflation reductions ($-167 thousand); and revised DoD inflation rates and other minor pricing adjustments ($-99 thousand). The FY 1997 net increase of $+1,967 thousand reflects revised inflation estimates and other minor pricing adjustments ($-263 thousand); Defense Business Operating Fund (DBOF) related adjustments ($-1,670 thousand) and ($+3,900 thousand) to fully fund program requirements including test and integration, TECHEVAL, and training materials and equipment.

(U) Schedule: TECHEVAL has slipped from 4Q/97 to 1Q/98 due to platform integration delays.

(U) Technical: Not applicable.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 05

PROGRAM ELEMENT: 0604261N
PROGRAM ELEMENT TITLE: Acoustic Search Sensors

PROJECT NUMBER: H2000
PROJECT TITLE: Air Deployed Active Receiver

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN (SSQ-101) (403600)	0	0	0	15,304	33,196	32,946	30,825	CONT.	CONT.

(U) RELATED RDT&E:

(U) PE 0603254N (ASW Systems Development)

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				3Q/98 MS-III
Engineering Milestones	1Q ADAR/ACAP CDR2 4Q EMD PDR 1Q S-3B/ADAR SDR2	3Q EMD CDR		
T&E Milestones				1Q/98 TECHEVAL 2Q/98 OPEVAL
Contract Milestones				

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 05

PROGRAM ELEMENT: 0604261N
PROGRAM ELEMENT TITLE: Acoustic Search Sensors

PROJECT NUMBER: H2000
PROJECT TITLE: Air Deployed Active Receiver

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Hardware Development	4,584	1,200	1,924
b. Software Development	4,101	1,992	889
c. Systems Engineering	563	579	300
d. Development Test and Evaluation	2,180	1,686	1,501
e. Integrated Logistics Support	110	130	0
f. Training Equipment	-	632	990
g. Government Engineering Support	1,246	600	1,440
h. Program Management Support	757	1,035	1,075
i. Contractor Support Services	355	260	235
j. SBIR Assessment		97	
Total	13,896	8,211	8,354

UNCLASSIFIED

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 05 PROGRAM ELEMENT: 0604261N PROJECT NUMBER: H2000
PROGRAM ELEMENT TITLE: Acoustic Search Sensors PROJECT TITLE: Air Deployed Active Receiver

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
ERAPSCO Fort Wayne, IN	C/CPIF	7/92	24,843	24,843	17,135	4,584	1,200	1,924	0	24,843
NAWC/AD WAR	WX	10/96	43,760	43,760	30,430	4,729	4,713	3,434	454	43,760
MISC/In House	WX	10/96	10,931	10,931	7,528	1,291	606	185	1,321	10,931
Support and Management										
MISC/In House	WX	10/96	4,341	4,341	1,174	757	1,035	1,075	300	4,341
MISC/Contracts	C/CPFF	10/96	2,493	2,493	1,343	355	260	235	300	2,493
Test and Evaluation										
NAWC/AD PAX RV	WX	10/96	1,899	1,899	43	227	300	1,329	0	1,899
MISC	WX	10/96	1,356	1,356	299	0	0	172	885	1,356

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development Support and Management Test and Evaluation									
NAWC/AD WAR	WX	N/A	N/A	343	1,953	0	0	0	2,296

UNCLASSIFIED

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 05

PROGRAM ELEMENT: 0604261N
PROGRAM ELEMENT TITLE: Acoustic Search Sensors

PROJECT NUMBER: H2000
PROJECT TITLE: Air Deployed Active Receiver

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	56,093	10,604	6,519	5,543	1,775	79,534
Subtotal Support and Management	2,517	1,112	1,295	1,310	600	6,834
Subtotal Test and Evaluation	685	2,180	300	1,501	885	5,551
SBIR Assessment			97			97
Total Project	58,295	13,896	8,211	8,354	3,260	92,016

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604262N
PROGRAM ELEMENT TITLE: V-22

DATE: March 1996

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
H1425 V-22	452,669	733,728	576,792	522,651	259,030	102,374	69,665	198,000	6,826,012
TOTAL	452,669	733,728	576,792	522,651	259,030	102,374	69,665	198,000	6,826,012

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element funds the development of a replacement aircraft to meet the medium lift needs of the United States Marine Corps (USMC) and the special operations needs of the United States Special Operations Command (USSOCOM).

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT (EMD) because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604262N
PROGRAM ELEMENT TITLE: V-22

DATE: March 1996

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
H1425 V-22	452,669	733,728	576,792	522,651	259,030	102,374	69,665	198,000	6,826,012

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The V-22 program is designed to provide an aircraft to meet the medium lift amphibious/vertical assault needs of the USMC and the special operations needs of the USSOCOM. The aircraft will be capable of operations from aviation and air capable ships, as well as from unimproved landing sites throughout the world. The tiltrotor aircraft combines the speed, range and fuel efficiency normally associated with turboprop aircraft with the vertical take-off/landing and hover capabilities of helicopters. The special operations aircraft (CV-22) will consist of the baseline V-22 aircraft (MV-22) configuration plus a terrain following radar, additional fuel tanks, radios and flare/chaff dispensers, radar jammer and warning receiver, and infrared countermeasures. The CV-22 will be approximately 90 percent common with the MV-22. Beginning in FY 1996, Project H1425 funds both the MV-22 and CV-22 research, development, test and evaluation efforts.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($410,687) Continued contract efforts related to the EMD program, including the fabrication/assembly of EMD aircraft. MV-22 Critical Design Review (CDR) successfully completed on 14 December 1994. Began Fatigue Test Article (FTA) effort.

- (U) ($41,982) Supported in-house/Navy flight test activities, integrated test teams (ITTs), integrated product teams (IPTs), support equipment development, logistics and training activities, the manned flight simulator and numerous other development and test efforts at the government's in-house activities. Conducted Operational Test (OT)-IIB.

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604262N
PROGRAM ELEMENT TITLE: V-22

PROJECT NUMBER: H1425
PROJECT TITLE: V-22

2. (U) FY 1996 PLAN:

- (U) ($667,669) Continue contract efforts related to the EMD program, including the fabrication/assembly and ground testing of EMD aircraft and government-furnished equipment (GFE) integration. Complete mating of aircraft 7, 8 and 9. Continue FTA effort. Begin Navy funding of CV-22 efforts, including the ordering of a fifth EMD aircraft. Development/procurement of organizational-level equipment to support aircraft 7-10. Development of repair and damage limit data for inclusion in the logistic support analysis (LSA).

- (U) ($50,588) Continue in-house/Navy flight test activities, ITTs, IPTs, support equipment development, logistics and training activities, the manned flight simulator and numerous other development and test efforts at the government's in-house activities. Start operational assessment of EMD design (OT-IIC). Conduct CV-22 Systems Requirements Review (SRR).

- (U) ($15,471) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C.638.

3. (U) FY 1997 PLAN:

- (U) ($524,301) Continue MV-22 and CV-22 contract efforts related to the EMD program, including delivery and flight testing of EMD aircraft and GFE integration. Complete mating of aircraft 10. Continue FTA effort. First flight of EMD aircraft. Award Maintenance Trainer contract. Continue LSA efforts.

- (U) ($52,491) Continue in-house/Navy flight test activities, ITTs, IPTs, support equipment development, logistics and training activities, the manned flight simulator and numerous other development and test efforts at the government's in-house activities. Conduct CV-22 preliminary design review (PDR). Complete OT-IIC.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	452,721	762,548	580,929
(U) Adjustments from PRESBUDG:	-52	-28,820	-4,137
(U) FY 1997 President's Budget Submit:	452,669	733,728	576,792

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604262N PROJECT NUMBER: H1425
PROGRAM ELEMENT TITLE: V-22 PROJECT TITLE: V-22

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 1995 decrease of $52 thousand reflects the requirement to cover canceled account billings which were paid with current year funds. The FY 1996 decrease reflects $19,894 thousand for Congressional undistributed general and inflation reductions; $8,926 thousand for revised DoD inflation rates. The FY 1997 net decrease of $4,137 thousand resulted from an increase of $50,000 thousand for cost reduction efforts and increased termination liability for projected overruns on the airframe and engine EMD contracts and decreases of $26,681 thousand for Congressional undistributed general and inflation reductions; $27,456 thousand for Defense Business Operating Fund Activity carryover reductions.

(U) Schedule: The recent rebaselining of the V-22 program has resulted in numerous minor adjustments to scheduled events without significantly impacting the overall program schedule. In the area of testing: (1) The OT assessments planned for FY 1995 and FY 1996 were delayed from 3Q95 and 3Q96 to 4Q95 and 4Q96, respectively. (2) The effort planned for the FY 1997 OT assessment was accelerated and included in the FY 1996 OT assessment. (3) The start of TECHEVAL and OPEVAL were delayed one quarter from 1Q99 and 2Q99 to 2Q99 and 3Q99, respectively. Administrative delays slipped the CV-22 contract turn on from 3Q95 to 4Q95 and the contract definitization from 2Q96 to 4Q96. The preliminary design review (PDR) and critical design review (CDR) for the CV-22 were delayed from 1Q97 to 3Q97 and 1Q98 to 2Q98 respectively. The following items were added to the schedule profile in paragraph D. of the R-2 exhibit: (1) Advanced acquisition contract (AAC) award for LRIP lot 1 - 2Q96. (2) DAB LRIP review - 2Q97. (3) Definitization of LRIP lot 1 - 2Q97. (4) CV-22 systems requirements review (SRR) - 4Q96. (5) Maintenance trainer contract award - 3Q97. (6) OT Assessment - 3Q98. In the FY 1996 President's Budget there was a typographical error: MS III should have been 1Q00 (Dec 99) vice 1Q99. In order to extend the OPEVAL period by four months and avoid negatively impacting the contracting process for the FY 2000 lot, MS III is now planned for 1Q01.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY:

LI/APN	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
8 V-22	0	0	500,904	478,944	623,103	733,374	746,390	26,071,818	29,385,933*
9 V-22 Adv Proc	0	46,571	57,753	71,628	75,838	76,198	105,512	2,750,384	3,183,884
45 Spares	0	0	43,631	23,200	27,579	31,601	83,590	2,685,486	2,895,087
Total APN	0	46,571	602,288	573,772	726,520	841,173	935,492	31,507,688	35,464,904

*Includes FY 1989 funds of $231.4M.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604262N
PROGRAM ELEMENT TITLE: V-22

PROJECT NUMBER: H1425
PROJECT TITLE: V-22

(U) RELATED RDT&E: PE 116404BB CV-22

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones			2Q97 DAB LRIP Review	1Q01 MS III
Engineering Milestones	1Q95 MV CDR	4Q96 CV SRR	3Q97 CV PDR	2Q98 CV CDR
T&E Milestones	4Q95 OT Assess	4Q96 OT Assess		3Q98 OT Assess 2Q99 TECHEVAL 3Q99-1Q00 OPEVAL
Contract Milestones	4Q95 CV turn on for Preliminary Design	4Q96 CV Def 2Q96 LRIP 1 AAC	3Q97 Maint Trainer Contract Award 2Q97 LRIP 1 Def	

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604262N
PROGRAM ELEMENT TITLE: V-22

PROJECT NUMBER: H1425
PROJECT TITLE: V-22

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Prime Contractor Development	396,124	648,167	506,380
b. Contractor Engineering Support	14,563	19,502	17,921
c. Government Engineering Support	39,967	49,715	51,588
d. Studies	0	0	0
e. Other	2,015	873	903
f. SBIR Assessment	0	15,471	0
Total	452,669	733,728	576,792

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604262N
PROGRAM ELEMENT TITLE: V-22

PROJECT NUMBER: H1425
PROJECT TITLE: V-22

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development:										
Bell-Boeing Arlington, VA	CPAF	10/92	TBD	TBD	1,210,660	394,374	635,284	498,662	CONT.	CONT.
Allison Indianapolis, IN	CPIF	12/92	TBD	TBD	145,735	1,750	11,783	6,618	CONT.	CONT.
STI Rockville, MD	T&M	10/95	TBD	TBD	8,481	2,983	4,409	3,918	CONT.	CONT.
VSE	T&M	10/94	TBD	TBD	0	893	1,299	1,984	CONT.	CONT.
MISC Contracts	various	various	TBD	TBD	*	832	2,911	3,120	CONT.	CONT.
NAWCADPAX	WX	10/96	TBD	TBD	*	15,399	22,597	25,575	CONT.	CONT.
NAWCADWAR	WX	10/96	TBD	TBD	*	6,717	7,730	6,739	CONT.	CONT.
NAWCADIND	WX	10/96	TBD	TBD	*	8,678	11,961	12,684	CONT.	CONT.
NAD Cherry Point	WX	10/96	TBD	TBD	*	7,281	7,626	7,658	CONT.	CONT.
NAWCADLKE	WX	10/96	TBD	TBD	*	7,007	4,929	4,274	CONT.	CONT.
NAWCWDCHL	WX	10/96	TBD	TBD	*	2,146	2,223	1,380	CONT.	CONT.
MISC In-House	various	various	TBD	TBD	927	4,609	5,505	4,180	CONT.	CONT.
* Total FY93 & Prior amounts are not available.										
Support and Management:										
MISC Contracts	various	various	3,093	3,093	3,093	0	0	0	0	3,093

Test and Evaluation: Not applicable.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604262N
PROGRAM ELEMENT TITLE: V-22

PROJECT NUMBER: H1425
PROJECT TITLE: V-22

GOVERNMENT FURNISHED PROPERTY:

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development:				1,365,803	452,669	718,257	576,792	1,151,720	4,265,241
Subtotal Support and Management:				3,093	0	0	0	0	3,093
Subtotal Test and Evaluation:									
Other FY-94 and Prior Costs				2,542,207 \1					2,542,207
SBIR Assessment						15,471			15,471
Total Project				3,911,103	452,669	733,728	576,792	1,151,720	6,826,012

\1 Reflects previous V-22 funding in the following P.E.'s: 0603203N, 0603256N, 0604222A, & 0604262N.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604264N
PROGRAM ELEMENT TITLE: Aircrew Systems Development

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
W0606 Aircrew Systems Development	13,994	16,953	11,089	12,411	14,179	13,833	13,331	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Aircrew Systems Development program provides engineering and manufacturing development (EMD) of Aviation Life Support Systems to protect aircrews from current known and future threats including: directed energy weapons, chemical/biological/radiological agents/fallout, ballistic projectiles, temperature extremes, heat/fire, low concentration oxygen environments, high dynamic forces during emergency egress, and high "G" forces. The program also provides development for the following capabilities: head protection, inflight restraint, emergency egress and descent, escape and evasion, survival and rescue, and anthropometric sizing for female and small aviators. Acquisition initiatives include competition, the application of streamlining, use of non-developmental items (NDI), joint and tri-service developments, and the pursuit of NATO/allied cooperative ventures to expedite introduction into Navy and Marine Corps fixed and rotary wing aircraft, reduce costs, and promote commonality.

(U) SUBPROJECTS:

- (U) ESCAPE AND CRASH SAFETY: Naval Aircrew Common Ejection Seat Pre-Planned Product Improvement (NACES P^3I), Advanced Crashworthy Aircrew Seat System (ACASS), Joint Inflatable Body and Head Restraint System (IBAHRS), Joint Cockpit Air Bag System (JCABS), Cats Eyes Emergency Detachment System (CEEDS), Parachutes, and Crashworthy Troop Seats (CWTS).
- (U) LIFE SUPPORT: Passenger Anti-Exposure Survival Systems (PAESS), Extreme Cold Weather Improvement Program (ECWIP), and Aircrew Modified Equipment Leading to Increased Accommodation (AMELIA), PRC-112 P^3I, Aircrew Accommodation Expansion Program (AAEP), Advanced Oxygen Delivery System (AODS), and Advanced Oxygen Mask (AOM).
- (U) THREAT PROTECTION: Joint Laser Eye Protection (LEP), Chemical Biological (CB), Navy Combat Edge (NCE), Advanced Technology Crew Station (ATCS), Advanced Integrated Life Support Systems (AILSS), Agile Frequency LEP, and Aircrew Integrated Survival Armor Protection (AISAP).
- (U) HELMET, VISION AND DISPLAYS: Joint Night Vision System (NVS), Joint Helmet Mounted Cueing System (JHMCS), Passive Noise Reduction (PNR) Earcup and Advanced Integrated Night Vision Helmet (AINVH).

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604264N PROJECT NUMBER: W0606
PROGRAM ELEMENT TITLE: Aircrew Systems Development PROJECT TITLE: Aircrew Systems Development

- (U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING AND MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($1,300) NCE: Started and completed Technical Evaluation (TECHEVAL) and commenced Operational Evaluation (OPEVAL).
- (U) ($3,324) NACES P^{3}I: Completed final assessment for wider range of aircrew accommodation. ACASS: Conducted Development Test (DT) on crashworthy improvements. IBAHRS: Prepared for Milestone (MS) III.
- (U) ($2,427) ECWIP: Completed cold weather glove evaluation and initiated an Engineering Change Proposal (ECP), continued DT for cold weather clothing survival items. Helicopter Emergency Egress Device System P^{3}I (HEEDS): Completed fleet assessment of NDI candidates. AMELIA: Continued DT and completed Joint Primary Aircraft Training System (JPATS) anthropometric database, and initiated fleet wide Aviation Life Support Systems (ALSS) survey. PAESS: Completed operational assessment of redesign and submitted/approved ECP. PRC-112 P^{3}I: Initiated PRC-112 upgrade.
- (U) ($3,424) Navy CB: Completed Request for Proposal (RFP) rewrite and released to industry. LEP: Initiated source selection and initiated DT. AISAP: Approved ECP.
- (U) ($3,519) Night Vision NDI: Terminated. HMCS: Achieved MS 0 and MS I for Joint HMCS (JHMCS).

2. (U) FY 1996 PLAN:

- (U) ($6,994) NACES P^{3}I: Initiate Phase I DT. ACASS: Continue DT on helo crashworthy systems. IBAHRS: Obtain MS III and approve ECP for AH-1W. CEEDS: Complete qualification tests. CWTS: Commence DT.
- (U) ($2,633) ECWIP: Continue DT for cold weather clothing survival items. AMELIA: Continue DT for identified accommodation problems for female and small aviators. Continue fleet-wide ALSS survey. PRC-112 P^{3}I: Complete Operational Testing (OT). AAEP: Commence DT.

- (U) ($2,881) NCE: Complete OPEVAL and obtain MS II/MS III. HEEDS P³I: Prepare and approve ECP. LEP: Continue joint Navy/Army Laser Spectacles DT, prepare ECP.

- (U) ($4,237) NVS: Support replacement Night Vision Goggle for the TACAIR Cats Eyes program. JHMCS: Support joint development. PNR Earcup: Commence DT, establish joint service plan to incorporate PNR technology. AINVH: Commence DT.

- (U) ($208) Portion of program reserved for Small Business Innovation Research Assessment in accordance with 15 U.S.C. 638 (f) (1).

3. (U) FY 1997 PLAN:

- (U) ($5,010) NACES P³I: Continue Phase I DT and verification of ECP. ACASS: Continue DT on helo crashworthy systems. JCABS: Monitor Army development. CWTS: Complete DT.

- (U) ($1,764) ECWIP: Continue DT for cold weather clothing and survival items and prepare ECP's. AMELIA: Continue DT and OT of modified equipment. AAEP: Continue cockpit mapping/DT.

- (U) ($1,100) LEP: Continue DT, commence OT and prepare Laser Visor ECP. AILSS: Monitor Army EMD for rotary wing system. AOM: Initiate DT studies.

- (U) ($3,215) Joint NVS: Monitor Air Force DT. JHMCS: Award joint USN/USAF development contract. Continue platform integration, and Operational Flight Program (OFP) software development. Obtain MS II. Conduct Preliminary Design Review (PDR). PNR: Improve design for production and prototype earcups for DT testing.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604264N
PROGRAM ELEMENT TITLE: Aircrew Systems Development

PROJECT NUMBER: W0606
PROJECT TITLE: Aircrew Systems Development

B. (U) PROGRAM CHANGE SUMMARY: (Dollars in thousands)

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	13,994	9,788	14,915
(U) Adjustments from PRESBUDG:	0	+7,165	-3,826
(U) FY 1997 President's Budget Submit:	13,994	16,953	11,089

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1996 an increase of $7,900 thousand was added by Congress for the Advanced Integrated Night Vision Helmet, scape system improvements, and Crashworthy Troop Seats. Offsetting this increase were decreases of $185 thousand in the Extreme Cold Weather Improvement Program, $343 thousand for Congressional undistributed general and inflation reductions, and $207 thousand for revised DoD inflation rates. FY 1997 reflects and increase of $1,600 thousand for NACES P^{3}I Phase I; a decrease of $4,206 thousand for Defense Business Operating Fund R&D activities adjustments; a decrease of $718 thousand for the Extreme Cold Weather Improvement Program; a decrease of $335 thousand for revised DoD inflation rates; and a decrease of $167 thousand for minor pricing adjustments.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands) Not Applicable.

(U) RELATED RDT&E:

(U) PE 0603216N (Aviation Survivability)
(U) PE 0604706F (Life Support Equipment, related Air Force efforts)
(U) PE 0604713A (Combat Feeding, Clothing and Equipment, related Army efforts. Coordinated through the OSD sponsored Tri-Service Life Support RDT&E Steering Committee)
(U) PE-TBD (Chemical Biological (CB) program)
(U) PE-06084201F (Common Avionics related Air Force efforts)

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604264N
PROGRAM ELEMENT TITLE: Aircrew Systems Development

PROJECT NUMBER: W0606
PROJECT TITLE: Aircrew Systems Development

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones		3Q NCE MS II & III 2Q IBAHRS MS III	1Q JHMCS MS II	AILSS MS III JHMCS MS III LEP ECP'S JCABS MS III NVS MS III
Engineering Milestones			3Q JHMCS PDR	
T&E Milestones	4Q NCE TEMP 4Q HMCS TEMP 4Q NCE DT/OT	2Q NCE OT COMP. 3Q AINVH DT 1Q LEP SPECTACLE DT	3Q ECWIP DT 2Q NACES P^{3}I DT 2Q LEP VISOR DT	NACES P^{3}I ECP APPROVAL JHMCS DT/OT
Contract Milestones	4Q NAVY CB NDI RFP	3Q CWTS 4Q LEP EMD 3Q NACES P^{3}I PHASE I	2Q JHMCS EMD	

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604264N
PROGRAM ELEMENT TITLE: Aircrew Systems Development

PROJECT NUMBER: W0606
PROJECT TITLE: Aircrew Systems Development

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Systems Engineering	4,084	5,423	3,079
b. Developmental T&E	5,863	6,022	4,200
c. Operational T&E	200	400	310
d. ILS	3,847	4,900	3,500
e. SBIR Assessments		208	
Total	13,994	16,953	11,089

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604264N PROJECT NUMBER: W0606
PROGRAM ELEMENT TITLE: Aircrew Systems Development PROJECT TITLE: Aircrew Systems Development

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Budget	Total Complete
Product Development										
NAWC/AD WARM	WX/RX	10/95			4,999	2,381	3,592	1,729	Con't	Con't
NAWC/AD PAX	WX/RX	10/95			2,000	1,200	2,150	1,050	Con't	Con't
Support and Management										
MISC (less than $1M)	WX/RX	10/95			1,690	4,350	4,373	3,800	Con't	Con't
Test and Evaluation										
MISC (less than $1M)	WX/RX	10/95			5,823	6,063	6,630	4,510	Con't	Con't

GOVERNMENT FURNISHED PROPERTY: NOT APPLICABLE

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604264N
PROGRAM ELEMENT TITLE: Aircrew Systems Development

PROJECT NUMBER: W00606
PROJECT TITLE: Aircrew Systems Development

	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	3,581	5,742	2,779	Con't	Con't
Subtotal Support and Management	4,350	4,373	3,800	Con't	Con't
Subtotal Test and Evaluation	6,063	6,630	4,510	Con't	Con't
SBIR Assessments		208			
Total Project	13,994	16,953	11,089	Con't	Con't

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604307N
PROGRAM ELEMENT TITLE: AEGIS Combat System Engineering

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
K1447 Combat System Improvements	75,081	76,331	82,537	74,198	114,874	111,486	94,472	CONT.	CONT.
K1776 AEGIS Weapon System Mods	4,652	4,568	2,204	6,269	7,406	4,394	4,504	CONT.	CONT.
K1937 DDG Weapons Development	9,775	10,602	4,538	0	0	0	0	0	181,571
TOTAL	89,508	91,501	89,279	80,467	122,280	115,880	98,976	CONT.	CONT.

(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 backfitted into CG 47 Class and DDG 51 Class ships already in the Fleet, providing key warfighting capability while reducing life cycle maintenance costs.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING AND MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604307N
PROGRAM ELEMENT TITLE: AEGIS Combat System Engineering

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
K1447 Combat System Improvements	75,081	76,331	82,537	74,198	114,874	111,486	94,472	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program provides AEGIS Cruiser and Destroyer Combat System upgrades and integrates new equipments 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 4 is the base Combat System for DDG 51-67. 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 Countermeasures and AEGIS Extended Range (ER) Missile. Baseline 5 is being developed in three steps (phases): Phase I integrates AEGIS ER and supports the missile Initial Operational Capability; Phase II integrates system upgrades including Deceptive Electronic Countermeasures, Track Load Control algorithms, and Track Initiation Processor; Phase III is integrating JTIDS and the OJ-663 color display Tactical Graphics capability into the AEGIS Combat System. Baseline 6 will be developed in two phases. Baseline 6 Phase I is planned for the last ship in FY 1994, and Phase II is planned for the last ship in FY 1996. Baseline 6 upgrades will include embarked helicopters, Fiber Optics as applied to Data Multiplexing System (DMS), 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 Control System (ATWCS) Phase II, and Fire Control System upgrades. Baseline 7 will also be developed in two phases. Baseline 7 Phase I is planned for the last ship in FY 1998 and Phase II is planned for the last ship in FY 2000. Baseline 7 upgrades include: AN/SPY-1D(v) radar upgrade, integration of Cooperative Engagement Capability (CEC) and Tactical Ballistic Missile Defense (TBMD) capability (first forward fit implementation), advanced computer architecture, ID upgrades Phase II, Cueing Sensor, STANDARD Missile-2 Block IIIB full integration, Advanced Integrated Electronic Warfare System (AIEWS) Phase II, Light Airborne Multipurpose System (LAMPS) helicopter Mark III Block II, Advanced Tactical Support, Naval Surface Fire Support (NSFS), and Mark 50 torpedo with Periscope Depth Attack.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604307N PROGRAM ELEMENT TITLE: AEGIS Combat System Engineering PROJECT NUMBER: K1447 PROJECT TITLE: Combat System Improvements

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($19,519) Completed computer program coding, debugging and testing of Baseline 5 Phase III. Conducted multi-element integration of Baseline 5 Phase III at the CSED Site and conducted System Qualification Test (SQT).
- (U) ($19,500) Continued Baseline 6 Phase I design specifications and conducted Preliminary Design Review (PDR). Initiated rehosting of AEGIS Display System (ADS) and Command and Decision (C&D) display related computer programs into Commercial-Off-the-Shelf (COTS) based architecture. Began system engineering and development of BFTT Phase I/AEGIS Combat Training System (ACTS) rehost. Ceased work on the OJ-663 console with display simplification due to Assistant Secretary of Navy (Research, Development and Acquisition) decision.
- (U) ($2,100) Started system engineering and design to integrate ESSM into Baseline 6 Phase II.
- (U) ($2,600) Started integration of SPY-1D radar upgrade (SPY-1D(V), formerly known as EDM-4B) into the AEGIS Weapon System.
- (U) ($1,684) Started Engineering Development Model-5 (EDM-5) for Advanced Processing in Baseline 7 Phase I.
- (U) ($1,300) Began STANDARD Missile-2 (SM-2) Block IIIB and Block IV capability enhancement engineering, and began technical assessment and feasibility studies for cueing sensor upgrades which will be integrated into Baseline 7 Phase II.
- (U) ($8,700) Continued 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) ($19,678) Continued to provide for the participation of Navy laboratories and field activities to perform the engineering and scientific services necessary to monitor and direct the baseline efforts.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604307N PROJECT NUMBER: K1447
PROGRAM ELEMENT TITLE: AEGIS Combat System Engineering PROJECT TITLE: Combat System Improvements

2. (U) FY 1996 PLAN:

- (U) ($250) Complete Baseline 5 Phase III.
- (U) ($18,965) Conduct Baseline 6 Phase I CDR-1 and CDR-2. Start computer program coding, debugging and testing. Continue rehosting of AEGIS Combat Training System (ACTS) computer programs for BFTT Phase I and development of BFTT/ACTS interface. Continue rehosting ADS and C&D display and ID related computer programs into COTS based (Advanced Display System) architecture. Continue design of ID upgrade Phase I for Baseline 6 Phase I; continue engineering of Adjunct Processor.
- (U) ($14,950) Conduct system definition for Baseline 6 Phase II and continue system engineering for ESSM integration efforts.
- (U) ($4,900) Conduct rehost of SPY-1D(V) (radar upgrade) computer program control loop into COTS based adjunct processors.
- (U) ($9,216) Continue system engineering and development of an advanced processing EDM-5 to support implementation of an open system networked architecture in Baseline 7.
- (U) ($1,154) Continue SM-2 Block IIIB and Block IV capability enhancement engineering, and continue technical assessment and feasibility studies for cueing sensor upgrades which will be integrated into Baseline 7 Phase II.
- (U) ($5,700) 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) ($19,678) Continue to provide for the participation of Navy laboratories and field activities to perform the engineering and scientific services necessary to monitor and direct the baseline efforts.
- (U) ($1,518) Portion of extramural program reserved for Small Business Innovative Research assessment in accordance with 15 U.S.C. 638.

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604307N PROJECT NUMBER: K1447
PROGRAM ELEMENT TITLE: AEGIS Combat System Engineering PROJECT TITLE: Combat System Improvements

3. (U) FY 1997 PLAN:

- (U) ($16,600) Continue Baseline 6 Phase I computer program coding, debugging and testing. Continue rehosting of ACTS computer programs for BFTT, and for C&D and ID related computer programs into COTS based architecture.
- (U) ($19,247) Conduct SDR and PDR for integration of Baseline 6 Phase II upgrades including ESSM into the AEGIS Combat System. Complete development of advanced processor acceptance rack (CITADEL).
- (U) ($5,100) Complete rehost of SPY-1D(V) code into adjunct processors including interface simulation computer programs. Begin system definition for full integration of SPY-1D(V) into new construction AEGIS Combat System in Baseline 7 Phase.
- (U) ($13,500) Conduct system definition to integrate Baseline 7 Phase I upgrades into the AEGIS Combat System. Start system engineering. Continue advanced processing EDM-5 development for open systems networked architecture in Baseline 7 Phase I ships.
- (U) ($1,334) Complete engineering of SM-2 Block IIIB and Block IV capability enhancements and continue technical assessment and feasibility studies for cueing sensor upgrades which will be integrated into Baseline 7 Phase II. Start new equipment engineering studies for ID upgrade Phase II to be integrated into Baseline 7 Phase II.
- (U) ($7,200) 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) ($19,556) Continue to provide for the participation of Navy laboratories and field activities to perform the engineering and scientific services necessary to monitor and direct the baseline efforts.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604307N PROGRAM ELEMENT TITLE: AEGIS Combat System Engineering PROJECT NUMBER: K1447 PROJECT TITLE: Combat System Improvements

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	76,31[illegible]	90,026	88,770
(U) Adjustments from PRESBUDG:	-1,236	-13,695	-6,233
(U) FY 1997 PRESBUDG Submit:	75,081	76,331	82,537

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995 funding decreased $1,134 to reflect actual expenditures, $102 for a NRTFB FY 1996 FIX. FY 1996 funding decreased $13,695K for a Congressional adjustment, Congressional undistributed general and inflation reductions; and revised DoD inflation rates and other minor pricing adjustments. FY 1997 funding decreased $6,233K for Congressional adjustment, revised inflation estimates and other minor pricing adjustments.

(U) Schedule: Not applicable.

(U) Technical: Impact of FY 1996 and FY 1997 reductions is the descoping of Baseline 6 Phase II computer program. Common Data Link Work Station (CDLMS) integration, Battle Force Tactical Trainer (BFTT) integration, and AEGIS Operator Control Device (AOCD) native mode capabilities were deleted.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604307N PROJECT NUMBER: K1447
PROGRAM ELEMENT TITLE: AEGIS Combat System Engineering PROJECT TITLE: Combat System Improvements

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) SCN LI2122	2,642,008	2,194,230	3,319,272	2,247,853	2,996,279	2,957,147	3,111,174	CONT.	CONT.
(U) OPN LI5246	36,563	62,375	30,398	23,825	67,022	40,560	40,281	CONT.	CONT.

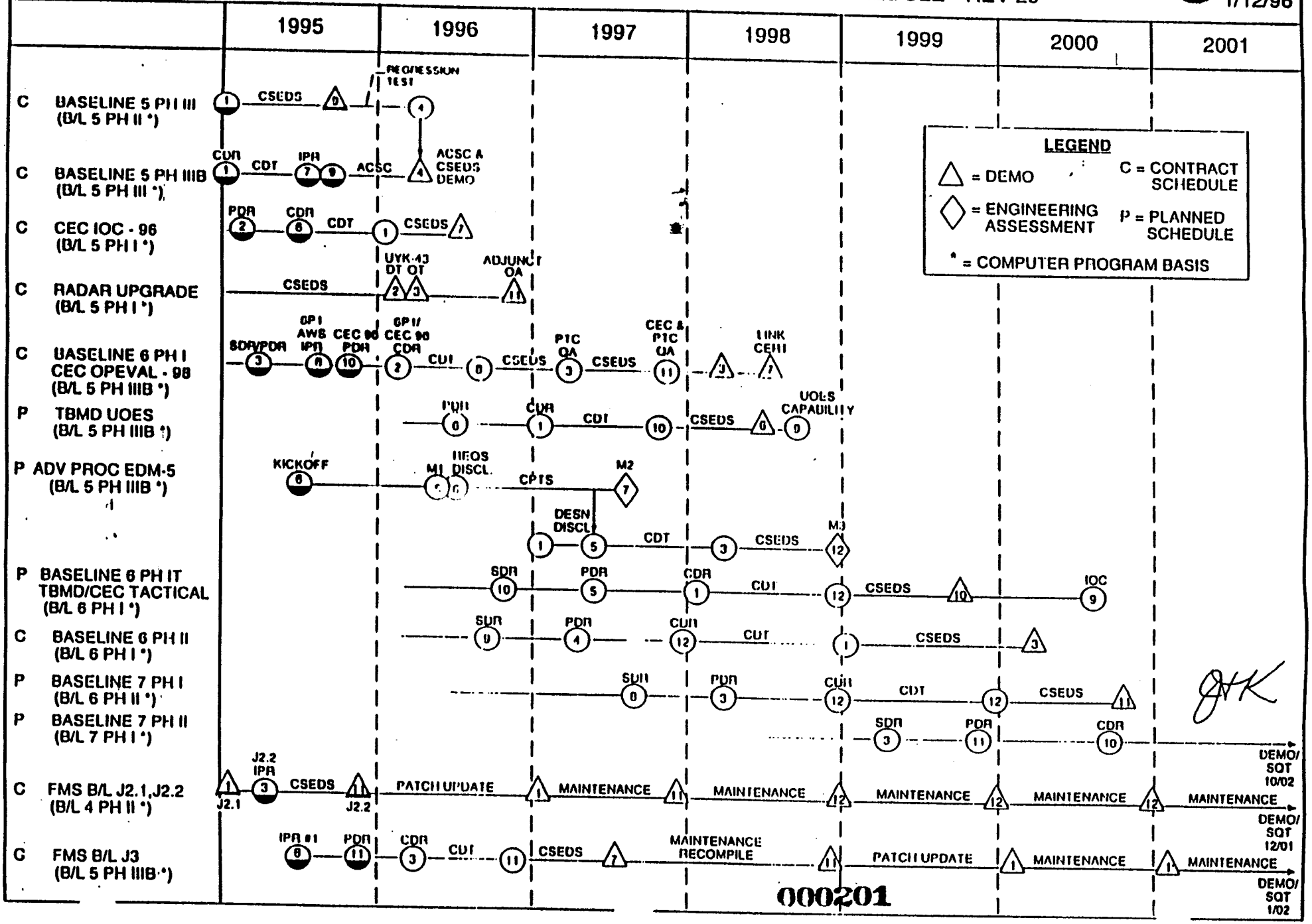
(U) RELATED RDT&E:

(U) PE 0603216C (Theater Ballistic Missile Defense)
(U) PE 0603382N (Advanced Combat System Technology)
(U) PE 0603755N (Ship Self Defense)
(U) PE 0604216C (Theater Ballistic Missile Defense)
(U) PE 0604366N (Standard Missile Improvements)

D. (U) SCHEDULE PROFILE: See attachment (1).

AEGIS BASELINE DEVELOPMENT PLANNING SCHEDULE - REV 29

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWNDATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604307N PROJECT NUMBER: K1447
PROGRAM ELEMENT TITLE: AEGIS Combat System Engineering PROJECT TITLE: Combat System Improvements

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. System Engineering	61,538	60,952	69,630
b. Gov. Engineering Support	11,182	11,570	11,260
c. Program Management Support	562	541	572
d. Development Test and Evaluation	1,799	1,750	1,075
e. SBIR assessment	0	1,518	0
Total	75,081	76,331	82,537

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604307N PROJECT NUMBER: K1447
PROGRAM ELEMENT TITLE: AEGIS Combat System Engineering PROJECT TITLE: Combat System Improvements

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Martin Marietta, Moorestown, NJ	SS/CPFF	03/93	253,440	253,440	78,086	55,403	55,135	62,981	CONT.	CONT.
Applied Physics Lab (APL), Baltimore, MD	SS/CPFF	02/94	14,368	14,368	5,625	2,743	3,000	3,000	CONT.	CONT.
McClellan AFB, CA	MIPR	01/94	18,664	18,664	14,400	2,564	1,700	0	CONT.	CONT.
Naval Surface Warfare Center, Dahlgren, VA	WR	10/94	29,155	29,155	8,150	5,875	6,870	8,260	CONT.	CONT.
Vitro Corp., Silver Spring, MD	C/CPFF	10/92	18,961	18,961	5,461	4,500	4,500	4,500	CONT.	CONT.
Miscellaneous			8,669	8,669	3,568	1,635	2,835	2,149	CONT.	CONT.
Support and Management										
Miscellaneous			2,183	2,183	508	562	541	572	CONT.	CONT.
Test and Evaluation										
Miscellaneous			4,849	4,849	225	1,799	1,750	1,075	CONT.	CONT.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604307N PROJECT NUMBER: K1447
PROGRAM ELEMENT TITLE: AEGIS Combat System Engineering PROJECT TITLE: Combat System Improvements

GOVERNMENT FURNISHED PROPERTY: Not applicable.

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	115,290	72,720	74,040	80,890	CONT.	CONT.
Subtotal Support and Management	508	562	541	572	CONT.	CONT.
Subtotal Test and Evaluation	225	1,799	1,750	1,075	CONT.	CONT.
Total Project	116,023	75,081	76,331	82,537	CONT.	CONT.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604307N
PROGRAM ELEMENT TITLE: AEGIS Combat System Engineering

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
K1776 AEGIS Weapon System Mods	4,652	4,568	2,204	6,269	7,406	4,394	4,504	CONT.	CONT.

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.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($334) Conducted Operational Readiness Test System (ORTS) Man-Machine Interface (MMI) upgrade CSED Site demonstration.
- (U) ($3,834) Developed ORTS MMI upgrade Ordnance Alteration proof-in kit for land-based integration and test.
- (U) ($234) Completed development of computer program algorithms to improve Anti-Air Warfare system performance against various Deceptive Electronic Counter-Countermeasures (DECCM) threats.
- (U) ($250) Continued AN/SPY-1 radar system analysis support for Cruiser and Destroyer baseline upgrades and AN/SPY-1B/D radar system upgrades.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604307N PROJECT NUMBER: K1776
PROGRAM ELEMENT TITLE: AEGIS Combat System Engineering PROJECT TITLE: AEGIS Weapon System Mods

2. (U) FY 1996 PLAN:

- (U) ($1,500) Complete ORTS MMI upgrade implementation.
- (U) ($300) Continue AN/SPY-1 radar system analysis support for Cruiser and Destroyer baseline upgrades and AN/SPY-1B/D radar system upgrades.
- (U) ($2,674) Begin ORTS upgrade for Baselines 3, 4 and 5.
- (U) ($94) Portion of extramural program reserved for Small Business Innovative Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($300) Continue AN/SPY-1B/D upgrade analysis support.
- (U) ($1,355) Continue ORTS upgrade for Baselines 3, 4 and 5 design, development and engineering.
- (U) ($549) Begin AN/SPY-1B/B(V)/D Moving Target Indicator analysis, design, development and engineering for radar enhancements.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	4,705	4,713	4,915
(U) Adjustments from PRESBUDG:	-53	-145	-2,711
(U) FY 1997 PRESBUDG Submit:	4,652	4,568	2,204

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604307N PROJECT NUMBER: K1776
PROGRAM ELEMENT TITLE: AEGIS Combat System Engineering PROJECT TITLE: AEGIS Weapon System Mods

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995 funding decreased $53 for Small Business Innovative Research (SBIR) and University Research. FY 1996 funding decreased $145K for Congressional undistributed general and inflation reductions; and revised DoD inflation rates and other minor pricing adjustments. FY 1997 funding decreased $2,711 due to program restructure, revised inflation estimates and other pricing adjustments.

(U) Schedule: Fielding planned AN/SPY-1B/B(V)/D DECCM improvements will be delayed at least two years because of FY 1997 reduction.

(U) Technical: ORTS upgrade for Baselines 3, 4 and 5 design, development engineering and testing will be sharply reduced in FY 1997. AN/SPY-1B/B(V)/D DECCM design and development engineering will be delayed two years because of FY 1997 reduction.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN LI5246									
	36,563	62,375	30,398	23,825	67,022	40,560	40,281	CONT.	CONT.

(U) RELATED RDT&E: Not applicable.

D. SCHEDULE PROFILE: Not applicable.

UNCLASSIFIED

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5
PROGRAM ELEMENT: 0604307N
PROGRAM ELEMENT TITLE: AEGIS Combat System Engineering
PROJECT NUMBER: K1776
PROJECT TITLE: AEGIS Weapon System Mods

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Systems Engineering	4,099	3,580	1,381
b. Government Engineering Support	550	891	820
c. Program Management Support	3	3	3
d. SBIR assessment	0	94	0
Total	4,652	4,568	2,204

UNCLASSIFIED

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604307N PROJECT NUMBER: K1776
PROGRAM ELEMENT TITLE: AEGIS Combat System Engineering PROJECT TITLE: AEGIS Weapon System Mods

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Martin Marietta, Moorestown, NJ	SS/CPFF	03/91	33,672	33,672	5,219	4,099	3,580	1,381	CONT.	CONT.
Miscellaneous			6,204	6,204	663	550	891	820	CONT.	CONT.
Support and Management										
Miscellaneous			977	977	956	3	97	3	CONT.	CONT.

Test and Evaluation: Not applicable.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5
PROGRAM ELEMENT: 0604307N
PROGRAM ELEMENT TITLE: AEGIS Combat System Engineering
PROJECT NUMBER: K1776
PROJECT TITLE: AEGIS Weapon System Mods

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	5,882	4,649	4,471	2,201	CONT.	CONT.
Subtotal Support and Management	956	3	97	3	CONT.	CONT.
Subtotal Test and Evaluation	0	0	0	0	CONT.	CONT.
Total Project	6,838	4,652	4,568	2,204	CONT.	CONT.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604307N
PROGRAM ELEMENT TITLE: AEGIS Combat System Engineering

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
K1937 DDG Weapons Development	9,775	10,602	4,538	0	0	0	0	0	181,571

A. (U) BRIEF DESCRIPTION AND BUDGET ITEM DESCRIPTION: 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. Current funding completes the development of an upgrade to the current AN/SPY-1D radar, Engineering Development Model 4B (EDM-4B), to enhance its capability against low cross section sea skimming targets in increasingly more severe electronic countermeasures and in near-land clutter environments. The changes are in the transmitter, signal processor, and radar control computer program.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($1,361) Continued system integration.
- (U) ($2,524) Conducted Electronic Countermeasures test validation at the CSED Site.
- (U) ($5,890) Started rehosting radar system computer program from two AN/UYK-43 computers to one AN/UYK-43 and one commercial adjunct processor, including testing of microprocessors against AEGIS benchmark requirements, testing commercial operating systems, and computer architecture development.

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604307N PROJECT NUMBER: K1937
PROGRAM ELEMENT TITLE: AEGIS Combat System Engineering PROJECT TITLE: DDG Weapons Development

2. (U) FY 1996 PLAN:

- (U) ($5,000) Conduct Developmental Test/Operational Test-1 (DT/OT-1) at the CSED Site.
- (U) ($5,361) Continue rehosting radar system computer program from two AN/UYK-43 computers to one AN/UYK-43 and one commercial adjunct processor, including testing of microprocessors against AEGIS benchmark requirements, testing commercial operating systems, and computer program architecture development.
- (U) ($241) Portion of extramural program reserved for Small Business Innovative Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($3,538) Complete rehosting radar system computer program from two AN/UYK-43 computers to one AN/UYK-43 and one commercial adjunct processor, including testing of microprocessors against AEGIS benchmark requirements, testing commercial operating systems, and computer program architecture development.
- (U) ($1,000) Conduct DT/Operational Assessment (OA) of the adjunct processor performance at the CSED Site.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	9,885	10,944	4,675
(U) Adjustments from PRESBUDG:	-110	-342	-137
(U) FY 1997 PRESBUDG Submit:	9,775	10,602	4,538

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995 funding decreased $110 for SBIR and University Research. FY 1996 funding decreased $342K for Congressional undistributed general and inflation reductions; and revised DoD inflation rates and other minor pricing adjustments. FY 1997 decreased $342K for revised inflation estimates and other pricing adjustments.

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604307N PROGRAM ELEMENT TITLE: AEGIS Combat System Engineering PROJECT NUMBER: K1937 PROJECT TITLE: DDG Weapons Development

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

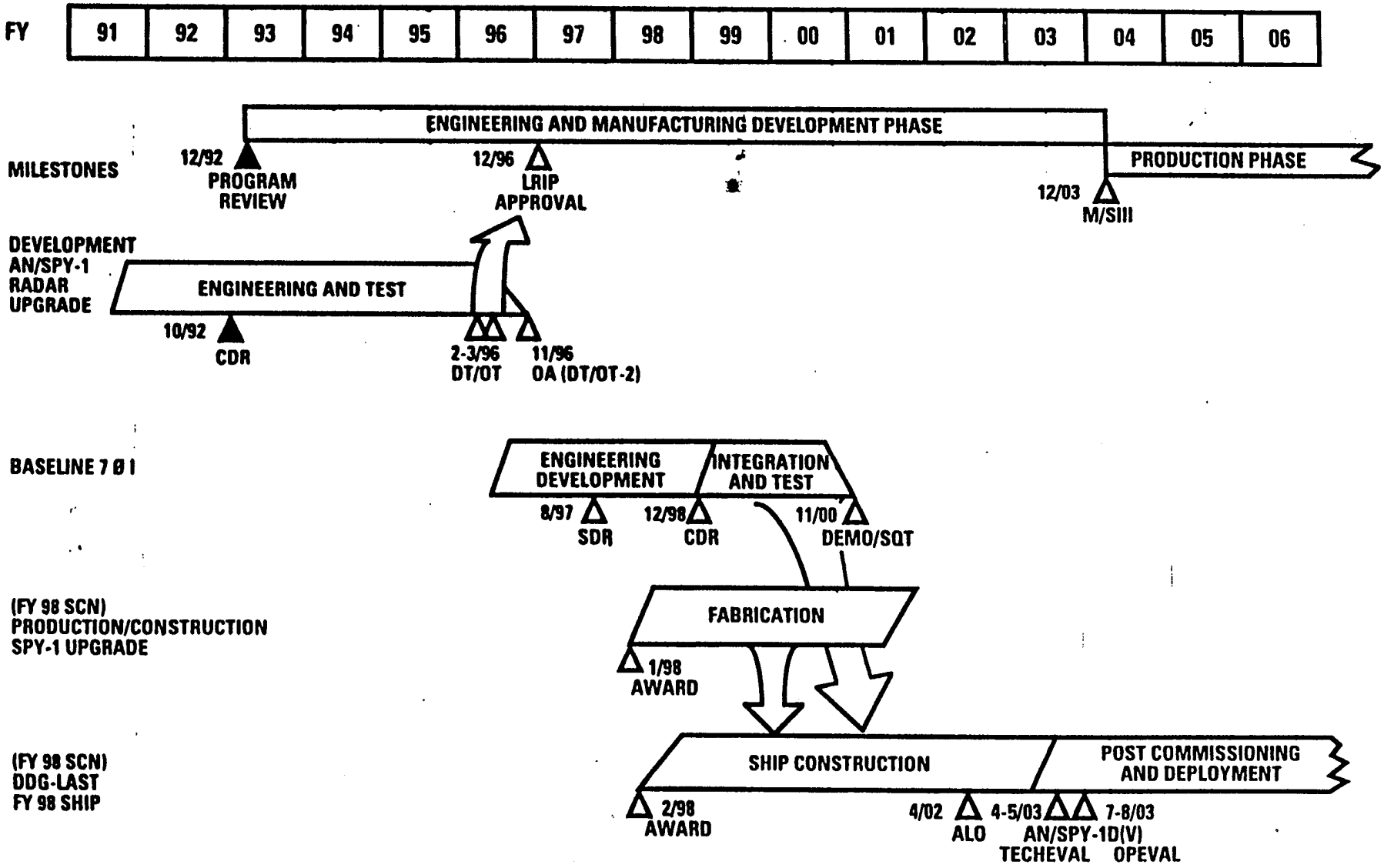
C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) SCN LI2122	2,642,008	2,149,230	3,319,272	2,247,853	2,996,279	2,957,147	3,111,174	CONT.	CONT.
(U) OPN LI5246	36,563	62,375	30,398	23,825	67,022	40,560	40,281	CONT.	CONT.

(U) RELATED RDT&E: Not applicable.

D. (U) SCHEDULE PROFILE: See attachment (2).

SPY-1D(V) RADAR UPGRADE SCHEDULE



FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604307N
PROGRAM ELEMENT TITLE: AEGIS Combat System Engineering

PROJECT NUMBER: K1937
PROJECT TITLE: DDG Weapons Development

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Systems Engineering	9,775	10,361	4,538
b. SBIR assessment	0	241	0
Total	9,775	10,602	4,538

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604307N PROJECT NUMBER: K1937
PROGRAM ELEMENT TITLE: AEGIS Combat System Engineering PROJECT TITLE: DDG Weapons Development

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Martin Marietta, Moorestown, NJ	SS/CPFF	03/91	181,571	181,571	156,656	9,775	10,361	4,538	0	181,330
Miscellaneous						0	241	0	0	241

Support and Management: Not applicable.

Test and Evaluation: Not applicable.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5
PROGRAM ELEMENT: 0604307N
PROGRAM ELEMENT TITLE: AEGIS Combat System Engineering
PROJECT NUMBER: K1937
PROJECT TITLE: DDG Weapons Development

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	156,656	9,775	10,602	4,538	0	181,571
Subtotal Support and Management	0	0	0	0	0	0
Subtotal Test and Evaluation	0	0	0	0	0	0
Total Project	156,656	9,775	10,602	4,538	0	181,571

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604310N
PROGRAM ELEMENT TITLE: Arsenal Ship

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
S2294 Arsenal Ship Development	0	0	0	25,000	0	0	0	0	0	25,000

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Arsenal Ship project has two major phases: (1) development of a Demonstrator Ship using R&D funds and (2) a subsequent SCN-funded program of multiple fleet ships commencing possibly as soon as FY01. The Demonstrator Ship is a prototype used to establish the "proof-of-principle" for high fire-power, low manning strike mission ships. The Chief of Naval Operations has directed that the Demonstrator Ship start at-sea testing prior to award of the first SCN ship. The schedule requires a Functional Design phase in FY 1997 Detail Design, Construction starting in FY 1998, and at-sea tests and trials starting in FY 2000. Initial concept development was funded in PE 0603563N, S2196 in FY 96.

(U) JUSTIFICATION FOR BUDGET ACTIVITY. This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it develops and integrates hardware for experimental test related to specific ship or aircraft applications and proves it readiness for transition to full production.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604310N PROJECT NUMBER: S2294
PROGRAM ELEMENT TITLE: Arsenal Ship PROJECT TITLE: Arsenal Ship Development

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENT:

- (U) None. Program did not exist.

2. (U) FY 1996 ACCOMPLISHMENTS:

- (U) None. Program did not exist.

3. (U) FY 1997 PLAN

- (U) ($25,000) Perform proposal evaluation of Concept Designs/source selection for Functional Designs. Perform Functional Designs. Develop detailed test plan. Products that will be produced include: source selection results for concept evaluations; two extensive Demonstrator Ship Contract Design packages of drawings, study reports, plans and specifications suitable for a ship procurement; management plans for technology developments; Test Plan for post-delivery testing; Navy/independent cost estimates to compare with industry costs; project plans and documentation for managing the design and construction phases; detailed proposal evaluation/source selection plan.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604310N PROJECT NUMBER: S2294
PROGRAM ELEMENT TITLE: Arsenal Ship PROJECT TITLE: Arsenal Ship Development

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 PRESBUDG Submit	0	0	0
(U) Adjustments from PRESBUDG	0	0	+25,000
(U) FY 1997 PRESBUDG	0	0	25,000

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: This is a new start program.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY:

(U) RELATED RDT&E:

(U) PE 0603563N/S2196 (Ship Concept Adv. Design)	0	300	0

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604310N PROJECT NUMBER: S2294
PROGRAM ELEMENT TITLE: Arsenal Ship PROJECT TITLE: Arsenal Ship Development

D. (U) SCHEDULE PROFILE:

	FY 1996	FY 1997	TO COMPLETE
Program Milestones	(Not applicable - Non-Acquisition Program)		
Engineering Milestones		Complete Functional Designs - 4Q	
T&E Milestones			TBD
Contract Milestones		Award Functional Design Contracts 2Q	Award Detail Design and Ship Construction Contract FY 1998 2Q

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604310N PROJECT NUMBER: S2294
PROGRAM ELEMENT TITLE: Arsenal Ship PROJECT TITLE: Arsenal Ship Development

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Primary Hardware Development	0	0	18,405
b. Systems Engineering	0	0	5,970
c. Management Support	0	0	200
d. Development Test & Evaluation	0	0	350
e. Travel	0	0	75
Total	0	0	25,000

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 4 PROGRAM ELEMENT: 0604310N PROJECT NUMBER: S2294
PROGRAM ELEMENT TITLE: Arsenal Ship PROJECT TITLE: Arsenal Ship Development

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
TBD	Contract	2/97	TBD	TBD	0	0	0	18,405	0	18,405
System Engineering										
NSWC/CD	WR	10/96	TBD	TBD	0	0	0	450	0	450
NSWC/DD	WR	10/96	TBD	TBD	0	0	0	2,290	0	2,290
NRAD	WR	10/96	TBD	TBD	0	0	0	600	0	600
JJMA	CONTRACT	10/96	TBD	TBD	0	0	0	2,630	0	2,630
Management Support										
PRC	Contract	10/96	TBD	TBD	0	0	0	200	0	200
Development Test & Evaluation										
TBD	Contract	10/96	TBD	TBD	0	0	0	350	0	350

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UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 4 PROGRAM ELEMENT: 0604310N PROJECT NUMBER: S2294
PROGRAM ELEMENT TITLE: Arsenal Ship PROJECT TITLE: Arsenal Ship Development

GOVERNMENT FURNISHED PROPERTY Not Applicable.

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Primary Hardware Development	0	0	0	18,405	0	18,405
Subtotal Systems Engineering	0	0	0	5,970	0	5,970
Subtotal Management Support	0	0	0	200	0	200
Subtotal Development Test and Evaluation	0	0	0	350	0	350
Travel	0	0	0	75	0	75
Total Project	0	0	0	25,000	0	25,000

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604311N
PROGRAM ELEMENT TITLE: LPD-17 Development

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
S2283 LPD-17 Development	0	0	4,272	773	576	2,475	0	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The 12 LPD 17 Class ships are functional replacements for 41 ships of four classes of amphibious ships. These new ships embark, transport, and land elements of Marine landing forces in an amphibious assault by helicopters, landing craft, and amphibious vehicles. Tactics, techniques, and tools for naval expeditionary warfare continue to evolve. The LPD 17 Class configuration must continue to adapt to this evolutionary process, because these ships are expected to be in service until almost 2050. The LPD 17 design includes systems configurations that reduce operating and support costs and facilitate operational performance improvements. System engineering and integration efforts beginning in FY 1997 will develop further reductions in life cycle costs and integrate performance upgrades in a rapid, affordable manner. Planned improvements include composite masts, advanced sensors, advanced computers, advanced command and control software, advanced information systems technologies, and ship based logistics concepts. Cost reduction and improved performance will be accomplished through sustained modeling and simulation efforts, continued manpower reduction efforts, system performance tradeoff evaluation, and naval expeditionary warfare systems engineering. Feedback from the operational forces for integrating system configurations will be accomplished through the Naval Expeditionary Warfare Centers in Quantico, Dahlgren, and Little Creek, Virginia. These efforts will result in well defined specifications and drawings in systems integration design packages that provide technical baselines for follow ship procurements.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under Engineering and Manufacturing Development because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604311N PROGRAM ELEMENT TITLE: LPD-17 Development PROJECT NUMBER: S2283 PROJECT TITLE: LPD-17 Development

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS: Not Applicable

2. (U) FY 1996 PLANS: Not Applicable

3. (U) FY 1997 PLANS:

- (U) ($4,272) Conduct naval expeditionary warfare systems engineering efforts for composite masts, improved sensors, performance modeling and simulation, and reduced man power. Integrate system configuration feedback from the operational forces through the Naval Expeditionary Warfare Centers in Quantico, Dahlgren, and Little Creek, Virginia.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	0	0	0
(U) Adjustments from PRESBUDG:	0	0	+4,272
(U) FY 1997 PRESBUDG Submit:	0	0	4,272

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: LPD-17 Development program established to improve performance and reduce ownership costs.
(U) Schedule: Not applicable.
(U) Technical: Not applicable.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604311N PROGRAM ELEMENT TITLE: LPD-17 Development PROJECT NUMBER: S2283 PROJECT TITLE: LPD-17 Development

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) SCN Line 303600									
	0	938,524	0	760,797	880,000	1,473,013	1,490,661	4,198,005	9,741,000

(U) RELATED RDT&E:

(U) PE 0604567N Ship Contract Design/Live Fire T&E

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604311N PROJECT NUMBER: S2283
PROGRAM ELEMENT TITLE: LPD-17 Development PROJECT TITLE: LPD-17 Development

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones		3Q MSII		2Q/98 Program Review 3Q/02 Deliver Lead Ship 2Q/04 MSIII
Engineering Milestones		2Q Complete Contract Design 3Q Initiate Detail Design	3Q Systems Integration Design Package	3Q/98 Systems Integration Design Package 3Q/98 Complete Detail Design
T&E Milestones				2Q/98 DT-IIA 2Q/98 OT-II 3Q/02 DT-IIB 4Q/03 DT-IIC 4Q/03 OT-IIIA
Contract Milestones		3Q Lead Ship Contract Award		2Q/98 Follow Ship Contract Award

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604373N
PROGRAM ELEMENT TITLE: AIRBORNE MINE COUNTERMEASURES

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
Q0528 ADVANCED AIRBORNE MINE COUNTERMEASURES EQUIPMENT	1,357	3,300	1,358	0	0	0	0	0	42,404
Q0529 AIRBORNE MINE HUNT SYSTEMS	9,165	12,390	13,164	13,069	5,694	0	0	0	119,732
Q2047 AIRBORNE LASER MINE DETECTION SYSTEM (ALMDS)	8,835	17,689	0	0	0	0	0	0	89,772
TOTAL	19,357	33,379	14,522	13,069	5,694	0	0	0	251,908

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program develops airborne mine countermeasures systems that are required to counter known and projected mine threats. Provides a shallow and deep water mechanical minesweeping capability against moored mines; a capability to locate pressure-combination and sweep resistant mines at greater coverage rates and by more rapidly deployable means; and a non-acoustic mine detection and classification capability against floating and tethered mines using Light Detection and Ranging (LIDAR) techniques.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604373N
PROGRAM ELEMENT TITLE: AIRBORNE MINE COUNTERMEASURES

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
Q0528 ADVANCED AIRBORNE MINE COUNTERMEASURES EQUIPMENT	1,357	3,300	1,358	0	0	0	0	0	42,404

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: There is a requirement to expand helicopter mine countermeasures by developing a more effective capability to sweep deep moored mines. The magnetic cable improvement is being developed to provide higher reliability, longer life and higher current capacity while maintaining same diameter and weight.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($1,357) MCI - Awarded EMD contract Sept 1995, initiated design of EMD prototype models.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604373N PROGRAM ELEMENT TITLE: AIRBORNE MINE COUNTERMEASURES PROJECT NUMBER: Q0528 PROJECT TITLE: ADVANCED AIRBORNE MINE COUNTERMEASURES EQUIPMENT

2. (U) FY 1996 PLAN:

- (U) ($2,093) MCI - Design prototypes, manufacture prototypes.
- (U) ($1,175) MCI - Procure TECHEVAL cables.
- (U) ($32) Portion of extramural program reserved for Small Business Innovative Research assessment in accordance with 15 U.S.C.638.

3. (U) FY 1997 PLAN:

- (U) ($1,358) MCI - Manufacture TECHEVAL cables, conduct TECHEVAL.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	1,357	3,415	1,490
(U) Adjustments from PRESBUDG:	0	-115	-132
(U) FY 1997 PRESBUDG Submit:	1,357	3,300	1,358

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604373N PROGRAM ELEMENT TITLE: AIRBORNE MINE COUNTERMEASURES PROJECT NUMBER: Q0528 PROJECT TITLE: ADVANCED AIRBORNE MINE COUNTERMEASURES EQUIPMENT

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 96 - Congressional undistributed general and inflation reductions (-$101K); and revised DoD inflation rates and other minor pricing adjustments (-$14K).
FY 97 - Revised inflation estimates and other minor pricing adjustments (-$132K).

(U) Schedule: 37U: Milestone III from 1Q/95 to 1Q/96 due to OPEVAL results.
MCI: Milestone II from 1Q/95 to 3Q/96 and MS III from 4Q/97 to 1Q/98 due small quantity of contractor responses to the solicititation.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
OPN 424800	0	3,447	4,520	2,090	711	0	0	0	16,762

(U) RELATED RDT&E:

(U) PE 0602315N (MCM, Mining and Special Warfare Technology)
(U) PE 0603502N (Surface and Shallow Water MCM)
(U) PE 0603555N (Sea Control and Littoral Warfare Technology Demonstration)

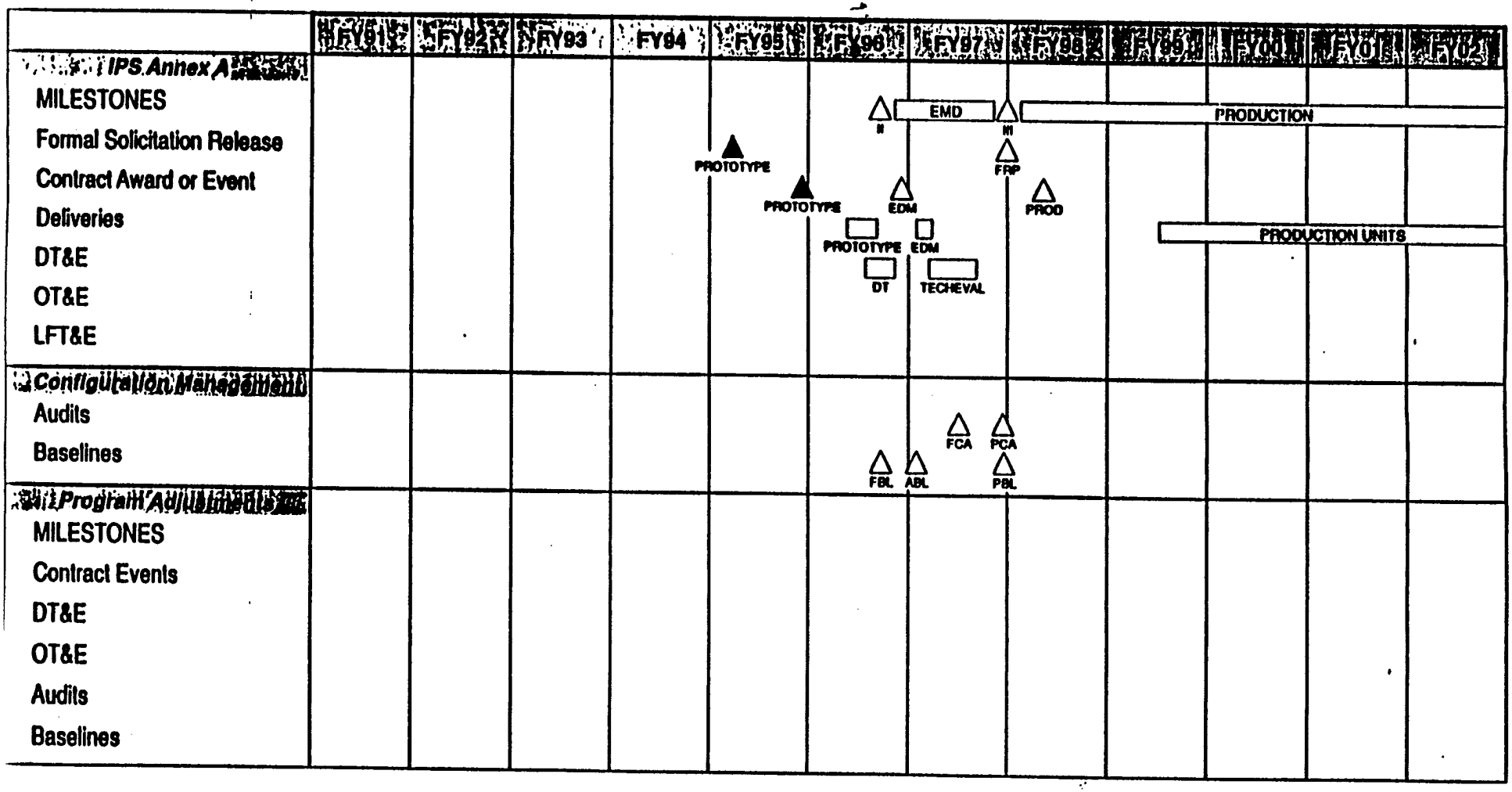
(U) SCHEDDLE PROFILE: See Attached.

MAGNETIC CABLE IMPROVEMENT PROGRAM

PROGRAM STATUS

P.E. 0604373N/Q0528

- **PROGRAM PLAN**



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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604373N
PROGRAM ELEMENT TITLE: AIRBORNE MINE COUNTERMEASURES

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
Q0529 AIRBORNE MINE HUNT SYSTEMS	9,165	12,390	13,164	13,069	5,694	0	0	0	119,732

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project includes a sonar for mine detection and classification, and a system for mine neutralization by explosive charge, with equipment designed to provide shallow and deep water mine hunting and minefield reconnaissance capabilities against both bottom and moored mines. There is currently no rapid airborne mine neutralization capability to support minehunting, nor does the Navy possess a capability to conduct high speed minefield reconnaissance to determine mine density and location. The AN/AQS-20 Sonar Mine Detecting Set is being developed for shallow and deep water minehunting and reconnaissance for both bottom and moored mines. This project also includes the re-start of the Airborne Mine Neutralization System (AMNS), in FY 96. The AMNS will provide neutralization of bottom and moored mines using an airborne delivered, expendable mine neutralization device.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($9,165) Q-20 - Continued hardware integration, software integration and hardware/software integration. ($218-FY95; $8,947-FY95 Reprogrammed from Project Q2047).

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604373N PROGRAM ELEMENT TITLE: AIRBORNE MINE COUNTERMEASURES PROJECT NUMBER: Q0529 PROJECT TITLE: AIRBORNE MINE HUNT SYSTEMS

2. (U) FY 1996 PLAN:

- (U) ($8,515) Q-20 - Complete fabrication of EMD models.
- (U) ($1,223) Q-20 - Start system qualification and environmental tests.
- (U) ($2,458) Airborne Mine Neutralization System (AMNSYS) - Prepare and complete procurement package (specification, statement of work, source selection plan) evaluate proposals.
- (U) ($194) Portion of extramural program reserved for Small Business Innovative Research assessment in accordance with 15 U.S.C.638.

3. (U) FY 1997 PLAN:

- (U) ($5,988) Q-20 - Complete qualification and environmental tests.
- (U) ($1,290) Q-20 - Conduct contractor demo.
- (U) ($3,522) Q-20 - Conduct TECHEVAL.
- (U) ($715) AMNSYS - Select final option and integrate in the aircraft.
- (U) ($1,649) AMNSYS - Test alternate options.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	218	12,791	20,123
(U) Adjustments from PRESBUDG:	+8,947	-401	-6,959
(U) FY 1997 PRESBUDG Submit:	9,165	12,390	13,164

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604373N PROGRAM ELEMENT TITLE: AIRBORNE MINE COUNTERMEASURES PROJECT NUMBER: Q0529 PROJECT TITLE: AIRBORNE MINE HUNT SYSTEMS

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY95 funding increases +$8,947K reprogramming from PE0604373N, Project Q2047, ALMDS. FY96 - Congressional undistributed general and inflation reductions (-$346K); and revised DoD inflation rates and other minor pricing adjustments ($-55K). FY97 reflects the reinitiation of AMNSYS; +$10,400K; +$1,200K AQS-20/MK-105 realignment; -$10,431K Realignment to SWMCM; -$7,285K Realignment to RMS; -$843K due to revised inflation estimates and other minor pricing adjustments.

(U) Schedule: AQS-20: Milestone III from 2Q/98 to 2Q/99 due to funding constraints.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

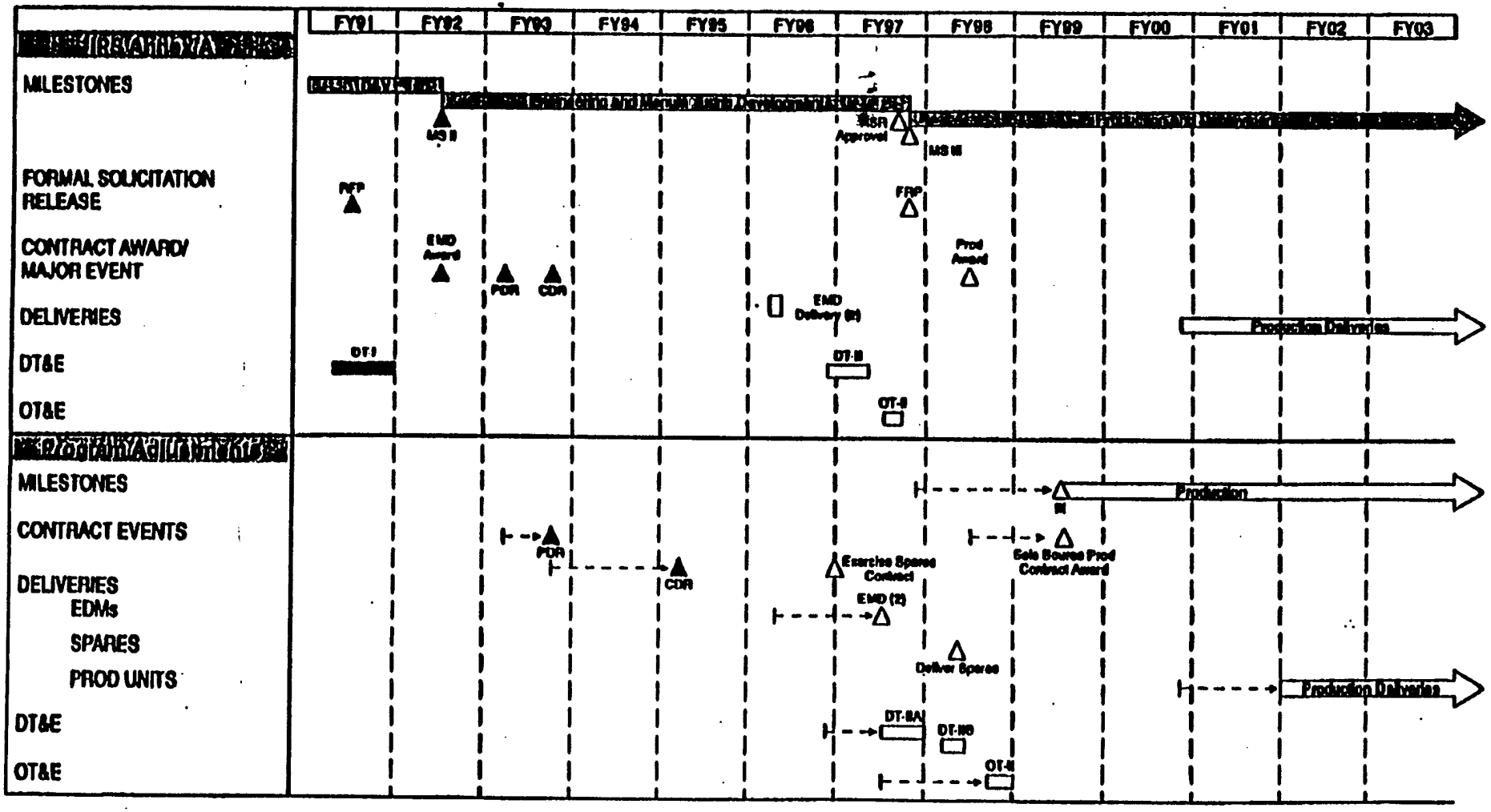
	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
OPN 424800	0	0	0	0	22,411	35,089	39,211	CONT.	CONT.

(U) RELATED RDT&E:

(U) PE 0602315N (MCM, Mining and Special Warfare Technology)
(U) PE 0603502N (Surface and Shallow Water MCM)
(U) PE 0603555N (Sea Control and Littoral Warfare Technology Demonstration)

D. (U) SCHEDULE PROFILE: See attached.

P.E. 0604373N/Q0529

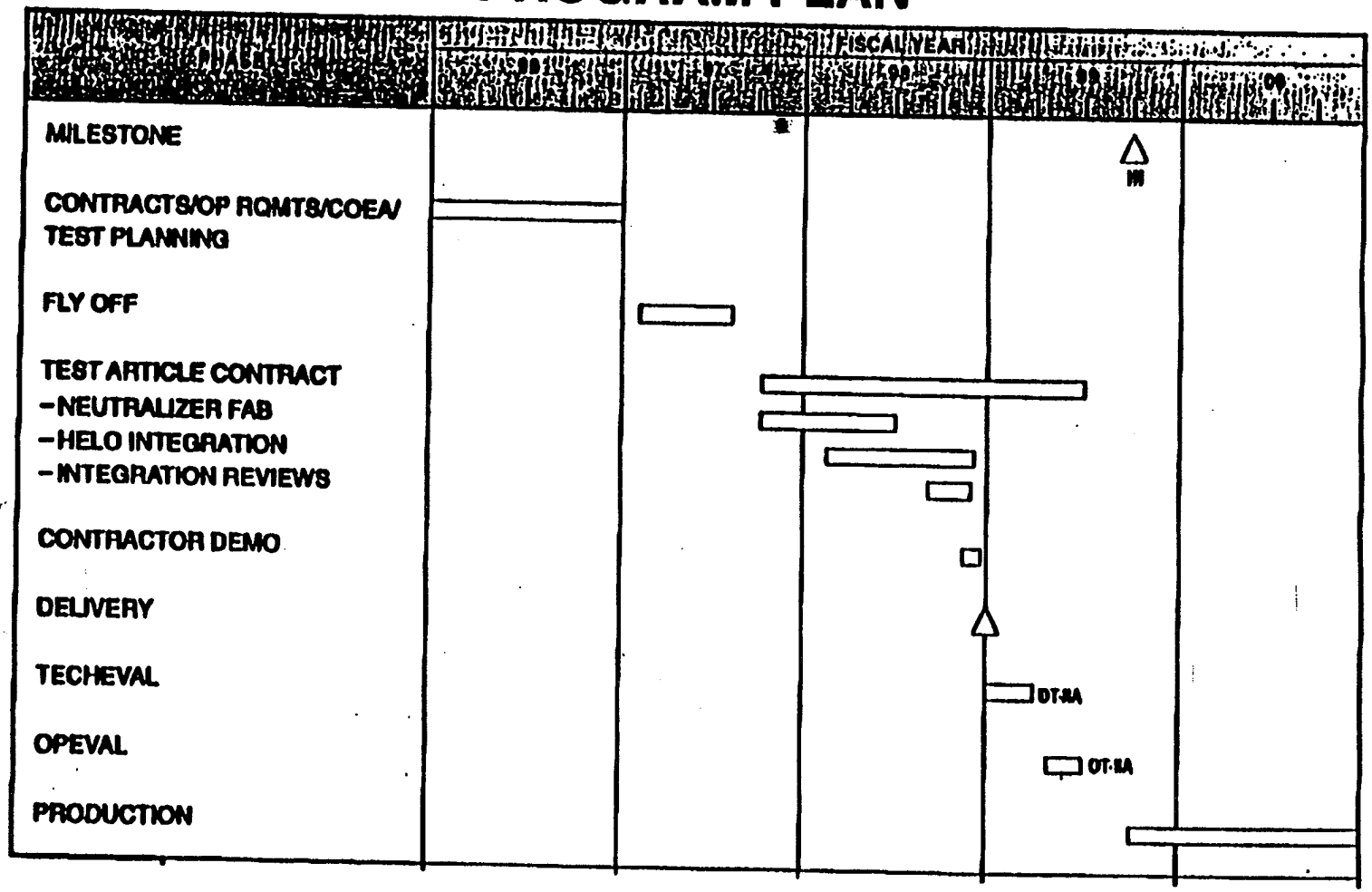


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AIRBORNE MINE NEUTRALIZATION SYSTEM

P.E. 0604373N/Q0529

PROGRAM PLAN



FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604373N PROGRAM ELEMENT TITLE: AIRBORNE MINE COUNTERMEASURES PROJECT NUMBER: Q0529 PROJECT TITLE: AIRBORNE MINE HUNT SYSTEMS

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Primary Hardware Development	1,698	6,722	857
b. Software Development	1,500	1,240	0
c. Systems Engineering	5,947	0	0
d. Developmental Test & Evaluation	0	3,522	4,884
e. Operational Test & Evaluation	0	0	6,794
f. Travel	20	20	20
g. Miscellaneous	0	692	609
i. SBIR	0	194	0
Total	9,165	12,390	13,164

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604373N PROJECT NUMBER: Q0529
PROGRAM ELEMENT TITLE: AIRBORNE MINE COUNTERMEASURES PROJECT TITLE: AIRBORNE MINE HUNT SYSTEMS

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Raytheon,RI Q20	C/CPFF	7/92	43,213	43,213	29,991	7,672	5,000	550	0	43,213
TBD (AMNSYS)	C/CPFF	11/96	7,000	7,000	0	0	0	0	7,000	7,000
CSS, Panama City	WR	10/96	43,314	43,314	30,668	0	4,530	3,022	5,094	43,314
Miscellaneous	WR	10/96	8,853	8,853	5,052	1,473	1,000	1,328	0	8,853
Support and Management										
Miscellaneous	WR	VARIOUS	299	299	179	20	20	20	60	299
Test and Evaluation										
OPTEVFOR, VA	WR	10/96	9,491	9,491	0	0	0	4,880	4,611	9,491
CSS, Panama City	WR	10/96	7,202	7,202	0	0	1,840	3,364	1,998	7,202

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604373N PROJECT NUMBER: Q0529
PROGRAM ELEMENT TITLE: AIRBORNE MINE COUNTERMEASURES PROJECT TITLE: AIRBORNE MINE HUNT SYSTEMS

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development				0	0	0	0	0	0
Support and Management				0	0	0	0	0	0
Test and Evaluation				0	0	0	0	0	0

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	65,711	9,145	10,530	4,900	12,094	102,380
Subtotal Support and Management	179	20	20	20	60	299
Subtotal Test and Evaluation	0	0	1,840	8,244	6,609	16,693
Total Project	65,890	9,165	12,390	13,164	18,763	119,372

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

DGET ACTIVITY: 5

PROGRAM ELEMENT: 0604503N
PROGRAM ELEMENT TITLE: Submarine System Equipment Development

) COST: (Dollars in Thousands)

OJECT MBER & TLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
775	Submarine Support Equipment Program								
	7,085	16,468	12,106	11,451	12,873	7,861	900	CONT.	CONT.
219	Submarine Sonar Improvement								
	27,440	29,060	33,562	34,306	38,750	35,518	35,271	CONT.	CONT.
742	Submarine Integrated Antenna Systems								
	4,406	17,070	11,251	3,276	4,383	8,130	9,214	CONT.	CONT.
411	Submarine Tactical Communications System								
	1,710	5,093	4,476	5,310	6,014	4,472	3,972	CONT.	CONT.
TAL	40,641	67,691	61,395	54,343	62,020	55,981	49,357	CONT.	CONT.

) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Submarine Support Equipment Program develops and improves bmarine Electronic Warfare Support Measures (ESM) techniques and components, equipment, and systems that will increase bmarine operational effectiveness in the increasingly dense and sophisticated electromagnetic environment caused by the roliferation of complex radar, communications, and navigation equipment of potential adversaries. Improvements are necessary r submarine ESM to be effective in conducting the following mission areas: Joint Littoral Warfare, Joint Surveillance, pace and Electronic Warfare and Intelligence Collection, Maritime Protection, and Joint Strike. The major efforts in this ea are the Engineering and Manufacturing Development (EMD) of the Integrated ESM Mast (IEM), and the Periscope Monopulse rection Finding (MDF) System for the Type 18 Periscope.

) The Submarine Sonar Improvement Program delivers block updates to Sonar Systems installed on SSN 688, 688I and TRIDENT ass Submarines. The goal is to maintain clear acoustic, tactical and operational superiority over submarine and surface mbatants in all scenarios through detection, classification, localization and contact following. Current developments are cused on supporting Littoral Warfare, Regional Sea Denial, Battle Group Support, Diesel Submarine Detection, Surveillance, d Peacetime Engagement.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

UDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604503N
PROGRAM ELEMENT TITLE: Submarine System Equipment Development

U) The Submarine Integrated Antenna Systems (SIAS) project develops the antennas needed to communicate in networks such as ltra High Frequency Satellite Communications, Extremely Low Frequency (ELF), Extremely High Frequency (EHF) and Global ositioning System. Hardware developments include: (a) mast-mounted systems; (b) buoyant cable systems; and (c) expendable uoy systems.

U) The Submarine Tactical Communications Systems project provides attack submarines with an exterior communications system hich: (a) minimizes the time required at communications depth; (b) enhances operability, reducing errors and manpower equirements; and (c) provides flexibility for low impact growth and change throughout the life of the submarine. Design fforts will provide increased antenna signal distribution and interconnection subsystems to accommodate ELF, EHF, and Mini-emand Assigned Multiple Access and a message storage and processing subsystem.

U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it ncompasses engineering and manufacturing development of new end-items prior to the production approval decision.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

UDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604503N
PROGRAM ELEMENT TITLE: Submarine System Equipment Development

U) COST (Dollars in thousands)

ROJECT UMBER & ITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
0775 Submarine Support Equipment Program	7,085	16,468	12,106	11,451	12,873	7,861	900	CONT.	CONT.

. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program develops and improves techniques and components, quipment, and systems that will increase submarine operational effectiveness in the increasingly dense and sophisticated lectromagnetic environment caused by the proliferation of complex radar, communications, and navigation equipment of otential adversaries. Improvements are necessary for Submarine ESM to be effective in conducting the following mission reas: Joint Littoral Warfare; Joint Surveillance, Space and Electronic Warfare and Intelligence Collection; Maritime rotection; and Joint Strike. Specific efforts include development of the: (1) IEM that replaces the AN/BRD-7 and AN/BLD-1 ntenna on SSN 688 Class Submarines, SSN 21 Class Submarines and is required for the New Attack Submarine; and (2) the eriscope Monopulse DF (MDF) System for the Type 18 Periscope.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($3,623) Completed the IEM Preliminary Design Review.
- (U) ($2,500) Procured non-developmental and long lead items for the IEM radar signals subsystem.
- (U) ($ 227) Completed IEM and High Probability of Intercept (HPI) interface Software Specification Reviews.
- (U) ($ 100) Procured HPI modification long lead items.
- (U) ($ 635) Completed HPI interface System Requirements/System Design Review.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

UDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604503N PROGRAM ELEMENT TITLE: Submarine System Equipment Development PROJECT NUMBER: F0775 PROJECT TITLE: Submarine Support Equipment Program

2. (U) FY 1996 PLAN:

- (U) ($6,584) Complete Critical Design Review of the IEM System and HPI modification kit. Begin fabrication of IEM Engineering Development Models (EDM).
- (U) ($ 800) Complete underwater explosion shock tests on a mechanical model of the IEM.
- (U) ($7,848) Manufacture and test printed circuit modules and enclosures. Assemble field change kits/HPI modification kits.
- (U) ($ 800) Initiate system level testing of IEM.
- (U) ($ 100) Initiate fabrication of HPI Interface modifications.
- (U) ($ 336) Portion of extramural program reserved for Small Business Innovation Research (SBIR) assessment. in accordance with 15 U.S.C.638.

3. (U) FY 1997 PLAN:

- (U) ($2,500) Design and manufacture environmental test fixtures. Perform environmental tests on IEM.
- (U) ($2,873) Continue fabrication of IEM EDMs and conduct system performance tests.
- (U) ($1,000) Perform software module tests.
- (U) ($2,881) Complete system integration of IEM EDM 1.
- (U) ($2,852) Integrate IEM with host ESM system. Complete technical documentation, perform reliability/maintainability tests and correct design deficiencies.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604503N PROGRAM ELEMENT TITLE: Submarine System Equipment Development PROJECT NUMBER: F0775 PROJECT TITLE: Submarine Support Equipment Program

(U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	7,085	17,084	17,268
(U) Adjustments from PRESBUDG:	0	-616	-5,162
(U) FY 1997 PRESBUDG Submit:	7,085	16,468	12,106

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY96 decrease of $616K is a result of DBOF, FFRDC, inflation and other adjustments. The FY97 decrease of $5,162K is a result of the restructuring of the IEM and Periscope MDF programs during PR97 ($4,616K) and DBOF, inflation and other adjustments ($546K). The reduction associated with the IEM and Periscope MDF program restructuring was restored in the outyears.

(U) Schedule: Completion of fabrication and testing of the IEM EDM-2 will be delayed approximately 4 months, initially allowing only one EDM for IEM/ESM software and hardware integration (i.e., both software and hardware integration will have to be performed on a single EDM). Initiation of Periscope MDF EMD, originally budgeted in FY97, has been moved to FY98, thus delaying its Initial Operating Capability one year.

(U) Technical: Since IEM will be Government Furnished Equipment to the Advanced Submarine Tactical ESM Combat System, (ASTECS) this will add some technical risk to both the IEM and ASTECS programs.

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

UDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604503N PROGRAM ELEMENT TITLE: Submarine System Equipment Development PROJECT NUMBER: F0775 PROJECT TITLE: Submarine Support Equipment Program

(U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN LINE 256000	0	0	0	0	0	6,461	18,514	CONT.	CONT.
(U) OPN LINE 256005	0	0	0	0	0	0	748	CONT.	CONT.

(U) RELATED RDT&E:

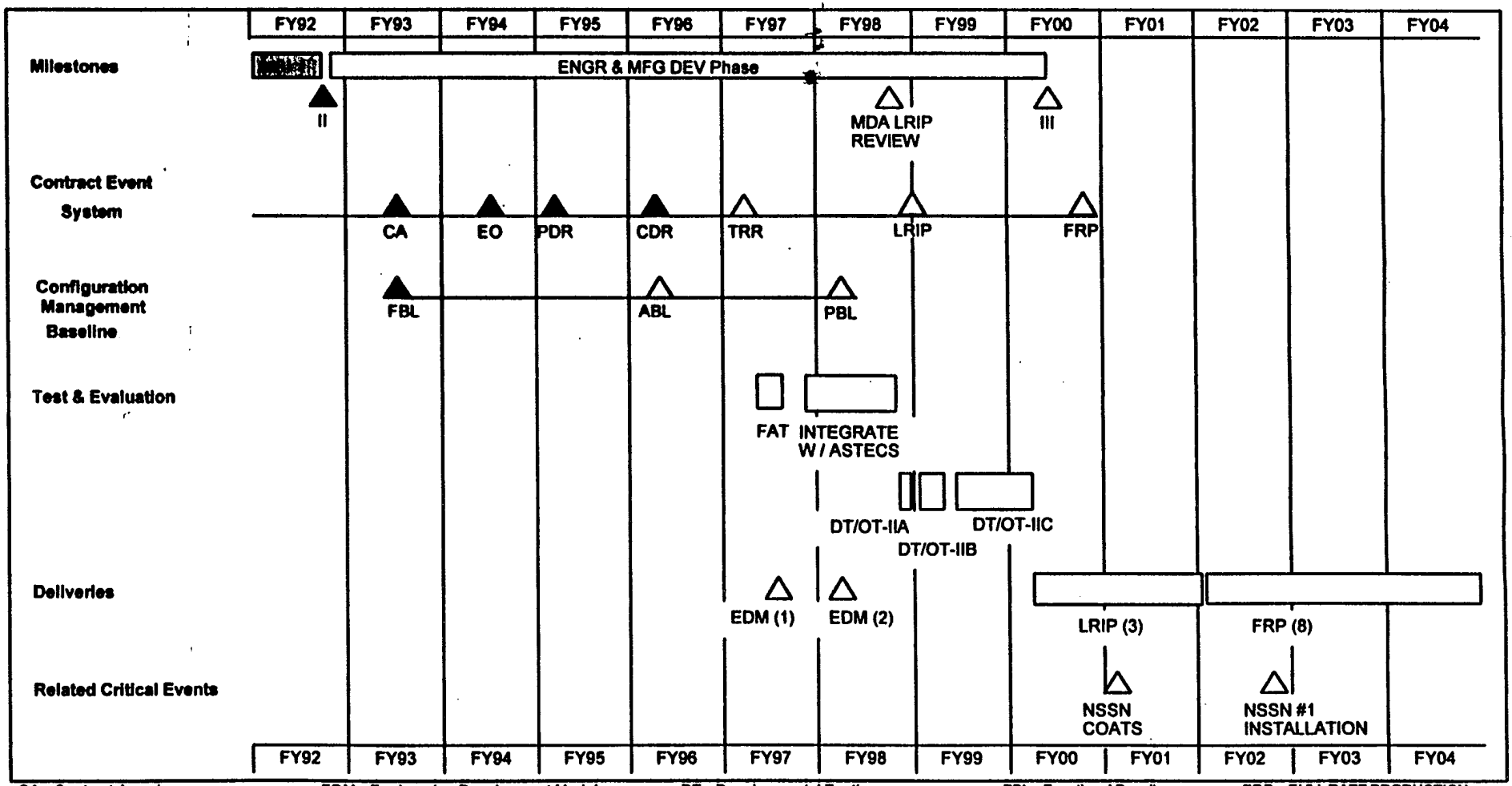
(U) PE 0603562N (Submarine Tactical Warfare System)
(U) PE 0604558N (New SSN Combat Systems Development)

(U) SCHEDULE PROFILE: See attached.

P.E. 0604503N/F0775

IEM PROGRAM SCHEDULE

UNCLASSIFIED



CA - Contract Award
ASR - Acquisition Strategy Report
PDR - Preliminary Design Review

EDM - Engineering Development Model
TRR - Test Readiness Review
CDR - Critical Design Review

DT - Developmental Testing
OT - Operational Testing
LRIP - Limited Rate Initial Production

FBL - Functional Baseline
ABL - Allocated Baseline
PBL - Product Baseline

FRP - FULL RATE PRODUCTION

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

UDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604503N
PROGRAM ELEMENT TITLE: Submarine System Equipment Development

PROJECT NUMBER: F0775
PROJECT TITLE: Submarine Support Equipment Program

(U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Prime Hardware	2,855	8,283	7,022
b. Software Development	1,453	2,854	1,315
c. Engineering Support	1,600	2,382	2,399
d. Miscellaneous	1,177	2,613	1,370
e. SBIR Assessment	0	336	0
Total	7,085	16,468	12,106

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

UDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604503N PROJECT NUMBER: F0775
PROGRAM ELEMENT TITLE: Submarine System Equipment Development PROJECT TITLE: Submarine Support Equipment Program

. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

ERFORMING ORGANIZATIONS

ontractor/ overnment erforming ctivity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
roduct Development										
IEM ADSU EMD Contract										
Raytheon oleta, CA.	C/CPIF/CPAF	4/93	42,487	42,487	20,538	3,800	9,013	6,954	CONT.	CONT.
IEM/HPI Interface Contract										
T Research ewington, VA.	SS/CPIF	8/94	4,241	4,241	1,533	300	1,309	1,100	CONT.	CONT.
IEM Technical Support Contract										
Raytheon oleta, CA.	SS/CPFF	4/96	TBD	TBD	0	195	200	900	CONT.	CONT.
IEM BDE										
ockheed Martin yracuse, NY	C/CPAF	4/96	TBD	TBD	0	0	3,000	1,000	CONT.	CONT.
Periscope MDF EDM contract										
TBD	C/CPIF	10/97	TBD	TBD	0	0	0	0	CONT.	CONT.
Miscellaneous					6,904	1,561	1,032	652	CONT.	CONT.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

UDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604503N PROGRAM ELEMENT TITLE: Submarine System Equipment Development PROJECT NUMBER: F0775 PROJECT TITLE: Submarine Support Equipment Program

. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

ERFORMING ORGANIZATIONS

ontractor/ overnment erforming ctivity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
upport and Management										
Miscellaneous					4,404	900	1,059	800	CONT.	CONT.
est and Evaluation										
Miscellaneous					4,781	329	855	700	CONT.	CONT.
OVERNMENT FURNISHED PROPERTY: Not applicable.										
ubtotal Product Development					28,975	5,856	14,554	10,606	CONT.	CONT.
ubtotal Support and Management					4,404	900	1,059	800	CONT.	CONT.
ubtotal Test and Evaluation					4,781	329	855	700	CONT.	CONT.
otal Project					38,160	7,085	16,468	12,106	CONT.	CONT.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

DGET ACTIVITY: 5 PROGRAM ELEMENT: 0604503N
PROGRAM ELEMENT TITLE: Submarine System Equipment Development

) COST (Dollars in thousands)

OJECT MBER & TLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
9219 Submarine Sonar Improvement (Eng)	27,440	29,060	33,562	34,306	38,750	35,518	35,271	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program delivers block updates to Sonar Systems installed on SN 688, 688I and TRIDENT Class Submarines. The goal is to maintain clear acoustical, tactical and operational superiority ver submarine and surface combatants in all scenarios through detection, classification, localization and contact following. urrent developments, detailed below, are focused on supporting Littoral Warfare, Regional Sea Denial, Battle Group Support, iesel Submarine Detection, Surveillance, and Peacetime Engagement. OPEVAL for AN/BQQ-5E and the TB-29 Array will complete in Y 1996; these will provide quantum improvements in long-range detection and localization for SSN 688 and TRIDENT Class ubmarines. Engineering Change Proposal (ECP) 7001 to AN/BQQ-5E will provide Low Frequency Active Interference Rejection, ual Towed Array Processing and Full Spectrum Processing to SSN 688 and TRIDENT Class Submarines. The Onboard Trainer is eing developed to provide pierside and at-sea operational and team training to improve operator efficiency. ECP 1000 to N/BSY-1 will incorporate AN/BQQ-5E and TB-29 capabilities, including those of AN/BQQ-5E ECP 7001. A Rapid Commercial-off-he-shelf Insertion (RCI) of a partial AN/BSY-1 ECP 1000 system will provide the capability for early assessment of N/BSY-1 ECP 1000 performance enhancement. Towed array development will focus on (a) tow cable improvements for shallow ater towing; (b) reliability improvements for couplings, connectors, strength members and hoses for all module types; and c) hydrophone and telemetry cost reduction alternatives.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

UDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604503N PROJECT NUMBER: S0219
PROGRAM ELEMENT TITLE: Submarine System Equipment Development PROJECT TITLE: Sub Sonar Imp (Eng)

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($5,433) Continued development of AN/BQQ-5E ECP 7001.
- (U) ($4,359) Continued development of Onboard Trainer.
- (U) ($7,500) Obtained MS II approval for AN/BSY-1 ECP 1000 (Dec 1994); Awarded development contract (Jan 1995).
- (U) ($2,948) Completed development of TB-29 Array.
- (U) ($3,200) Continued development for Probe Alert and Desk Top Calculator (DTC) Improvements. Completed development of the Acoustic Measurement Facility Improvement Program (AMFIP).
- (U) ($4,000) Initiated design efforts for a High Frequency (HF)/Rapid Localization Towed Array, Handling System Hydraulic Components, and Advanced Shallow-water Tow Cables.

2. (U) FY 1996 PLAN:

- (U) ($1,000) Obtain MS III approval for TB-29 and AN/BQQ-5E.
- (U) ($2,621) Complete development of AN/BQQ-5E ECP 7001.
- (U) ($15,482) Continue development of AN/BSY-1 ECP 1000.
- (U) ($6,800) Continue towed array development efforts to include initial at-sea testing and demonstrations of towed array/handling system improvements. Initiate technical demonstration efforts for designs prior to resuming TB-29 production.
- (U) ($569) Complete development of Onboard Trainer.
- (U) ($900) Continue development for Probe Alert and DTC Improvements.
- (U) ($1,150) Initiate AN/BSY-1 HF Upgrade program and complete Cost and Operational Effectiveness Analysis (COEA).

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 199(

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604503N PROJECT NUMBER: S0219
PROGRAM ELEMENT TITLE: Submarine System Equipment Development PROJECT TITLE: Sub Sonar Imp (Eng)

- (U) ($538) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($16,733) Continue development of AN/BSY-1 ECP 1000. Conduct Critical Design Review (CDR).
- (U) ($8,400) Continue towed array development efforts. Conduct at-sea testing of improved towed array hardware. Continue technical demonstration efforts.
- (U) ($2,079) Transition 6.3 development efforts of Medium Frequency Active Improvements to Engineering and Manufacturing Development.
- (U) ($1,200) Continue development for Probe Alert and DTC Improvements.
- (U) ($5,150) Obtain MS II approval and award AN/BSY-1 HF Upgrade development contract.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	27,306	30,162	41,957
(U) Adjustments from PRESBUDG:	+134	-1,102	-8,395
(U) FY 1997 PRESBUDG Submit:	27,440	29,060	33,562

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995 increased to complete TB-29 development. FY 1996 decrements of $1,102K are a result of undistributed Congressional reductions and revised DoD inflation rates. FY 1997 reduced $7,028K delaying AN/BSY-1 ECP 1000 development due to funding constraints, and $1,367K is for revised inflation estimates and other minor pricing adjustments.

(U) Schedule: Schedule changes resulted from delays in completing DT II M testing for AN/BQQ-5E and TB-29. FY 1996 reduction will delay ECP 1000 development by approximately 1 month. FY 1997 reduction will delay ECP 1000 by one additional month.

(U) Technical: Increases risk in ECP 1000 test and integration efforts.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604503N
PROGRAM ELEMENT TITLE: Submarine System Equipment Development

PROJECT NUMBER: S0219
PROJECT TITLE: Sub Sonar Imp (Eng)

(U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

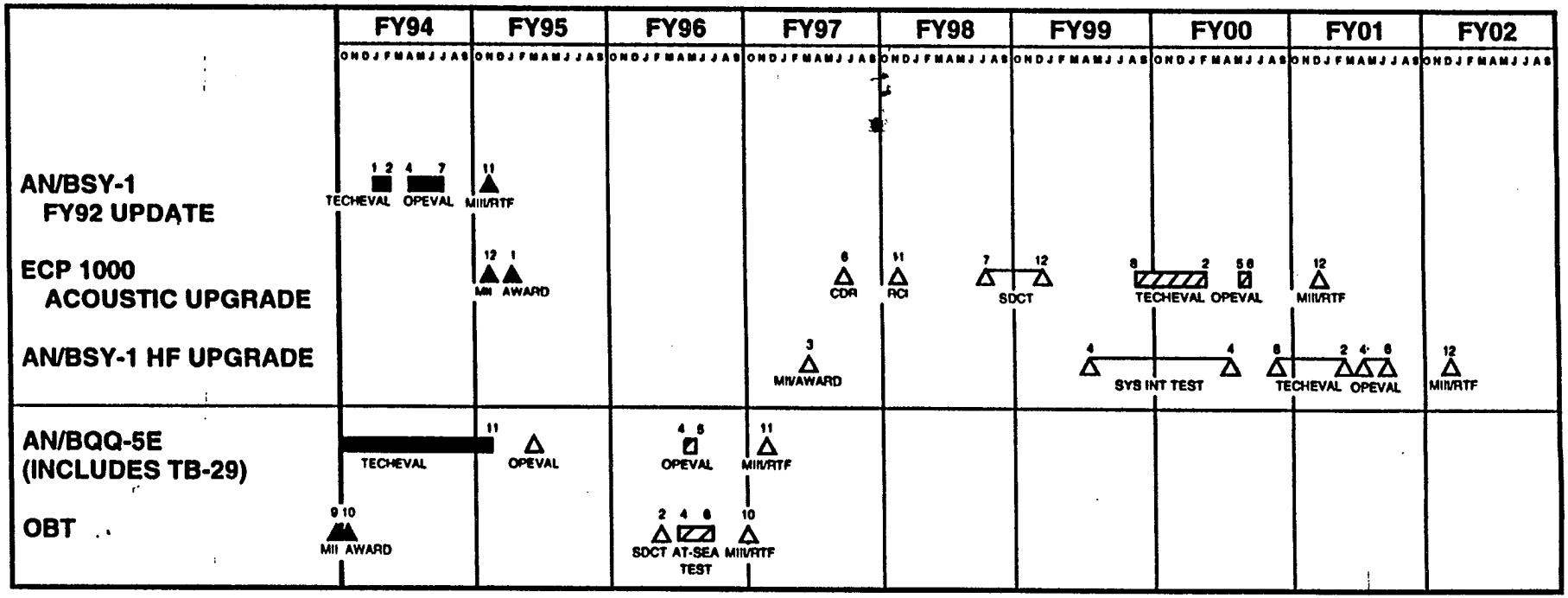
	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN Line 21470	55,882	40,925	44,134	57,216	85,175	107,157	116,636	CONT.	CONT.

(U) RELATED RDT&E:

(U) PE 0604524N (Submarine Combat System)
(U) PE 0604558N (New Design SSN Development)
(U) PE 0604561N (SSN-21 Development)
(U) PE 0604562N (Submarine Tactical Warfare System (ENG))

(U) SCHEDULE PROFILE: See attached.

PMS425 ACQUISITION PROGRAM MAJOR EVENTS



FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604503N PROJECT NUMBER: S0219
PROGRAM ELEMENT TITLE: Submarine System Equipment Development PROJECT TITLE: Sub Sonar Imp (Eng)

(U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Primary Hardware Development	16,164	21,329	25,751
b. Systems Engineering	9,392	5,574	5,685
c. Program Management Support	600	628	642
d. Test & Evaluation	0	0	0
e. Travel	150	120	120
f. Miscellaneous	834	1,409	1,364
Total	27,440	29,060	33,562

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

UDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604503N PROJECT NUMBER: S0219
PROGRAM ELEMENT TITLE: Submarine System Equipment Development PROJECT TITLE: Sub Sonar Imp (Eng)

. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

ERFORMING ORGANIZATIONS

ontractor/ overnment erforming ctivity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
roduct Development										
oral anassas, VA	SS/CPAF	8/93	25,673	25,673	18,035	3,597	4,041	0	0	25,673
artin Marietta len Burnie, MD	C/CPIF	6/90	77,600	77,600	75,600	2,000	0	0	0	77,600
oral anassas, VA	SS/CPAF	1/95	75,321	75,321	0	6,000	13,921	13,343	CONT.	CONT.
oral anassas, VA	C/CPIF	10/93	8,148	8,148	3,120	4,159	869	0	0	8,148
arious	Various	12/95	83,934	83,934	0	0	3,600	12,063	CONT.	CONT.
AVUNSEAWARCEN ewport, RI	WR	Various	74,926	74,926	30,011	7,915	4,396	5,685	CONT.	CONT.
AVSURFWARCEN arderock, MD	WR	12/94	11,850	11,850	9,550	2,300	0	0	0	11,850
iscellaneous	WR	12/94	18,311	18,311	7,537	869	1,605	1,829	CONT.	CONT.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

UDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604503N PROJECT NUMBER: S0219
PROGRAM ELEMENT TITLE: Submarine System Equipment Development PROJECT TITLE: Sub Sonar Imp (Eng)

ontractor/ overnment erforming ctivity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
upport and Management										
iscellaneous					2,995	600	628	642	CONT.	CONT.
est and Evaluation										
iscellaneous					1,746	0	0	0	CONT.	CONT.

OVERNMENT FURNISHED PROPERTY: Not applicable.

ubtotal Product Development	143,853	26,840	28,432	32,920	CONT.	CONT.
ubtotal Support and Management	2,995	600	628	642	CONT.	CONT.
ubtotal Test and Evaluation	1,746	0	0	0	CONT.	CONT.
otal Project	148,594	27,440	29,060	33,562	CONT.	CONT.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604503N
PROGRAM ELEMENT TITLE: Submarine System Equipment Development

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TOTAL COMPLETE	PROGRAM
X0742 Submarine Integrated Antenna Systems	4,406	17,070	11,251	3,276	4,383	8,130	9,214	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Submarine Integrated Antenna System (SIAS) project provides submarines with antenna systems designed to: (a) permit greater operational flexibility through improved speed/depth performance; (b) improve reliability and availability; and (c) be compatible with existing and emerging communications systems. This project funds research and development for the communications Master Plan (Program Summary). It specifically funds the following developments: Improved AN/BRA-34, High Speed Buoyant Cable Antennas (HSBCAs), Antenna Distribution Systems (ADSs), High Data Rate Antennas (HDA), Super High Frequency (SHF), Conformal Array Antennas (CAAs).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($10) Completed MS IV for HSBCA 2nd Qtr.
- (U) ($2,462) Analyzed the effects of Communications Support System/Tactical Data Information Exchange Subsystem (CSS/TADIXS) Radio Room (RR) on antennas and develop necessary changes to ensure compatibility.
- (U) ($666) Conducted first article testing and prepare for DT-II for AN/BST-1 Upgrade.
- (U) ($768) Conducted DT-IIA and continue engineering efforts for the Improved AN/BRA-34.
- (U) ($500) Prepared for deployment of prototype ADS, conducted DT and continued engineering efforts required to upgrade the prototype from version "0" to version 1/2.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604503N PROJECT NUMBER: X0742
PROGRAM ELEMENT TITLE: Submarine System Equipment Development PROJECT TITLE: Submarine Integrated Antenna System

2. (U) FY 1996 PLAN:

- (U) ($700) CSS Antenna Improvements - Develop changes resulting from analysis.
- (U) ($1660) AN/BRA-34 - Conduct DTIIB AND OT, Conduct MS III review.
- (U) ($13,238) HDA - Finalize specifications for the EHF/SHF Antenna System and award contract to procure EMD industry dual band systems.
- (U) ($1,300) ADS - Continue with functional upgrades in support of CSS/TADIXS improvements.
- (U) ($172) Portion of extramural program reserved for Small Business Innovative Research assessment in accordance with 15 U.S.C. 638

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604503N PROJECT NUMBER: X0742
PROGRAM ELEMENT TITLE: Submarine System Equipment Development PROJECT TITLE: Submarine Integrated Antenna System

3. (U) FY 1997 PLAN:

- (U) ($8,133) HDA- Continue to manage Rapid Prototype(RP) contracts and conduct DT/OT. Downselect to one contract, conduct MS review and prepare for production.
- (U) ($2,000) ADS - Complete full functional development and prepare for MS III.
- (U) ($1,118) Analyze and prepare necessary changes from Antenna CSS/TADIXS Shipboard Automated Communications Control System (SACCS) compatibility. Investigate feasibility of including Global Broadcast System (GBS) into HDA System.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/97 President's Budget:	4,406	17,796	15,685
(U) Adjustments from PRESBUDG:	0	-726	-4,434
(U) FY 1997 President's Budget Submit:	4,406	17,070	11,251

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 96 decreased -$726K; reflects undistributed Congressional cuts of -$520K and revised DOD inflation rates of $-206K. FY 97 decreased $4,434K; -$3,952K reflects the Navy decision to transition/merger of the EHF-NPM program into the HDA program and thus reducing the over program budget requirements, -$128K for DBOP rate adjustment, a DOD escalation adjustment of -$342, DOD execution adjustment at -$12K.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604503N PROGRAM ELEMENT TITLE: Submarine System Equipment Development PROJECT NUMBER: X0742 PROJECT TITLE: Submarine Integrated Antenna System

(U) Schedule: EHF NPM cancelled. ADS MS III slipped to 4Q FY 97; added 3Q FY97 ADS OTII; added MSII & MSIII for HDA; contract for HDA RP slipped to 3Q FY96; DTIIB slipped to 2Q FY96 for I-BRA-34; AN/BST-1 program upgrade put on hold indefinitely per OPNAV instruction.

(U) Technical: Not applicable

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
OPN Line 313000 (partial)	2,718	1,873	8,092	22,519	33,416	34,315	39,701	CONT.	CONT.

(U) RELATED RDT&E: (U) PE 0602232N (Space and Electronic Warfare (SEW) Technology) - Provides input to this program.
(U) PE 0303109N (Satellite Communications) - Provides for the EHF transmitter and receiver that utilizes the antenna developed under this program.

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	2Q HSBCA MS III	4Q I-BRA-34 MS III 3Q HDA MS II	4Q ADS MS III 4Q HDA MS III	CONT
Engineering Milestones				CONT
T&E Milestones	4Q ADS DT II 2Q I-BRA-34 DT IIA	2Q I-BRA-34 DT IIB 2Q I-BRA-34 OT	2Q HDA DT II 3Q HDA OT II 3Q ADS OT II	CONT
Contract Milestones		3Q HDA RP		CONT

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604503N
PROGRAM ELEMENT TITLE: Submarine System Equipment Development
PROJECT NUMBER: X0742
PROJECT TITLE: Submarine Integrated Antenna System

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Project Management	260	1,500	1,445
b. Systems Engineering	332	500	500
c. Software Development	250	500	750
d. Hardware Development	1,970	12,345	6,556
e. System Test & Evaluation	1,434	1,200	1,100
f. Integrated Logistic Support	100	600	500
g. Site/Platform Integration	60	425	400
Total	4,406	17,070	11,251

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604503N
PROGRAM ELEMENT TITLE: Submarine System Equipment Development

PROJECT NUMBER: X0742
PROJECT TITLE: Submarine Integrated Antenna System

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
AMERIND Alexandria, VA (AN/BST-1)	CP	9/91	8,028	8,028	7,928	100	0	0	0	8,028
RAYTHEON Newport, RI (EHF-NPM)	CP	3/94	1,050	1,050	1,050	0	0	0	0	1,050
TBD (HDA)	TBD	TBD	TBD	TBD	0	0	8,072	7,000	CONT.	CONT.
Miscellaneous Contractors					793	275	377	300	CONT.	CONT.
NAVUNSEAWARCEN New London, CT	WX	10/93	CONT.	CONT.	5,678	3,417	6,821	1,851	CONT.	CONT.
Miscellaneous Labs	WX	10/93	CONT.	CONT.	3,189	414	1,600	1,900	CONT.	CONT.
Support and Management										
ACS	CPFF	10/93	CONT.	CONT.	150	200	200	200	CONT.	CONT.

Test and Evaluation - Not applicable.

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604503N
PROGRAM ELEMENT TITLE: Submarine System Equipment Development

PROJECT NUMBER: X0742
PROJECT TITLE: Submarine Integrated Antenna System

GOVERNMENT FURNISHED PROPERTY - Not applicable.

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	18,638	4,206	16,870	11,051	CONT.	CONT.
Subtotal Support and Management	150	200	200	200	CONT.	CONT.
Subtotal Test and Evaluation	0	0	0	0	CONT.	CONT.
Total Project	18,788	4,406	17,070	11,251	CONT.	CONT.

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604503N
PROGRAM ELEMENT TITLE: Submarine System Equipment Development

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2001 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X1411 Submarine Tactical Communications System	1,710	5,093	4,476	5,310	6,014	4,472	3,972	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Submarine Tactical Communications System project provides attack submarines with communications systems designed to: (a) enhance data throughput through automation and integrated network management; (b) copy tactical data networks, such as Tactical Data Information Exchange System (TADIXS); (c) be interoperable with other U.S. and allied military networks; and (d) improve reliability, maintainability, and availability. This can be accomplished by providing the attack submarine with a properly integrated mix of Navy standard communication equipment covering a wide range of frequencies and modes. Included in this project is the Submarine Communications Support System (SCSS) which provides a system engineering approach for the design and evaluation of new and existing submarine radio rooms. In addition, the project provides support for the Land-Based Submarine Radio Room (LBSRR) for new systems evaluation and integration. The project includes system engineering efforts associated with demonstration of new technology which will allow the submarine to be a participant in battle group and joint operations. The new technology will increase the submarine's communications, command, and control capability. This project funds research for equipment in the OPNAV approved SCSS Program Summary. It specifically funds the development of the improved Submarine Message Buffer (SMB) and SCSS. These two efforts will develop the computer controlled radio room for submarines. The CSS is envisioned to be the communications architecture of the Navy's future. Ships without CSS capability will be limited in their interoperability with the rest of the Navy. Lastly, this program provides funds to integrate Joint Tactical Information Distribution System (JTIDS) into the CSS.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($1,017) Continued evaluation of radio room miniaturization, integration, and automation systems and candidate equipments for new radio rooms.
- (U) ($163) Continued SCSS engineering development efforts.
- (U) ($530) Continued SMB P'I efforts.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604503N PROGRAM ELEMENT TITLE: Submarine System Equipment Development PROJECT NUMBER: X1411 PROJECT TITLE: Submarine Tactical Communications System

2. (U) FY 1996 PLAN:

- (U) ($1,936) Continue improved SMB P'I development and begin testing.
- (U) ($1,912) Continue development of the Phase I CSS implementation.
- (U) ($761) Begin development of the component portion of the Hi Data Rate System.
- (U) ($410) Start Link 16 JTIDS integration with SCSS.
- (U) ($74) Portion of extramural program reserved for Small Business Innovative Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($950) Complete DT/Operational Testing (OT) testing of ISMB.
- (U) ($275) Continue development of the Hi Data Rate System.
- (U) ($1,900) Complete CSS Phase I Integration.
- (U) ($450) Continue Integration and developmental testing for JTIDS.
- (U) ($901) Systems engineering for SCSS on TRIDENT IRR.

RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604503N
PROGRAM ELEMENT TITLE: Submarine System Equipment Development

PROJECT NUMBER: X1411
PROJECT TITLE: Submarine Tactical Communications System

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/97 President's Budget:	1,710	5,273	4,627
(U) Adjustments from PRESBUDG:	0	-180	-151
(U) FY 1997 President's Budget Submit:	1,710	5,093	4,476

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 96 decreased by $180K; -$119K for undistributed Congressional reduction, and -$61K for revised DOD inflation rates. FY97 decreased ~~of~~ -$151 for revised inflation estimates and other minor pricing adjustments.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

000269

RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604503N PROGRAM ELEMENT TITLE: Submarine System Equipment Development PROJECT NUMBER: X1411 PROJECT TITLE: Submarine Tactical Communications System

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
OPN Line 313000 (partial)	13,494	15,532	21,338	19,402	19,612	10,710	25,586	CONT.	CONT.

(U) RELATED RDT&E:
(U) PE 0204163N (Fleet Communications)
(U) PE 0602232N (Space & Electronic Warfare (SEW) Technology)

D. (U) SCHEDULE PROFILE: Not Applicable.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: MARCH 1996

BUDGET ACTIVITY: 5
PROGRAM ELEMENT: 0604503N
PROGRAM ELEMENT TITLE: Submarine System Equipment Development
PROJECT NUMBER: X1411
PROJECT TITLE: Submarine Tactical Communications System

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Project Management	360	798	720
b. Systems Engineering	163	616	901
c. Software Development	1,005	2,433	1,800
d. Hardware Development	182	1,246	1,055
Total	1,710	5,093	4,476

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604503N PROGRAM ELEMENT TITLE: Submarine System Equipment Development

PROJECT NUMBER: X1411 PROJECT TITLE: Submarine Tactical Communications System

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
NCCOSC San Diego, CA	WX	10/93	N/A	N/A	1,376	1,710	2,686	2,093	CONT.	CONT.
NAVUNSEAWARFCEN New London, CT	WX	10/93	N/A	N/A	1,550	0	1,507	1,623	CONT.	CONT.
Miscellaneous	WX	10/93	N/A	N/A	299	0	500	350	CONT.	CONT.
Support and Management										
ACS	CPFF	MISC	TBD	TBD	0	0	400	410	CONT.	CONT.

Test and Evaluation: Not applicable.

GOVERNMENT FURNISHED PROPERTY: Not Applicable

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604503N
PROGRAM ELEMENT TITLE: Submarine System Equipment Development

PROJECT NUMBER: X1411
PROJECT TITLE: Submarine Tactical Communications System

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	3,225	1,710	4,693	4,066	CONT	CONT
Subtotal Support and Management	0	0	400	410	CONT	CONT
Subtotal Test and Evaluation	0	0	0	0	0	0
Total Project	3,225	1,710	5,093	4,476	CONT	CONT

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT:0604504N
PROGRAM ELEMENT TITLE:Air Control (Eng)

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
W0993	Carrier Air Traffic Control								
	2,193	4,066	6,117	6,867	1,997	1,883	1,918	CONT.	CONT.
W1657	Air Traffic Control (ATC) Improvements								
	4,123	2,136	3,373	1,333	2,871	3,350	3,638	CONT.	CONT.
X0718	Marine Air Traffic Control Automatic Landing System (MATCALS)								
	1,525	1,375	1,260	1,286	1,637	1,640	3,145	CONT.	CONT.
TOTAL	7,841	7,577	10,750	9,486	6,505	6,873	8,701	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element provides for the development, integration, and testing of automated Air Traffic Control (ATC) hardware and software required to provide improved flight safety and more reliable all-weather ATC and landing capabilities ashore and afloat. Funded programs are required to upgrade or replace aging ATC and approach/landing equipment on aircraft, aircraft carriers, amphibious ships, Naval Air Stations, and Navy/Marine Corps tactical/expeditionary airfields and remote landing sites. Development of a Global Positioning System (GPS) data link is required to enable the transfer of precise positioning information between ships and aircraft.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604504N
PROGRAM ELEMENT TITLE: Air Control (Eng)

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
W0993 Carrier Air Traffic Control	2,193	4,066	6,117	6,867	1,997	1,883	1,918	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Shipboard Air Traffic Control Centers identify, marshal, and direct aircraft within 50 Nautical Miles (nm) to a ship's Automatic Carrier Landing System (ACLS) and Independent Landing Monitor (ILM). The ACLS and ILM then provide precise automatic control and verification of aircraft during their final approach and landing sequence. Due to the AN/SPN-46 radar's acquisition limitation in rain, a Moving Target Detection (MTD) capability is required. This technology is also being evaluated for use in the AN/SPN-43 search surveillance radar.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($1,500) Continued MTD engineering. Began initial testing/incorporation efforts.
- (U) ($120) Continued MTD for the AN/SPN-43 radar.
- (U) ($573) Provided engineering, test and evaluation, and project management support for MTD.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604504N PROGRAM ELEMENT TITLE: Air Control (Eng) PROJECT NUMBER: W0993 PROJECT TITLE: Carrier ATC

2. (U) FY 1996 PLAN:

- (U) ($3,216) Continue engineering development of MTD for AN/SPN-46(V) and begin Passive Point Development.
- (U) ($619) Provide engineering support, test, & evaluation and project management support for MTD and AN/SPN-46(V).
- (U) ($150) Continue development of MTD for AN/SPN-43 radar.
- (U) ($81) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638 (f)(1).

3. (U) FY 1997 PLAN:

- (U) ($2,295) Complete MTD development for AN/SPN-46(V) and AN/SPN-43(V).
- (U) ($760) Provide engineering support, test & evaluation and management support for MTD.
- (U) ($635) Continue Passive Point development.
- (U) ($2,257) Begin development effort to upgrade AN/SPN-42T systems.
- (U) ($170) Provide management support for the above efforts.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604504N
PROGRAM ELEMENT TITLE: Air Control (Eng)
PROJECT NUMBER: W0993
PROJECT TITLE: Carrier ATC

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	2,080	4195	6,470
(U) Adjustments from PRESBUDG:	+113	-129	-353
(U) FY 1997 President's Budget Submit:	2,193	4,066	6,117

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 95 increase of $113 thousand reflects an increase in program requirements. FY 96 decrease is due to Congressional undistributed general and inflation reductions (-$78 thousand); and revised DOD inflation rates and other minor pricing adjustments (-$51 thousand). FY 97 decrease is due to revised DOD inflation estimates and other minor pricing adjustments(-$353 thousand).

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN Automatic Carrier Landing System	12,501	6,431	15,990	12,894	12,590	12,281	12,415	CONT.	CONT.

000277

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604504N
PROGRAM ELEMENT TITLE: Air Control (Eng)

PROJECT NUMBER: W0993
PROJECT TITLE: CARRIER ATC

(U) RELATED RDT&E:

(U) PE 0603512N Carrier Systems Development
(U) PE 0604512N Shipboard Aviation Systems

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				
Engineering Milestones				Cont.
T&E Milestones	2Q-3Q MTD Testing	2Q-3Q MTD Testing	2Q-3Q MTD Testing	Cont.
Contract Milestones				Cont.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604504N
PROGRAM ELEMENT TITLE: Air Control (Eng)

PROJECT NUMBER: W0993
PROJECT TITLE: CARRIER ATC

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Primary Hardware Dev.	1,828	3,635	5,417
b. Systems Engineering Sup.	210	200	530
c. T & E Support	100	50	50
d. Project Management Sup.	50	80	100
e. Travel	5	20	20
f. SBIR Assessment	0	81	0
Total	2,193	4,066	6,117

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604504N
PROGRAM ELEMENT TITLE: Air Control (Eng)

PROJECT NUMBER: W0993
PROJECT TITLE: Carrier ATC

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Sierra Nevada Reno, NV	CPFF	5/93	11,174	11,174	3,476	1,828	3,635	2,235	0	11,174
Miscellaneous		Various	-	-	2,027	210	200	3,712	Cont.	Cont.
Support and Management										
Miscellaneous		Various	-	-	139	55	100	120	Cont.	Cont.
Test and Evaluation										
Miscellaneous		Various	-	-	385	100	50	50	Cont.	Cont.
SBIR Assessment					0	0	81	0	0	0

GOVERNMENT FURNISHED PROPERTY : Not applicable.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604504N
PROGRAM ELEMENT TITLE: Air Control (ENG)

PROJECT NUMBER: W0993
PROJECT TITLE: Carrier ATC

	*Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	5,503	2,038	3,835	5,947	Cont.	Cont.
Subtotal Support and Management	139	55	100	120	Cont.	Cont.
Subtotal Test and Evaluation	385	100	50	50	Cont.	Cont.
Subtotal SBIR Assessment	0	0	81	0	0	0
Total Project	6,027	2,193	4,066	6,117	Cont.	Cont.

*Total FY 94 & Prior includes FYs 93 & 92.

000281

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604504N
PROGRAM ELEMENT TITLE: Air Control (Eng)

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
W1657 ATC Improvements	4,123	2,136	3,373	1,333	2,871	3,350	3,638	Cont.	Cont.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program provides for engineering development, integration, adaptation, and testing of new and/or modernized real-time Air Traffic Control (ATC) systems, air navigational aids and landing systems, ATC communications systems i.e., Fleet Area Control and Surveillance Facility (FACSFAC) and Ranges that must be modified to ensure continued interoperability with the National Airspace System (NAS).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($1,105) Installed DOD Common Console Prototypes (DCC) at Marine Corps Air Station, Camp Pendleton for testing/validation.
- (U) ($950) Continued GPS/ATC Research and Development Analysis.
- (U) ($285) Continued FACSFAC upgrades.
- (U) ($1,783) Provided engineering, technical, test and evaluation, and program management support for projects.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604504N PROGRAM ELEMENT TITLE: Air Control (Eng) PROJECT NUMBER: W1657 PROJECT TITLE: ATC Improvements

2. (U) FY 1996 PLAN:

- (U) ($1,970) Continue GPS data link development efforts.
- (U) ($142) Provide in-house engineering support and program management support.
- (U) ($24) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638 (f)(1).

3. (U) FY 1997 PLAN:

- (U) ($3,259) Continue GPS data link efforts.
- (U) ($114) Provide in-house/program management support.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	4,236	2,203	979
(U) Adjustments from PRESBUDG:	-113	-67	+2,394
(U) FY 1997 President's Budget Submit:	4,123	2,136	3,373

(U) CHANGE SUMMARY EXPLANATION:
(U) Funding: FY 95 decrease of (-$113 thousand) reflects a decrease to program requirements. Defense Business Operating Fund adjustments (-$1,194 thousand); and miscellaneous economic program adjustments (-$112 thousand). FY 96 reductions are due to Congressional undistributed general and inflation reductions (-$41 thousand); and revised DOD inflation rates and other minor pricing reductions (-$26 thousand). The FY 97 increase of $3,690 thousand is for GPS data link development efforts. This increase is offset by revised DOD inflation estimates and other minor pricing adjustments (-$1,296 thousand).

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604504N PROJECT NUMBER: W1657
PROGRAM ELEMENT TITLE: Air Control (Eng) PROJECT TITLE: ATC Improvements

(U) Schedule: Not applicable.
(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN National Airspace Systems	-	13,186	40,017	39,329	40,042	107,129	239,703		

(U) RELATED RDT&E: Not applicable.

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				
Engineering Milestones				
T&E Milestones		2Q-4Q Test DCC/ GPS	1Q-2Q Evaluate DCC prototype	
Contract Milestones				

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604504N
PROGRAM ELEMENT TITLE: Air Control (Eng)

PROJECT NUMBER: W1657
PROJECT TITLE: ATC Improvements

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Primary Harware	155	-	-
b. Ancillary Hardware Dev	125	-	-
c. Software Dev	400	70	200
d. Systems Eng	2,429	1,832	2,970
e. Training Dev	144	50	50
f. ILS	54	25	40
g. T & E	611	50	60
h. Project Support	150	42	25
i. Travel	55	43	28
j. SBIR Assessment	0	24	0
Total	4,123	2,136	3,373

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604504N PROGRAM ELEMENT TITLE: Air Control (Eng) PROJECT NUMBER: W1657 PROJECT TITLE: ATC Improvements

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
NISE EAST DET St Inigoes	WX	Various	-	-	18,289	1,516	550	1,500	Cont.	Cont.
NISE EAST Charleston	WX	Various	-	-	1,912	913	780	200	Cont.	Cont.
NAWC Pax River	WX	Various	-	-	1,100	680	489	1,520	Cont.	Cont.
Miscellaneous	Various	Various	-	-	776	198	158	40	Cont.	Cont.
Management and Support										
Miscellaneous	Various	Various	-	-	2,113	205	85	53	Cont.	Cont.
Test and Evaluation										
Miscellaneous	Various	Various	-	-	1,300	611	50	60	Cont.	Cont.
SBIR Assessment					0	0	24	0		

GOVERNMENT FURNISHED PROPERTY: Not applicable.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5
PROGRAM ELEMENT: 0604504N
PROGRAM ELEMENT TITLE: Air Control (Eng)
PROJECT NUMBER: W1657
PROJECT TITLE: ATC Improvements

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	22,077	3,307	1,977	3,260	Cont.	Cont.
Subtotal Support and Management	2,113	205	85	53	Cont.	Cont.
Subtotal Test and Evaluation	1,300	611	50	60	Cont.	Cont.
Subtotal SBIR Assessment	0	0	24	0	0	0
Total Project	25,490	4,123	2,136	3,373	Cont.	Cont.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604504N PROJECT NUMBER: X0718
PROGRAM ELEMENT TITLE: Air Control PROJECT TITLE: Marine Air Traffic Control Automatic Landing System

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X0718 Marine Air Traffic Control Automatic Landing System (MATCALS)	1,525	1,375	1,260	1,286	1,637	1,640	3,145	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Provide for continued development, integration, and testing of hardware and software to meet requirements for all-weather operation and improved flight safety of Air Traffic Control and Automated Landing System (ALS) at Navy/Marine Corps expeditionary airfields.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($508) Develop, test, and begin certification of Version M software for increased automation for MATCALS control of fleet air.
- (U) ($53) Analyze and evaluate performance and safety improvements from applications of Differential Global Positioning Satellite data.
- (U) ($964) Develop, test and certify improvements in TADIL-B/C software to obtain improved flight safety and control of aircraft in tactical operations and Version M of the MATCALS Operational Software.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604504N PROJECT NUMBER: X0718
PROGRAM ELEMENT TITLE: Air Control PROJECT TITLE: Marine Air Traffic Control Automatic Landing System

2. (U) FY 1996 PLAN:

- (U) ($1,050) Develop, test and begin certification of Version N software enhancements, as an eventual replacement for the previous version of software, required to accommodate control of new and/or modernized Fleet aircraft.
- (U) ($300) Develop, test and begin certification of differential GPS approach and landing capability for Fleet aircraft using MATCALS.
- (U) ($25) Portion of program reserved for Small Business Research Assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($958) Complete development, testing and certification of Version N software enhancements required to accommodate control of new and/or modernized Fleet aircraft.
- (U) ($302) Complete development, testing and certification of Differential GPS approach and landing capability for Fleet aircraft using MATCALS.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604504N PROJECT NUMBER: X0718
PROGRAM ELEMENT TITLE: Air Control PROJECT TITLE: Marine Air Traffic Control Automatic Landing System

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	1,529	1,417	1,410
(U) Adjustments from PRESBUDG:	-4	-42	-150
(U) FY 1997 President's Budget Submit:	1,525	1,375	1,260

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 95 was decreased by (-$4 thousand) to reflect a reduction in program requirements. FY 96 was decreased due to Congressional undistributed general and inflation reduction (-$26 thousand); and revised DOD inflation rates and other minor pricing reductions (-$16 thousand). FY 97 was decreased due to revised DOD inflation estimates and other minor pricing adjustments (-$150 thousand).

(U) Schedule: No changes.

(U) Technical: No changes.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604504N PROJECT NUMBER: X0718
PROGRAM ELEMENT TITLE: Air Control PROJECT TITLE: Marine Air Traffic Control Automatic Landing System

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN BLI 2815	4,269	1,543	4,151	10,005	15,563	12,317	13,007	CONT.	CONT.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604504N PROJECT NUMBER: X0718
PROGRAM ELEMENT TITLE: Air Control PROJECT TITLE: Marine Air Traffic Control Automatic Landing System

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Software Development	1,174	1,050	938
b. Hardware Development	25	25	20
c. System Test & Evaluation	326	300	302
Total	1,525	1,375	1,260

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development	Various				3,280	1,199	1,075	958	CONT.	CONT.
Support and Management					0	0	0	0		
Test and Evaluation					373	326	300	302	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604504N PROJECT NUMBER: X0718
PROGRAM ELEMENT TITLE: Air Control PROJECT TITLE: Marine Air Traffic Control Automatic Landing System

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	3,280	1,199	1,075	958	CONT.	CONT.
Subtotal Support and Management	0	0	0	0		
Subtotal Test and Evaluation	373	326	300	302	CONT.	CONT.
Total Project	3,653	1,525	1,375	1,260	CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable

000294

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT:0604504N
PROGRAM ELEMENT TITLE:Air Control (Eng)

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
W0993 Carrier Air Traffic Control	2,193	4,066	6,117	6,867	1,997	1,883	1,918	CONT.	CONT.
W1657 Air Traffic Control (ATC) Improvements	4,123	2,136	3,373	1,333	2,871	3,350	3,638	CONT.	CONT.
X0718 Marine Air Traffic Control Automatic Landing System (MATCALS)	1,525	1,375	1,260	1,286	1,637	1,640	3,145	CONT.	CONT.
TOTAL	7,841	7,577	10,750	9,486	6,505	6,873	8,701	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element provides for the development, integration, and testing of automated Air Traffic Control (ATC) hardware and software required to provide improved flight safety and more reliable all-weather ATC and landing capabilities ashore and afloat. Funded programs are required to upgrade or replace aging ATC and approach/landing equipment on aircraft, aircraft carriers, amphibious ships, Naval Air Stations, and Navy/Marine Corps tactical/expeditionary airfields and remote landing sites. Development of a Global Positioning System (GPS) data link is required to enable the transfer of precise positioning information between ships and aircraft.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604504N
PROGRAM ELEMENT TITLE: Air Control (Eng)

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
W0993 Carrier Air Traffic Control	2,193	4,066	6,117	6,867	1,997	1,883	1,918	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Shipboard Air Traffic Control Centers identify, marshal, and direct aircraft within 50 Nautical Miles (nm) to a ship's Automatic Carrier Landing System (ACLS) and Independent Landing Monitor (ILM). The ACLS and ILM then provide precise automatic control and verification of aircraft during their final approach and landing sequence. Due to the AN/SPN-46 radar's acquisition limitation in rain, a Moving Target Detection (MTD) capability is required. This technology is also being evaluated for use in the AN/SPN-43 search surveillance radar.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($1,500) Continued MTD engineering. Began initial testing/incorporation efforts.
- (U) ($120) Continued MTD for the AN/SPN-43 radar.
- (U) ($573) Provided engineering, test and evaluation, and project management support for MTD.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604504N PROGRAM ELEMENT TITLE: Air Control (Eng) PROJECT NUMBER: W0993 PROJECT TITLE: Carrier ATC

2. (U) FY 1996 PLAN:

- (U) ($3,216) Continue engineering development of MTD for AN/SPN-46(V) and begin Passive Point Development.
- (U) ($619) Provide engineering support, test, & evaluation and project management support for MTD and AN/SPN-46(V).
- (U) ($150) Continue development of MTD for AN/SPN-43 radar.
- (U) ($81) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638 (f)(1).

3. (U) FY 1997 PLAN:

- (U) ($2,295) Complete MTD development for AN/SPN-46(V) and AN/SPN-43(V).
- (U) ($760) Provide engineering support, test & evaluation and management support for MTD.
- (U) ($635) Continue Passive Point development.
- (U) ($2,257) Begin development effort to upgrade AN/SPN-42T systems.
- (U) ($170) Provide management support for the above efforts.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604504N PROGRAM ELEMENT TITLE: Air Control (Eng) PROJECT NUMBER: W0993 PROJECT TITLE: Carrier ATC

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	2,080	4,195	6,470
(U) Adjustments from PRESBUDG:	+113	-129	-353
(U) FY 1997 President's Budget Submit:	2,193	4,066	6,117

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 95 increase of $113 thousand reflects an increase in program requirements. FY 96 decrease is due to Congressional undistributed general and inflation reductions (-$78 thousand); and revised DOD inflation rates and other minor pricing adjustments (-$51 thousand). FY 97 decrease is due to revised DOD inflation estimates and other minor pricing adjustments(-$353 thousand).

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN Automatic Carrier Landing System	12,501	6,431	15,990	12,894	12,590	12,281	12,415	CONT.	CONT.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604504N PROJECT NUMBER: W0993
PROGRAM ELEMENT TITLE: Air Control (Eng) PROJECT TITLE: CARRIER ATC

(U) RELATED RDT&E:

(U) PE 0603512N Carrier Systems Development
(U) PE 0604512N Shipboard Aviation Systems

D. (U) SCHEDULE.PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				
Engineering Milestones				Cont.
T&E Milestones	2Q-3Q MTD Testing	2Q-3Q MTD Testing	2Q-3Q MTD Testing	Cont.
Contract Milestones				Cont.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604504N PROJECT NUMBER: W0993
PROGRAM ELEMENT TITLE: Air Control (Eng) PROJECT TITLE: CARRIER ATC

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Primary Hardware Dev.	1,828	3,635	5,417
b. Systems Engineering Sup.	210	200	530
c. T & E Support	100	50	50
d. Project Management Sup.	50	80	100
e. Travel	5	20	20
f. SBIR Assessment	0	81	0
Total	2,193	4,066	6,117

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604504N
PROGRAM ELEMENT TITLE: Air Control (Eng)

PROJECT NUMBER: W0993
PROJECT TITLE: Carrier ATC

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Sierra Nevada Reno, NV	CPFF	5/93	11,174	11,174	3,476	1,828	3,635	2,235	0	11,174
Miscellaneous		Various	-	-	2,027	210	200	3,712	Cont.	Cont.
Support and Management										
Miscellaneous		Various	-	-	139	55	100	120	Cont.	Cont.
Test and Evaluation										
Miscellaneous		Various	-	-	385	100	50	50	Cont.	Cont.
SBIR Assessment					0	0	81	0	0	0

GOVERNMENT FURNISHED PROPERTY : Not applicable.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604504N
PROGRAM ELEMENT TITLE: Air Control (ENG)

PROJECT NUMBER: W0993
PROJECT TITLE: Carrier ATC

	*Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	5,503	2,038	3,835	5,947	Cont.	Cont.
Subtotal Support and Management	139	55	100	120	Cont.	Cont.
Subtotal Test and Evaluation	385	100	50	50	Cont.	Cont.
Subtotal SBIR Assessment	0	0	81	0	0	0
Total Project	6,027	2,193	4,066	6,117	Cont.	Cont.

*Total FY 94 & Prior includes FYs 93 & 92.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604504N
PROGRAM ELEMENT TITLE: Air Control (Eng)

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
W1657 ATC Improvements	4,123	2,136	3,373	1,333	2,871	3,350	3,638	Cont.	Cont.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program provides for engineering development, integration, adaptation, and testing of new and/or modernized real-time Air Traffic Control (ATC) systems, air navigational aids and landing systems, ATC communications systems i.e., Fleet Area Control and Surveillance Facility (FACSFAC) and Ranges that must be modified to ensure continued interoperability with the National Airspace System (NAS).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($1,105) Installed DOD Common Console Prototypes (DCC) at Marine Corps Air Station, Camp Pendleton for testing/validation.
- (U) ($950) Continued GPS/ATC Research and Development Analysis.
- (U) ($285) Continued FACSFAC upgrades.
- (U) ($1,783) Provided engineering, technical, test and evaluation, and program management support for projects.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604504N
PROGRAM ELEMENT TITLE: Air Control (Eng)

PROJECT NUMBER: W1657
PROJECT TITLE: ATC Improvements

2. (U) FY 1996 PLAN:

- (U) ($1,970) Continue GPS data link development efforts.
- (U) ($142) Provide in-house engineering support and program management support.
- (U) ($24) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638 (f)(1).

3. (U) FY 1997 PLAN:

- (U) ($3,259) Continue GPS data link efforts.
- (U) ($114) Provide in-house/program management support.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	4,236	2,203	979
(U) Adjustments from PRESBUDG:	-113	-67	+2,394
(U) FY 1997 President's Budget:	4,123	2,136	3,373

(U) CHANGE SUMMARY EXPLANATION:
(U) Funding: FY 95 decrease of (-$113 thousand) reflects a decrease to program requirements. FY 96 reductions are due to Congressional undistributed general and inflation reductions (-$41 thousand); and revised DOD inflation rates and other minor pricing reductions (-$26 thousand). The FY 97 increase of $3,690 thousand is for GPS data link development efforts. This increase is offset by revised DOD inflation estimates and other minor pricing adjustments (-$1,296 thousand).

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604504N PROJECT NUMBER: W1657
PROGRAM ELEMENT TITLE: Air Control (Eng) PROJECT TITLE: ATC Improvements

(U) Schedule: Not applicable.
(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN National Airspace Systems	-	13,186	40,017	39,329	40,042	107,129	239,703		

(U) RELATED RDT&E: Not applicable.

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				
Engineering Milestones				
T&E Milestones		2Q-4Q Test DCC/ GPS	1Q-2Q Evaluate DCC prototype	
Contract Milestones				

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5
PROGRAM ELEMENT: 0604504N
PROGRAM ELEMENT TITLE: Air Control (Eng)
PROJECT NUMBER: W1657
PROJECT TITLE: ATC Improvements

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Primary Harware	155	-	-
b. Ancillary Hardware Dev	125	-	-
c. Software Dev	400	70	200
d. Systems Eng	2,429	1,832	2,970
e. Training Dev	144	50	50
f. ILS	54	25	40
g. T & E	611	50	60
h. Project Support	150	42	25
i. Travel	55	43	28
j. SBIR Assessment	0	24	0
Total	4,123	2,136	3,373

000306

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604504N
PROGRAM ELEMENT TITLE: Air Control (Eng)

PROJECT NUMBER: W1657
PROJECT TITLE: ATC Improvements

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
NISE EAST DET St Inigoes	WX	Various	-	-	18,289	1,516	550	1,500	Cont.	Cont.
NISE EAST Charleston	WX	Various	-	-	1,912	913	780	200	Cont.	Cont.
NAWC Pax River	WX	Various	-	-	1,100	680	489	1,520	Cont.	Cont.
Miscellaneous	Various	Various	-	-	776	198	158	40	Cont.	Cont.
Management and Support										
Miscellaneous	Various	Various	-	-	2,113	205	85	53	Cont.	Cont.
Test and Evaluation										
Miscellaneous	Various	Various	-	-	1,300	611	50	60	Cont.	Cont.
SBIR Assessment					0	0	24	0		

GOVERNMENT FURNISHED PROPERTY: Not applicable.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604504N
PROGRAM ELEMENT TITLE: Air Control (Eng)

PROJECT NUMBER: W1657
PROJECT TITLE: ATC Improvements

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	22,077	3,307	1,977	3,260	Cont.	Cont.
Subtotal Support and Management	2,113	205	85	53	Cont.	Cont.
Subtotal Test and Evaluation	1,300	611	50	60	Cont.	Cont.
Subtotal SBIR Assessment	0	0	24	0	0	0
Total Project	25,490	4,123	2,136	3,373	Cont.	Cont.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604504N PROJECT NUMBER: X0718
PROGRAM ELEMENT TITLE: Air Control PROJECT TITLE: Marine Air Traffic Control Automatic Landing System

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X0718 Marine Air Traffic Control Automatic Landing System (MATCALS)	1,525	1,375	1,260	1,286	1,637	1,640	3,145	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Provide for continued development, integration, and testing of hardware and software to meet requirements for all-weather operation and improved flight safety of Air Traffic Control and Automated Landing System (ALS) at Navy/Marine Corps expeditionary airfields.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($508) Develop, test, and begin certification of Version M software for increased automation for MATCALS control of fleet air.
- (U) ($53) Analyze and evaluate performance and safety improvements from applications of Differential Global Positioning Satellite data.
- (U) ($964) Develop, test and certify improvements in TADIL-B/C software to obtain improved flight safety and control of aircraft in tactical operations and Version M of the MATCALS Operational Software.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604504N PROJECT NUMBER: X0718
PROGRAM ELEMENT TITLE: Air Control PROJECT TITLE: Marine Air Traffic Control Automatic Landing System

2. (U) FY 1996 PLAN:

- (U) ($1,050) Develop, test and begin certification of Version N software enhancements, as an eventual replacement for the previous version of software, required to accommodate control of new and/or modernized Fleet aircraft.
- (U) ($300) Develop, test and begin certification of differential GPS approach and landing capability for Fleet aircraft using MATCALS.
- (U) ($25) Portion of program reserved for Small Business Research Assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($958) Complete development, testing and certification of Version N software enhancements required to accommodate control of new and/or modernized Fleet aircraft.
- (U) ($302) Complete development, testing and certification of Differential GPS approach and landing capability for Fleet aircraft using MATCALS.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604504N PROJECT NUMBER: X0718
PROGRAM ELEMENT TITLE: Air Control PROJECT TITLE: Marine Air Traffic Control Automatic Landing System

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	1,529	1,417	1,410
(U) Adjustments from PRESBUDG:	-4	-42	-150
(U) FY 1997 President's Budget Submit:	1,525	1,375	1,260

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 95 was decreased by (-$4 thousand) to reflect a reduction in program requirements. FY 96 was decreased due to Congressional undistributed general and inflation reduction (-$26 thousand); and revised DOD inflation rates and other minor pricing reductions (-$16 thousand). FY 97 was decreased due to revised DOD inflation estimates and other minor pricing adjustments (-$150 thousand).

(U) Schedule: No changes.

(U) Technical: No changes.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604504N PROJECT NUMBER: X0718
PROGRAM ELEMENT TITLE: Air Control PROJECT TITLE: Marine Air Traffic Control Automatic Landing System

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN BLI 2815	4,269	1,543	4,151	10,005	15,563	12,317	13,007	CONT.	CONT.

000312

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604504N PROJECT NUMBER: X0718
PROGRAM ELEMENT TITLE: Air Control PROJECT TITLE: Marine Air Traffic Control Automatic Landing System

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Software Development	1,174	1,050	938
b. Hardware Development	25	25	20
c. System Test & Evaluation	326	300	302
Total	1,525	1,375	1,260

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development	Various				3,280	1,199	1,075	958	CONT.	CONT.
Support and Management					0	0	0	0		
Test and Evaluation					373	326	300	302	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604504N PROJECT NUMBER: X0718
PROGRAM ELEMENT TITLE: Air Control PROJECT TITLE: Marine Air Traffic Control Automatic Landing System

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	3,280	1,199	1,075	958	CONT.	CONT.
Subtotal Support and Management	0	0	0	0		
Subtotal Test and Evaluation	373	326	300	302	CONT.	CONT.
Total Project	3,653	1,525	1,375	1,260	CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604512N
PROGRAM ELEMENT TITLE: Shipboard Aviation Systems

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
W2232 CV Launch and Recovery Systems	1,910	10,988	6,571	9,331	11,254	11,273	11,504	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This Navy unique program addresses the Engineering and Manufacturing Development (E&MD) of all systems required to recover and launch Navy/Marine Corps aircraft (fixed wing, rotary wing and Vertical/Short Take-Off and Landing (VSTOL)) operating aboard aircraft carriers (CV/CVN), amphibious assault ships (LHA/LHD) and aviation facility ships. This program includes E&MD of:

- (U) The Improved Carrier Optical Landing System (ICOLS), which includes the Improved Fresnel Optical Landing System (IFLOLS) and the Long Range Line-up System (LRLS), to provide longer range, higher accuracy visual landing aids (VLA) for pilots landing on aircraft carriers.

- (U) The Integrated Shipboard Information System (ISIS) to employ existing and emerging technology to enable rapid input, collection, processing and distribution of relevant air operations information and then display this information on electronic monitors in all air operations work centers throughout the ship.

- (U) The Aviation Data Management and Control System (ADMACS) is a real-time, tactical, local area network, configuration managed for the specific support of the Air Department and the Aircraft Launch and Recovery Equipment (ALRE) data requirements on ships. It also provides connectivity among ALRE systems such as ICOLS, ISIS and ALRCS and links Air Operations with other onboard tactical and support networks.

- (U) The Advanced Launch and Recovery Control Systems (ALRCS) to introduce modern, modularized computer control systems to the catapults and arresting gear on aircraft carriers.

- (U) The Virtual Imaging System for Approach and Landing (VISUAL) will provide the ship's company and pilots with enhanced images of the aircraft and ship, respectively, in low visibility and night conditions.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604512N
PROGRAM ELEMENT TITLE: Shipboard Aviation Systems

PROJECT NUMBER: W2232
PROJECT TITLE: CV Launch & Recovery Sys

• (U) The Shipboard Optical Landing System (SOLS) will provide advanced visual landing aids (VLA) for fixed wing, rotary wing and VSTOL aircraft, so that pilots can fly safer and more accurate approaches to all classes of ships.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING AND MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

   • (U) ($1,910) Completed shipboard prototype demonstration of the ICOLS LRLS. Issued Request for Proposals (RFP) to develop the ICOLS LRLS Engineering Development Models (EDM) as a modified Non-developmental Item (NDI).

2. (U) FY 1996 PLAN:

   • (U) ($3,049) Award contract for delivery of the ICOLS LRLS EDMs.

   • (U) ($4,565) Complete fabrication of ICOLS IFLOLS EDM and start Technical Evaluation (TECHEVAL).

   • (U) ($1,057) Initiate design and integration of the ISIS EDM.

   • (U) ($2,267) Initiate design and integration of the ADMACS EDM.

   • (U) ($37) Portion of program reserved for Small Business Innovation Research in accordance with 15 U.S.C.638(f)(1).

   • (U) ($13) NAVAIRHQ CV Launch & Recovery Systems Program support travel.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604512N PROJECT NUMBER: W2232
PROGRAM ELEMENT TITLE: Shipboard Aviation Systems PROJECT TITLE: CV Launch & Recovery Sys

3. (U) FY 1997 PLAN:

- (U) ($1,610) Complete delivery of ICOLS LRLS EDM and initial TECHEVAL.
- (U) ($2,500) Complete TECHEVAL and start Operational Evaluation (OPEVAL) of the ICOLS IFLOLS EDM.
- (U) ($1,850) Complete design and integration of the ISIS EDM and initiate the shorebased TECHEVAL.
- (U) ($600) Continue design and integration of the ADMACS EDM.
- (U) ($11) NAVAIRHQ CV Launch & Recovery Systems Program support travel.

B. (U) PROGRAM CHANGE SUMMARY: (Dollars in Thousands)

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	1,521	11,343	9,647
(U) Adjustments from PRESBUDG:	389	-355	-3076
(U) FY 1997 President's Budget Submit:	1,910	10,988	6,571

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995 reflects an increase of $389 thousand for minor pricing adjustments.

FY 1996 decrease of $355 thousand reflects $223 thousand for Congressional undistributed reductions and $132 thousand for miscellaneous economic adjustments.

FY 1997 decrease of 3,076 thousand reflects $2,734 thousand for Defense Business Operating Fund R&D activities adjustment; $124 thousand for minor pricing adjustments and $218 thousand for revised inflation estimates.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604512N PROJECT NUMBER: W2232
PROGRAM ELEMENT TITLE: Shipboard Aviation Systems PROJECT TITLE: CV Launch & Recovery Sys

(U) Schedule: LRLS and ADMACS schedules are extended approximately one year. ALRCS initiation delayed one year.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY:

	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN (Aircraft Launch & Recovery Equipment)	0	0	0	2,850	17,500	20,200	16,200	CONT.	CONT.

(U) RELATED RDT&E:

(U) PE 0603512N (Carrier Systems Development)

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones		IFLOLS: 1Q MSII LRLS: 3Q MSII ISIS: 4Q MSII	ADMACS: 3Q MS II	ALRCS: 99/2Q MSII IFLOLS: 99/1Q MSIII LRLS: 99/1Q MSIII ISIS: 99/2Q MSIII VISUAL: 99/2Q MSII
Engineering Milestones		IFLOLS: 2Q CDR LRLS: 4Q CDR	ISIS: 1Q CDR ADMACS: 4Q CDR	ALRCS: 99/2Q CDR VISUAL: 99/3Q CDR

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604512N
PROGRAM ELEMENT TITLE: Shipboard Aviation Systems

PROJECT NUMBER: W2232
PROJECT TITLE: CV Launch & Recovery Sys

T&E Milestones

IFLOLS: 2Q DT
ISIS: 4Q DT
IFLOLS: 4Q OT
LRLS: 3Q DT
ISIS: 98/2Q OT
LRLS: 98/1Q OT
ALRCS: 01/4Q OT
VISUAL: 01/1Q DT
VISUAL: 01/3Q OT

Contract Milestone

LRLS: 3Q EDM Award

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604512N
PROGRAM ELEMENT TITLE: Shipboard Aviation Systems

PROJECT NUMBER: W2232
PROJECT TITLE: CV Launch & Recovery Sys

A. (U) PROJECT COST BREAKDOWN: (Dollars in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Primary Hardware Development	840	6,203	3,945
b. Software Development	380	2,790	1,972
c. Integrated Logistics Support	225	1,360	279
d. Developmental Test & Evaluation	465	598	375
e. SBIR		37	
Total	1,910	10,988	6,571

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (Dollars in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
NAWCAD-LKE	WX	9/30/95	N/A	N/A	1,388	1,910	8,751	6,371	CONT.	CONT.
TBD	FP	6/30/96	2,000	2,000	0	0	2,000	0	0	2,000
Support and Management:					0	0	200	200	CONT.	CONT.

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604512N PROJECT NUMBER: W2232
PROGRAM ELEMENT TITLE: Shipboard Aviation Systems PROJECT TITLE: CV Launch & Recovery Sys

Test and Evaluation: Not applicable.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	1,388	1,910	10,751	6,371	CONT.	CONT.
Subtotal Support and Management	0	0	200	200	CONT.	CONT.
Subtotal Test and Evaluation	0	0	0	0	0	0
SBIR Assessment	0	0	37	0	0	0
Total Project	1,388	1,910	10,988	6,571	CONT.	CONT.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604507N
PROGRAM ELEMENT TITLE: Enhanced Modular Signal Processor

(U) COST (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
V1440 EMSP	11,541	14,377	3,718	3,481	3,257	1,383	1,475	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Enhanced Modular Signal Processor (EMSP) is a modular, distributed parallel state-of-the-art signal processor to provide increased performance capability for multi-platform ASW weapon systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($1,068) Continued DT-III Testing (Reliability Demonstration) and completed Acoustic Systems Implementation Program (ASIP) development.
- (U) ($8,079) Supported software development, integration, testing, and critical engineering design support for Development and Operational Testing (DT/OT) for users' systems (SEM E).
- (U) ($2,394) Continued risk mitigation Independent Verification & Validation (IV&V) testing.

2. (U) FY 1996 PLAN:

- (U) ($727) Complete DT-III Testing (Reliability Demonstration).
- (U) ($5,297) Support software development, integration, testing, and critical engineering design support for Development and Operational Testing (DT/OT) for Airborne Low Frequency Sonar (ALFS), SURTASS, AN/SQQ-89, P-3C, AN/BSY-2 and DDG 993 systems.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604507N PROGRAM ELEMENT TITLE: Enhanced Modular Signal Processor PROJECT NUMBER: V1440 PROJECT TITLE: EMSP

- (U) ($1,569) Continue risk mitigation IV&V testing.
- (U) ($5,500) Perform requirements review and develop a preliminary design to migrate UYS-2A Application Software from MIL proprietary closed systems to Commercial Off The Shelf (COTS)-based Open Systems Architecture that reuses existing legacy UYS-2A software.
- (U) ($500) Perform a COTS characterization study of enclosures to determine extent and amount of environmental protection the enclosure can provide for COTS boards.
- (U) ($500) Develop COTS processsor requirements documentation.
- (U) ($284) Portion of extramural program reserved for Small Business Innovative Research assessment in accordance with 15 U.S.C.638.

3. (U) FY 1997 PLAN:

- (U) ($2,974) Support software development, integration, testing, and critical engineering design support for Development and Operational Testing (DT/OT) for ALFS, SURTASS, AN/SQQ-89, P3C, AN/BSY-2 and DDG 993 systems.
- (U) ($744) Continue risk mitigation IV&V testing.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under Engineering and Manufacturing Development because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	11,541	8,342	5,294
(U) Adjustments from PRESBUDG Budget:	0	+6,035	-1,576
(U) FY 1997 PRESBUDG Submit:	11,541	14,377	3,718

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604507N PROGRAM ELEMENT TITLE: Enhanced Modular Signal Processor PROJECT NUMBER: V1440 PROJECT TITLE: EMSP

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: Increase of $6,035K in FY 1996 represents a Congressional plus-up of $6,500K minus $465K of Congressional undistributed reductions. Reduction of $1,000K made in FY 1997 to accommodate partial delay in EMSP/ALFS integration and to coincide with ALFS OPEVAL in FY 1998. Funds were restored in FY 1998 and FY 1999 ($700K and $340K respectively). Reduction of $576K in FY 1997 is due to revised DOD inflation estimates and other minor pricing adjustments.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN Line 100	4,814	6,740	2,023	1,942	2,505	2,452	2,516	CONT.	CONT.
(U) OPN Line 75	35,600	26,100	0	0	0	0	0	CONT.	CONT.

(U) RELATED RDT&E:

(U) PE 0204311N (Integrated Surveillance System) Provides funding for SURTASS unique interfaces.

(U) PE 0205620N (Surface ASW Combat System Integration) Provides funding for AN/SQQ-89 unique interfaces.

000324

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604507N
PROGRAM ELEMENT TITLE: Enhanced Modular Signal Processor

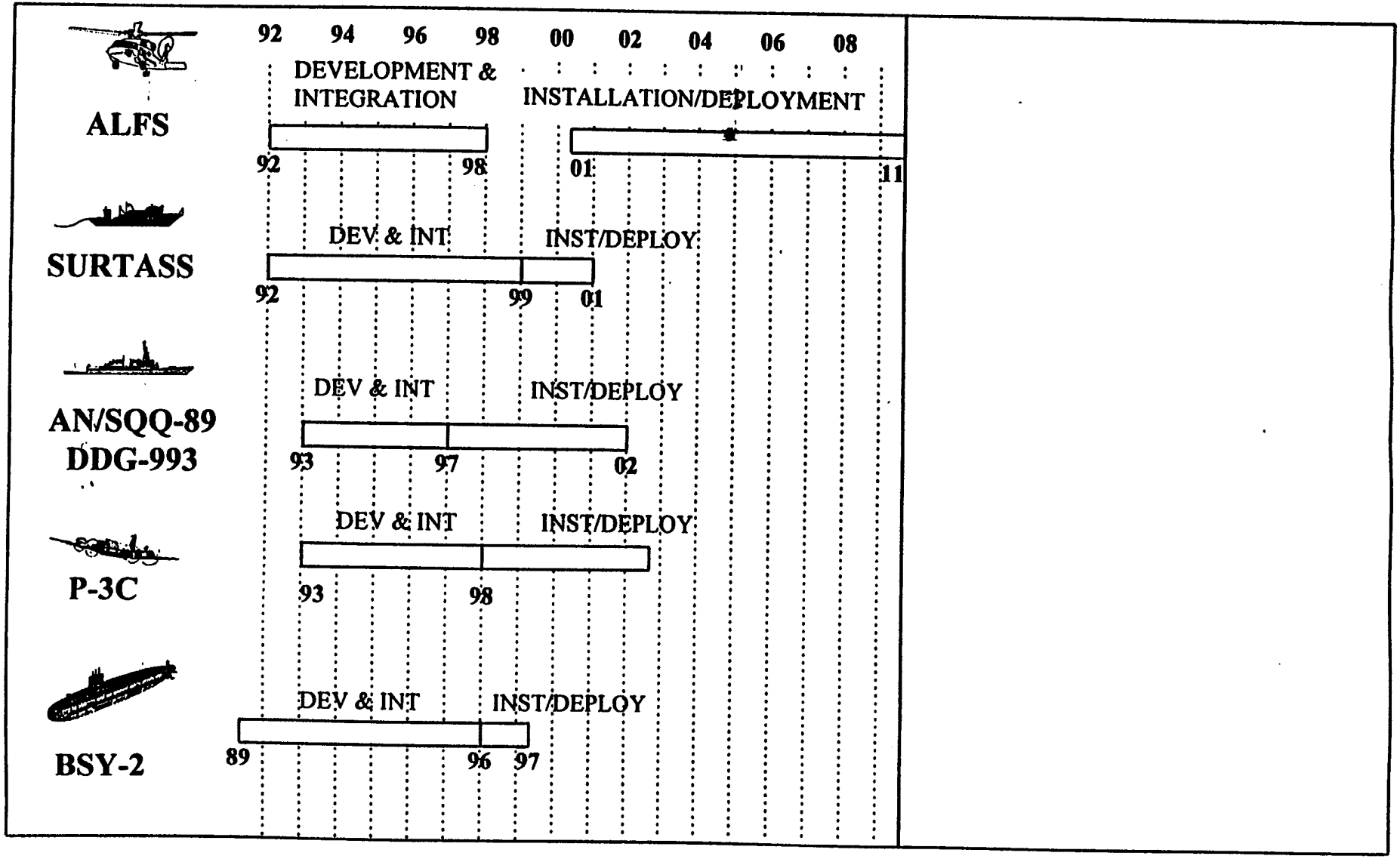
PROJECT NUMBER: V1440
PROJECT TITLE: EMSP

(U) PE 0604212N (Anti-Submarine Warfare and Other Helicopter Development) Provides funding for ALFS unique interfaces.

D. SCHEDULE PROFILE:

See attached.

AN/UYS-2A PRODUCTION PROFILE



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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604507N
PROGRAM ELEMENT TITLE: Enhanced Modular Signal Processor

PROJECT NUMBER: V1440
PROJECT TITLE: EMSP

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Software Development	2,770	7,240	852
b. Systems Engineering	5,309	4,449	1,245
c. Integrated Logistics Support	1,846	1,200	608
d. Configuration Management	231	150	68
e. Project Management Support	935	854	800
f. Travel	69	100	100
g. Miscellaneous	381	100	45
h. SBIR	0	284	0
Total	11,541	14,377	3,718

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604507N
PROGRAM ELEMENT TITLE: Enhanced Modular Signal Processor

PROJECT NUMBER: V1440
PROJECT TITLE: EMSP

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
AT&T N00024-94-C-6363	SS/CPFF	4/93	36,000	36,000	6,160	5,318	10,028	1,245	CONT.	CONT.
NAWC/AD, Warminster WR		11/95				1,200	800	500	CONT.	CONT.
US Army Lab FT Monmouth,NJ	MIPR	12/95	2,350	2,350	0	2,350	0	0	0	2,350
Various						1,738	2,695	1,173	CONT.	CONT.
Support and Management						935	854	800	CONT.	CONT.
Test and Evaluation						0	0	0		

000327

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604507N PROJECT NUMBER: V1440
PROGRAM ELEMENT TITLE: Enhanced Modular Signal Processor PROJECT TITLE: EMSP

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development				0	0	0	0	0	0
Support and Management				0	0	0	0	0	0
Test and Evaluation				0	0	0	0	0	0

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	6,160	10,606	13,523	2,918	CONT.	CONT.
Subtotal Support and Management		935	854	800	CONT.	CONT.
Subtotal Test and Evaluation		0	0	0	0	0
Total Project		11,541	14,377	3,718	CONT.	CONT.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604512N
PROGRAM ELEMENT TITLE: Shipboard Aviation Systems

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
W2232 CV Launch and Recovery Systems	1,910	10,988	6,571	9,331	11,254	11,273	11,504	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program addresses the Engineering and Manufacturing Development (E&MD) of all systems required to recover and launch Navy/Marine Corps aircraft (fixed wing, rotary wing and Vertical/Short Take-Off and Landing (VSTOL)) operating aboard aircraft carriers (CV/CVN), amphibious assault ships (LHA/LHD) and aviation facility ships. This program includes E&MD of:

- (U) The Improved Carrier Optical Landing System (ICOLS), which includes the Improved Fresnel Optical Landing System (IFLOLS) and the Long Range Line-up System (LRLS), to provide longer range, higher accuracy visual landing aids (VLA) for pilots landing on aircraft carriers.

- (U) The Integrated Shipboard Information System (ISIS) to employ existing and emerging technology to enable rapid input, collection, processing and distribution of relevant air operations information and then display this information on electronic monitors in all air operations work centers throughout the ship.

- (U) The Aviation Data Management and Control System (ADMACS) is a real-time, tactical, local area network, configuration managed for the specific support of the Air Department and the Aircraft Launch and Recovery Equipment (ALRE) data requirements on ships. It also provides connectivity among ALRE systems such as ICOLS, ISIS and ALRCS and links Air Operations with other onboard tactical and support networks.

- (U) The Advanced Launch and Recovery Control Systems (ALRCS) to introduce modern, modularized computer control systems to the catapults and arresting gear on aircraft carriers.

- (U) The Virtual Imaging System for Approach and Landing (VISUAL) will provide the ship's company and pilots with enhanced images of the aircraft and ship, respectively, in low visibility and night conditions.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604512N PROJECT NUMBER: W2232
PROGRAM ELEMENT TITLE: Shipboard Aviation Systems PROJECT TITLE: CV Launch & Recovery Sys

• (U) The Shipboard Optical Landing System (SOLS) will provide advanced visual landing aids (VLA) for fixed wing, rotary wing and VSTOL aircraft, so that pilots can fly safer and more accurate approaches to all classes of ships.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING AND MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

   • (U) ($1,910) Completed shipboard prototype demonstration of the ICOLS LRLS. Issued Request for Proposals (RFP) to develop the ICOLS LRLS Engineering Development Models (EDM) as a modified Non-developmental Item (NDI).

2. (U) FY 1996 PLAN:

   • (U) ($3,049) Award contract for delivery of the ICOLS LRLS EDMs.

   • (U) ($4,565) Complete fabrication of ICOLS IFLOLS EDM and start Technical Evaluation (TECHEVAL).

   • (U) ($1,057) Initiate design and integration of the ISIS EDM.

   • (U) ($2,267) Initiate design and integration of the ADMACS EDM.

   • (U) ($37) Portion of program reserved for Small Business Innovation Research in accordance with 15 U.S.C.638(f)(1).

   • (U) ($13) NAVAIRHQ CV Launch & Recovery Systems Program support travel.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604512N
PROGRAM ELEMENT TITLE: Shipboard Aviation Systems

PROJECT NUMBER: W2232
PROJECT TITLE: CV Launch & Recovery Sys

3. (U) FY 1997 PLAN:

- (U) ($1,610) Complete delivery of ICOLS LRLS EDM and initial TECHEVAL.
- (U) ($2,500) Complete TECHEVAL and start Operational Evaluation (OPEVAL) of the ICOLS IFLOLS EDM.
- (U) ($1,850) Complete design and integration of the ISIS EDM and initiate the shorebased TECHEVAL.
- (U) ($600) Continue design and integration of the ADMACS EDM.
- (U) ($11) NAVAIRHQ CV Launch & Recovery Systems Program support travel.

B. (U) PROGRAM CHANGE SUMMARY: (Dollars in Thousands)

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	1,521	11,343	9,647
(U) Adjustments from PRESBUDG:	389	-355	-3076
(U) FY 1997 President's Budget Submit:	1,910	10,988	6,571

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995 reflects an increase of $389 for minor pricing adjustments.

FY 1996 decrease of $355 reflects $223 for Congressional undistributed reductions and $132 for miscellaneous economic adjustments.

FY 1997 decrease of $3,076 reflects $2,734 for Defense Business Operating Fund R&D activities adjustment; $124 for minor pricing adjustments and $218 for revised inflation estimates.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604512N PROJECT NUMBER: W2232
PROGRAM ELEMENT TITLE: Shipboard Aviation Systems PROJECT TITLE: CV Launch & Recovery Sys

(U) Schedule: LRLS and ADMACS schedules are extended approximately one year. ALRCS initiation delayed one year.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY:

	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN (Aircraft Launch & Recovery Equipment)	0	0	0	2,850	17,500	20,200	16,200	CONT.	CONT.

(U) RELATED RDT&E:

(U) PE 0603512N (Carrier Systems Development)

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones		IFLOLS: 1Q MSII LRLS: 3Q MSII ISIS: 4Q MSII	ADMACS: 3Q MS II	ALRCS: 99/2Q MSII IFLOLS: 99/1Q MSIII LRLS: 99/1Q MSIII ISIS: 99/2Q MSIII VISUAL: 99/2Q MSII
Engineering Milestones		IFLOLS: 2Q CDR LRLS: 4Q CDR	ISIS: 1Q CDR ADMACS: 4Q CDR	ALRCS: 99/2Q CDR VISUAL: 99/3Q CDR

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604512N
PROGRAM ELEMENT TITLE: Shipboard Aviation Systems

PROJECT NUMBER: W2232
PROJECT TITLE: CV Launch & Recovery Sys

T&E Milestones:

IFLOLS: 2Q DT
ISIS: 4Q DT
IFLOLS: 4Q OT
LRLS: 3Q DT

ISIS: 98/2Q OT
LRLS: 98/1Q OT
ALRCS: 01/4Q OT
VISUAL: 01/1Q DT
VISUAL: 01/3Q OT

Contract Milestone

LRLS: 3Q EDM Award

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604512N PROJECT NUMBER: W2232
PROGRAM ELEMENT TITLE: Shipboard Aviation Systems PROJECT TITLE: CV Launch & Recovery Sys

A. (U) PROJECT COST BREAKDOWN: (Dollars in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Primary Hardware Development	840	6,203	3,945
b. Software Development	380	2,790	1,972
c. Integrated Logistics Support	225	1,360	279
d. Developmental Test & Evaluation	465	598	375
e. SBIR		37	
Total	1,910	10,988	6,571

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (Dollars in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
NAWCAD-LKE	WX	9/30/95	N/A	N/A	1,388	1,910	8,751	6,371	CONT.	CONT.
TBD	FP	6/30/96	2,000	2,000	0	0	2,000	0	0	2,000
Support and Management:					0	0	200	200	CONT.	CONT.

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604512N
PROGRAM ELEMENT TITLE: Shipboard Aviation Systems

PROJECT NUMBER: W2232
PROJECT TITLE: CV Launch & Recovery Sys

Test and Evaluation: Not applicable.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	1,388	1,910	10,751	6,371	CONT.	CONT.
Subtotal Support and Management	0	0	200	200	CONT.	CONT.
Subtotal Test and Evaluation	0	0	0	0	0	0
SBIR Assessment	0	0	37	0	0	0
Total Project	1,388	1,910	10,988	6,571	CONT.	CONT.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604516N
PROGRAM ELEMENT TITLE: Ship Survivability

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
S0410 CBR Defense (EMD)	3,037	0	0	0	0	0	0	0	8,123
S1828 Combat Readiness & Sustainability	1,363	975	1,523	743	873	869	940	CONT.	CONT.
S2054 Integrated Fire Protection/Damage Control	4,121	3,780	5,309	3,226	3,737	3,727	3,807	CONT.	CONT.
TOTAL	8,521	4,775	6,832	3,969	4,610	4,596	4,747	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program supports the full scale development of equipment/systems to enable continued, effective combat missions through protection from weapons effects due to hostile actions and peacetime accidents. This program also supports the engineering development of improved Damage Control/Fire Protection and Firefighting equipment, devices, and systems for rapid control/suppression of damage/fire with retention of ship mission.

(U) This program also develops chemical, biological, and radiological (CBR) defensive systems and concepts for surface ships, required to counter CBR threats in the near term (1990s) as identified in Defense Planning Guidance. Development addresses individual and collective protection, detection and monitoring, and decontamination equipment.

(U) PBD 250 directs, starting in FY 1996, that services budgets for nuclear, biological, and chemical (NBC) defense programs be consolidated in OSD accounts. As a result, P.E. 0604516N/S0410 transitions to P.E. 0604384D/S0410 for this project and budget activity.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604516N PROGRAM ELEMENT TITLE: Ship Survivability PROJECT NUMBER: S1828 PROJECT TITLE: Combat Readiness & Sustainability

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
S1828 Combat Readiness & Sustainability	1,363	975	1,523	743	873	869	940	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project supports the full scale engineering development of systems and components to provide protection from weapons effects for continued combat mission capability. Includes development of electrical components which support uninterruptible combat capability, and blast tolerant magazine boundaries.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($653) Completed construction of blast chamber for blast tolerant missile and torpedo magazine boundaries effort and conducted testing; prepared drawing.
- (U) ($240) Completed land-based testing of Navy Standard Electronic Power System (NSEPS).
- (U) ($240) Completed T&E on shock hardened circuit breaker.
- (U) ($230) Initiated engineering development of electrical device for rapidly clearing weapons-induced faults located on a main bus duct or feeders. (Transitioned from P.E. 0603514N, S0384, Ship Survivability (Adv)).

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604516N
PROGRAM ELEMENT TITLE: Ship Survivability
PROJECT NUMBER: S1828
PROJECT TITLE: Combat Readiness & Sustainability

2. (U) FY 1996 PLAN:

- (U) ($250) Finalize NSEPS specification and handbook.
- (U) ($725) Continue engineering development of electrical device for rapidly clearing weapons-induced faults located on a main bus duct or feeders.

3. (U) FY 1997 PLAN:

- (U) ($738) Complete development of electrical fault clearing device and conduct acceptance testing. Complete planning for full scale weapons effects tests to validate performance in a threat environment.
- (U) ($785) Construct a fully integrated Advanced Shock Isolation System Engineering Development Model designed to protect commercial equipment from underwater explosion effects. The model will include shock mounts, floating raft, interfacing systems, and a suite of commercial grade equipment.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	1,378	1,005	817
(U) Adjustments from budget:	-15	-30	+706
(U) FY 1997 PRESBUDG Submit:	1,363	975	1,523

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995 reductions of 15K was for University Research and SBIR. FY 1996 reductions of 30K for Congressional undistributed general and inflation reductions. FY 1997 increase was due to FY 1997 Mine Warfare Plan.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604516N
PROGRAM ELEMENT TITLE: Ship Survivability

PROJECT NUMBER: S1828
PROJECT TITLE: Combat Readiness & Sustainability

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

(U) Specification changes included in new construction ships (SCN funding). Procurement information not available at this level of detail.

(U) RELATED RDT&E:

(U) PE 0603514N, Project S0384 (Combat Survivability Design)

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604516N
PROGRAM ELEMENT TITLE: Ship Survivability

PROJECT NUMBER: S1828
PROJECT TITLE: Combat Readiness & Sustainability

D.(U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	Not applicable	Not applicable	Not applicable	Not applicable
Engineering Milestones	4Q Blast Tolerant Magazine Boundary Standard Drawings			
	4Q Shock Hardened Circuit Breaker Test Report			
			4Q Advanced Shock Isolation System Model	

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604516N
PROGRAM ELEMENT TITLE: Ship Survivability

PROJECT NUMBER: S1828
PROJECT TITLE: Combat Readiness & Sustainability

D. (U) SCHEDULE PROFILE: (Cont.)

	FY 1995	FY 1996	FY 1997	TO COMPLETE
		4Q Electrical Fault Clearing Device Engineering Development Model	1Q Electrical Fault Clearing Device Full Scale Test Plan	Continued
T&E Milestones				
	2Q Blast Tolerant Magazine Boundary Full Scale Tests			
			4Q Electrical Fault Clearing Device Acceptance Tests	Continued
Contract Milestones	Not applicable	Not applicable	Not applicable	Not applicable

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604516N
PROGRAM ELEMENT TITLE: Ship Survivability
PROJECT NUMBER: S2054
PROJECT TITLE: Integrated Fire Protection/Damage Control

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
S2054 Integrated Fire Protection/Damage Control	4,121	3,780	5,309	3,226	3,737	3,727	3,807	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project supports the engineering development and fleet introduction of a computer-based, total ship, damage control information management system which enables a rapid/coordinated response to wartime and peacetime casualties for effective recovery/restoration. This project also develops total ship tactics and doctrine for effectively fighting major ship threatening conflagrations (fire, smoke) resulting from wartime threats and peacetime accidents.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($255) Prepared Navy Training Plan for the computer-based Damage Control System (DCS), established software support activity, and installed DCS at the Surface Warfare Officer School (SWOS).
- (U) ($150) Initiated development of a DCS database/operating system compatible with DDG 51 FLT IIa computer hardware.
- (U) ($360) Initiated installation of DCS aboard ex-USS SHADWELL in preparation for total ship evaluations under P.E. 0603514N, Project S1565, Fire Protection/Damage Control Systems.
- (U) ($1,502) Conducted integrated firefighting experiments aboard ex-USS SHADWELL in support of developing improved tactics and doctrine for attacking major machinery space fires. Initiated upgrade of the ex-USS SHADWELL to meet safety requirements and overall program objectives.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604516N
PROGRAM ELEMENT TITLE: Ship Survivability

PROJECT NUMBER: S2054
PROJECT TITLE: Integrated Fire Protection/Damage Control

1. (U) FY 1995 ACCOMPLISHMENTS (Continued):

- (U) ($350) Initiated evaluation of state-of-the-art commercial fire and smoke sensor systems to provide location of primary damage zone and real-time damage tracking (RTDT). Procured commercial sensor systems and initiated land and ship based performance evaluations.
- (U) ($1,504) Conducted various tasks including: technical and logistic support assessments for existing damage control/firefighting equipment and systems, updated fleet technical documentation, and developed recommended engineering solutions for MISHAP/JAG investigation deficiencies.

2. (U) FY 1996 PLAN:

- (U) ($405) Complete development of a DCS database/operating system compatible with DDG 51 FLT IIa computer hardware.
- (U) ($124) Complete DCS installation and system check-out aboard the ex-USS SHADWELL.
- (U) ($1,549) Complete development of doctrine for major machinery space fires. Conduct firefighting experiments based on fleet identified issues. Continue upgrade of the ex-USS SHADWELL.
- (U) ($400) Continue land and ship based RTDT system evaluations. Prepare preliminary performance specification for fire and smoke sensor system.
- (U) ($190) Initiate development of an interactive on-line reference implementation of Naval Ships Technical Manual (NSTM) Chapter 555, "Shipboard Firefighting", including user friendly graphics that will enable firefighting personnel to effectively formulate and implement a plan-of-attack.
- (U) ($400) Initiate development of standardized human/computer interface (HCI) guidelines which support tailoring of DCS presentation formats and hardware for each responsible decision-making personnel.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604516N PROGRAM ELEMENT TITLE: Ship Survivability PROJECT NUMBER: S2054 PROJECT TITLE: Integrated Fire Protection/Damage Control

2. (U) FY 1996 PLAN (Continued):

- (U) ($405) Initiate development of a training course curriculum for DCS along with associated materials, including an embedded interactive technical manual.
- (U) ($120) Install Water Mist Fire Extinguishing System engineering development model aboard the ex-USS SHADWELL.
- (U) ($150) Continue development of recommended engineering solutions for MISHAP/JAG investigation deficiencies.
- (U) ($37) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C.638.

3. (U) FY 1997 PLAN:

- (U) ($1,100) Conduct firefighting experiments aboard ex-USS SHADWELL in support of developing tactics and doctrine for using the new water mist extinguishing systems during machinery fires. Complete upgrade of the ex-USS SHADWELL.
- (U) ($300) Complete land and ship-based Real-Time Damage Tracking (RTDT) system evaluation and finalize specification.
- (U) ($200) Complete development of an interactive on-line reference implementation of NSTM Ch. 555 that will enable firefighting personnel to effectively formulate and implement a plan-of-attack.
- (U) ($400) Complete development of standardized human/computer interface (HCI) guidelines which support tailoring of DCS presentation formats and hardware.
- (U) ($400) Complete development of the training course curriculum for DCS.
- (U) ($300) Initiate development of a DCS communications module that allows ships to transmit and receive data concerning damage and mission summary status to or from accompanying ships in the battle group or shore locations.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604516N
PROGRAM ELEMENT TITLE: Ship Survivability

PROJECT NUMBER: S2054
PROJECT TITLE: Integrated Fire Protection/Damage Control

3. (U) FY 1997 PLAN (Continued):

- (U) ($609) Initiate integration of combat system sensor data with DCS (pre-hit configuration management module) to enable the ship to predict the probable hit location of an anti-ship cruise missile and extent of damage so that pre-emptive actions, such as vital systems realignment, can be initiated.
- (U) ($800) Conduct DCS fleet evaluations to identify required upgrades to DCS to ensure rapid fire and smoke boundary setting and effective resource management.
- (U) ($400) Initiate incorporation of the fire and smoke spread model into the Ship Vulnerability Model to support assessing ship design options.
- (U) ($800) Initiate development of an interactive DC training system for improving interdepartmental coordination between Repair Locker Leaders and the Damage Control Assistant (DCA).

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	4,451	3,902	3,467
(U) Adjustments from budget:	-330	-122	+1,842
(U) FY 1997 PRESBUDG Submit:	4,121	3,780	5,309

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 95: Various reductions, including University Research, Travel, and SBIR. FY 1996 reductions due to Congressional undistributed general and inflation reductions. FY 1997 increase due to FY 1997 Mine Warfare Plan.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604516N PROGRAM ELEMENT TITLE: Ship Survivability PROJECT NUMBER: S2054 PROJECT TITLE: Integrated Fire Protection/Damage Control

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not Applicable.

(U) RELATED RDT&E:

(U) PE 0603514N, Project S1565 (Fire Protection/Damage Control Systems)

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604516N
PROGRAM ELEMENT TITLE: Ship Survivability

PROJECT NUMBER: S2054
PROJECT TITLE: Integrated Fire Protection/Damage Control

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	Not applicable	Not applicable	Not applicable	Not applicable
Engineering Milestones	4Q DCS Navy Training Plan/SWOS Installation Management Plan		4Q DCS Training Curriculum/ Materials 4Q DCS HCI Guidelines 4Q Interactive Firefighting References	Continued

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604516N
PROGRAM ELEMENT TITLE: Ship Survivability
PROJECT NUMBER: S2054
PROJECT TITLE: Integrated Fire Protection/Damage Control

D. (U) SCHEDULE PROFILE: (Cont.)

	FY 1995	FY 1996	FY 1997	TO COMPLETE
	2Q RTDT Sensor System Requirements	4Q RTDT Performance Specification (Preliminary)	4Q RTDT Performance Specification (Final)	
			4Q DCS Communication Module System Requirements	Continued
			4Q Pre-hit Configuration Management Module System Requirements	
			4Q DCS Interactive Training System Requirements	
T&E Milestones		4Q Major Machinery Space Firefighting Tactics and Doctrine Evaluations	4Q Water Mist Extinguishing System Tactics/ Doctrine Evaluations	

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604516N
PROGRAM ELEMENT TITLE: Ship Survivability

PROJECT NUMBER: S2054
PROJECT TITLE: Integrated Fire Protection/Damage Control

D. (U) SCHEDULE PROFILE: (Cont.)

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Contract Milestones	Not applicable	4Q Commercial RTDT System Land-based and Shipboard Evaluations (Preliminary) Not applicable	4Q Commerical RTDT System Land-based and Shipboard Evaluations (Final) 4Q DCS Fleet Evaluations Not applicable	Not applicable

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604518N
PROGRAM ELEMENT TITLE: Combat Information Center (CIC) CONVERSION/NTDS IMPROV

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
NTDS SOFTWARE IMPROV. U1604	13,172	15,359	10,280	11,530	9,408	8,331	3,821	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The ACDS Block 1 program replaces the vintage Naval Tactical Data System (NTDS) operating systems and applications algorithms and implements advanced concepts for Tactical Data System upgrades for surface combatants in response to future threats, operational deficiencies and new and existing operational requirements. The increased emphasis on joint operations and littoral warfare has heightened the importance of ACDS Block 1's joint interoperability and improved littoral warfare capabilities. The program's objective is to develop integrated real time command and control systems that will increase ship's operational capabilities; promote standardization and introduce new shipboard tactical displays and support equipment; and provide integration between sensor/weapons systems which are organic to and outside the battle force. This program provides for significant Combat Direction System (CDS) improvements including implementation of the Joint Tactical Information Data System (JTIDS)/ Tactical Data Information Link Joint (TADILJ) (LINK 16) message standard to support interoperability/joint operations with U.S. Navy/Army/Air Force/Marine and NATO forces; implementation of the Aegis Tactical Executive System (ATES); and integration and interface with the Command and Control Processor (C^2P), the Cooperative Engagement Capability (CEC), and Ship's Self Defense System (SSDS). This program will be an integral part of the LPD-17 and CVN-76 combat system, integrating battle management functions of all other sensor and weapon systems. In addition, the computer program is being modified to accommodate extensive use of COTS/NDI/OPEN Systems architecture hardware and firmware, and to operate in an Integrated Ship Defense System (ISDS) Environment.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($4,494) Completed Program Acceptance Test (PAT) and began Combat System Integration Test (CSIT) on the ACDS Block 1 computer program.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604518N
PROGRAM ELEMENT TITLE: CIC CONVERSION/NTDS IMPROV.

PROJECT NUMBER: U1604
PROJECT TITLE: NTDS SOFTWARE IMPROV.

- (U) ($390) Began plans and procedures for TECHEVAL and OPEVAL.
- (U) ($1,681) Began Lead ship installation preparations and developed training for crew.
- (U) ($5,757) Began coding and modification of existing code for the new Level 2 (including CEC variant).
- (U) ($600) Rehosted the Distributed Display Kernel (DDK) Module from the AN/UYK-43 to 680X0 Microprocessor environment.
- (U) ($250) Began planning and system engineering for level 3, including planning of Integrated Ship Defense (ISD), and conductied a preliminary Systems Requirements Review (SRR) .

2. (U) FY 1996 PLAN:

- (U) ($6,725) Complete coding of Level 2 functionality, software integration and Contractor Development Test Evaluation (CDT&E).
- (U) ($4,181) Begin and complete all test procedures, Combat System Simulation (CSS) modifications, begin ACDS Block 1 Level 2 Program Acceptance Test (PAT) and participate in the CV/CVN CSIT (12/95 - 12/96) and CSIT of the LHD program (9/96 - 4/97).
- (U) ($2,446) Complete curriculum and conduct training of the system to the lead ship (CVN 69) crew.
- (U) ($1,062) Prepare for CVN-69 system installation at Newport News Naval Shipyard and participate in the Cooperative Engagement Capability (CEC) Fleet introduction.
- (U) ($758) Conduct initial DT/OA events for CVN-69. Conduct Developmental Tests (DT) at the Integrated Combat System Test Facility (ICSTF) (DT-IIb1, B1-1 & B1-2) and at NSWC/PHD Dam Neck (DT-IIB2). Conduct Operational Assessments (OA) at ICSTF throughout FY96 (OT-IIB1 and 2).
- (U) ($187) SBIR: Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604518N PROJECT NUMBER: U1604
PROGRAM ELEMENT TITLE: CIC CONVERSION/NTDS IMPROV. PROJECT TITLE: NTDS SOFTWARE IMPROV.

3. (U) FY 1997 PLAN:

- (U) ($5,036) Complete PAT and CSIT on the ACDS Block I Level 2 computer program. Deliver a certified program to CVN-69 for System Integration Test (SIT) and continue to correct priority TRs reported from the fleet.
- (U) ($493) Prepare for LHD-1 system installation and participate in the CEC IOC event.
- (U) ($870) Complete crew training on the LHD-1.
- (U) ($585) Continue to conduct DT/OT testing on the lead ship (CVN-69) and perform TECHEVAL (6/97) and OPEVAL (8/97) of the Level 2 computer program.
- (U) ($431) Begin preparations and required documentation for ASN(RDA) Formal Review to achieve Milestone III.
- (U) ($2,865) Begin and complete all new or modified code required to develop Level 2.1, which will implement Tactical Ballistic Missile Defense (TBMD) messages within ACDS Block I and will support ACDS Block I OPEVAL.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	13,321	15,859	10,524
(U) Adjustments from PRESBUDG:	-149	-500	-244
(U) FY 1997 PRESBUDG Submit:	13,172	15,359	10,280

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: Change in FY 1995 due to end-of-year execution adjustment. Change in FY 1996 due to inflation and general reductions, and University Lab reduction. Changes in FY 1997 due to DBOF, inflation and execution adjustments.

(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604518N PROJECT NUMBER: U1604
PROGRAM ELEMENT TITLE: CIC CONVERSION/NTDS IMPROV. PROJECT TITLE: NTDS SOFTWARE IMPROV.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) O&M 0708017N/486N/46N80 Ship System Tactical	2,200	2,532	5,368	7,190	7,577	7,956	8,995	CONT.	CONT.
(U) SCN PMS-312 CVN-76	1,000	1,300	500	500	0	0	0	0	3,300
(U) SCN PMS-312 CVN-68	0	1,000	1,300	500	500	0	0	0	3,300

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604518N PROJECT NUMBER: U1604
PROGRAM ELEMENT TITLE: CIC CONVERSION/NTDS IMPROV. PROJECT TITLE: NTDS SOFTWARE IMPROV.

(U) RELATED RDT&E:

(U) PE 0603717N (Command and Control Processor (C2P))
(U) PE 0205604N (Navy JTIDS)
(U) PE 0603755N (Cooperative Engagement Capability (CEC))
(U) PE 0205604N (Tactical Data Links)
(U) PE 0604231N (Navy Tactical Combat System - Afloat (NTCS-A))
(U) PE 0603755N (Ship Self Defense System (SSDS))
(U) PE 0603872C (Tactical Ballistic Missile Defense (TBMD))

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones		4Q L2 FIS CVN-69		CONT.
Engineering Milestones	1Q L2 PDR 3Q L2 CDR	2Q L2/SRR/SDR 3Q L2.1 CDR		CONT.
T&E Milestones	4Q CSIT (DT IIB)	1Q L2 PAT 1-4Q L2 DT 2Q L2 IOT&E 4Q L2 OA	1Q L2 CVN SIT 2Q L2 LHD SIT 2Q L2 DT/OT 3Q L2 TECHEVAL 4Q L2 OPEVAL	CONT.
Contract Milestones	2Q IV&V CONTRACT AWARD	3Q LCM/SIM CONTRACT AWARD		CONT.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET Date: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604518N PROGRAM ELEMENT TITLE: CIC CONVERSION/NTDS IMPROV. PROJECT NUMBER: U1604 PROJECT TITLE: NTDS SOFTWARE IMPROV.

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Software Development & Software Integration	7,077	8,181	5,142
b. TDA, PAT Conduct, Training & System Engineering	2,456	3,320	2,115
c. Operating System License and Technical Support	135	515	291
d. Integrated Logistics Support	200	150	120
e. Risk Assessment	40	58	25
f. Configuration Mgmt	150	150	100
g. IV&V Agent/Test Support	2,399	1,137	332
h. DT/OT Efforts	475	758	585
i. Test Facilities and Development/ Test Hardware	0	218	350
j. Engineering Support	180	293	543
k. Installation Costs/ED H/W	0	312	300
l. Travel	60	80	60
m. Miscellaneous	0	187	317
Total	13,172	15,359	10,280

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604518N PROJECT NUMBER: U1604
PROGRAM ELEMENT TITLE: CIC CONVERSION/NTDS IMPROV. PROJECT TITLE: NTDS SOFTWARE IMPROV.

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
PRODUCT DEVELOPMENT										
Hughes Aircraft Co. San Diego, CA	C/CPAF	5/84	106,521	106,521	106,521	0	0	0	0	106,521
Hughes Aircraft Co. San Diego, CA	SS/CPFF	5/94	33,985	33,985	1,345	3,938	5,857	4,074	18,771	33,985
NCCOSC RDTE Division San Diego, CA	WR	10/94	48,720	48,720	31,466	4,912	4,127	2,215	6,000	48,720
Miscellaneous Contractors	C/CPFF	VAR			3,288	450	1,093	838	1,598	7,267
Miscellaneous Govt. Activities	WR	VAR			1,502	263	410	685	190	3,050
SUPPORT AND MANAGEMENT: Miscellaneous					8	0	0	0	0	8

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604518N
PROGRAM ELEMENT TITLE: CIC CONVERSION/NTDS IMPROV.

PROJECT NUMBER: U1604
PROJECT TITLE: NTDS SOFTWARE IMPROV.

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (CONTINUED)

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
TEST AND EVALUATION:										
MISC	VAR	VAR	6,779	6,779	3,064	475	758	585	1,897	6,779
QUESTECH CO. San Diego, CA	C/CPFF	3/90	17,769	17,769	10,443	2,499	1,237	382	1,834	16,395
GOVERNMENT FURNISHED PROPERTY										

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
PRODUCT DEVELOPMENT									
Miscellaneous		VAR		9,406	635	1,877	1,501	2,800	16,219

SUPPORT AND MANAGEMENT
Not Applicable

TEST AND EVALUATION
Not Applicable

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5
PROGRAM ELEMENT: 0604518N
PROGRAM ELEMENT TITLE: CIC CONVERSION/NTDS IMPROV.
PROJECT NUMBER: U1604
PROJECT TITLE: NTDS SOFTWARE IMPROV.

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	153,528	10,198	13,364	9,313	29,359	215,762
Subtotal Support and Management	8	0	0	0	0	8
Subtotal Test and Evaluation	13,507	2,974	1,995	967	3,731	23,174
Total Project	167,043	13,172	15,359	10,280	33,090	238,944

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604524N
PROGRAM ELEMENT TITLE: Submarine Combat System

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
F1941 AN/BSY-2	84,681	41,831	18,952	16,378	13,923	0	0	0	1,801,048

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Chief of Naval Operations established the SSN 21 SEAWOLF and the AN/BSY-2 Combat System Top Level Requirements (TLR) in June 1986. The development objectives for AN/BSY-2 are: Meet the SEAWOLF combat system related TLR; develop an architecture which facilitates tactical improvements and future growth; and provide computer processes that improve response time from initial threat detection to weapon launch. AN/BSY-2 will provide new acoustic arrays which have improved self-noise characteristics and improved detection performance. It will provide computer aids to assist the operator in sensor, contact and weapon management, and will support employment of the most advanced submarine weapons from eight torpedo tubes. Software is now being developed for two incremental deliveries. The System Design Certification Test (SDCT-1) delivery for initial sea-trials has completed certification. The SDCT-2 final delivery will complete in mid 1996 and be installed after ship delivery. The system architecture has been partitioned to facilitate tactical improvements, future growth, and high availability.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end items prior to production approval decision.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($50,000) Completed SDCT 1 integration. Completed all software coding and subsystem integration required to initiate SDCT 2.
- (U) ($25,000) Completed AN/BSY-2 SDCT 1. Completed system acceptance testing. Accepted the AN/BSY-2 sea trials system for delivery to the Navy. Successfully completed Weapon Compatibility Testing to demonstrate compatibility of production level AN/BSY-2 with TOMAHAWK, ADCAP, and HARPOON.
- (U) ($9,681) Delivered AN/BSY-2 system (with all AN/BSY-2 cabinets) to SSN 21. Completed system installation and checkout on board SSN 21. Commenced shipboard system certification testing in preparation for ship sea trials.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604524N PROJECT NUMBER: F1941
PROGRAM ELEMENT TITLE: Submarine Combat System PROJECT TITLE: AN/BSY-2

2. (U) FY 1996 PLAN:

- (U) ($10,277) Complete SDCT 2 integration. Complete all system integration necessary to initiate SDCT 2.
- (U) ($12,771) Complete AN/BSY-2 SDCT 2. Complete all test readiness reviews certifying system ready to enter formal test. Complete final system acceptance by the Navy. Complete Joint Maritime Command Information Strategy (JMCIS) and Submarine Fleet Mission Program Library integration.
- (U) ($12,177) Complete Combat System Installation Certification (CSIC) on the sea trial delivery system. Complete all Navy testing certifying the system is ready to go to sea trials.
- (U) ($5,948) Deliver AN/BSY-2 system to Consolidated Shore Facility (CSF). The system is delivered in place at the contractor facility and is fully operational supporting shipyard test problem correction of the first system and its early at-sea testing/operation.
- (U) ($658) Portion of extramural program reserved for Small Business Innovation Research (SBIR) assessment in accordance with 15 U.S.C.638.

3. (U) FY 1997 PLAN:

- (U) ($4,600) Complete Weapon System Accuracy Trials (WSAT). Complete all combat system testing certifying the sea trials system and technical documentation fully support weapon firing.
- (U) ($4,596) Initiate CSIC II on the final delivery system. Initiate all Navy testing certifying the final delivery system is ready to go to sea trials.
- (U) ($4,618) Initiate WSAT II. Initiate all combat system testing certifying the final delivery system and technical documentation fully support weapon firing.
- (U) ($5,138) Initiate Post Shakedown Availability. Coordinate installation of JMCIS and resolution of system problems detected during shakedown.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604524N
PROGRAM ELEMENT TITLE: Submarine Combat System

PROJECT NUMBER: F1941
PROJECT TITLE: AN/BSY-2

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	84,681	43,302	16,461
(U) Adjustments from PRESBUDG:	0	-1,471	+2,491
(U) FY 1997 PRESBUDG Submit:	84,681	41,831	18,952

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1996 - The net funding decrease of $1,471K reflects Congressional undistributed and general reductions of -$963K; and revised DoD inflation rates reduction of -$508K. FY 1997 - The net funding increase of $2,491K reflects an increase of $3,677K to fund CSF operations to support AN/BSY-2 during SEAWOLF sea trials prior to completion of TECHEVAL/OPEVAL; and reductions in the amounts of: -$1,186K due to revised inflation estimates, DBOF reductions, and other minor pricing reductions.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604524N PROJECT NUMBER: F1941
PROGRAM ELEMENT TITLE: Submarine Combat System PROJECT TITLE: AN/BSY-2

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

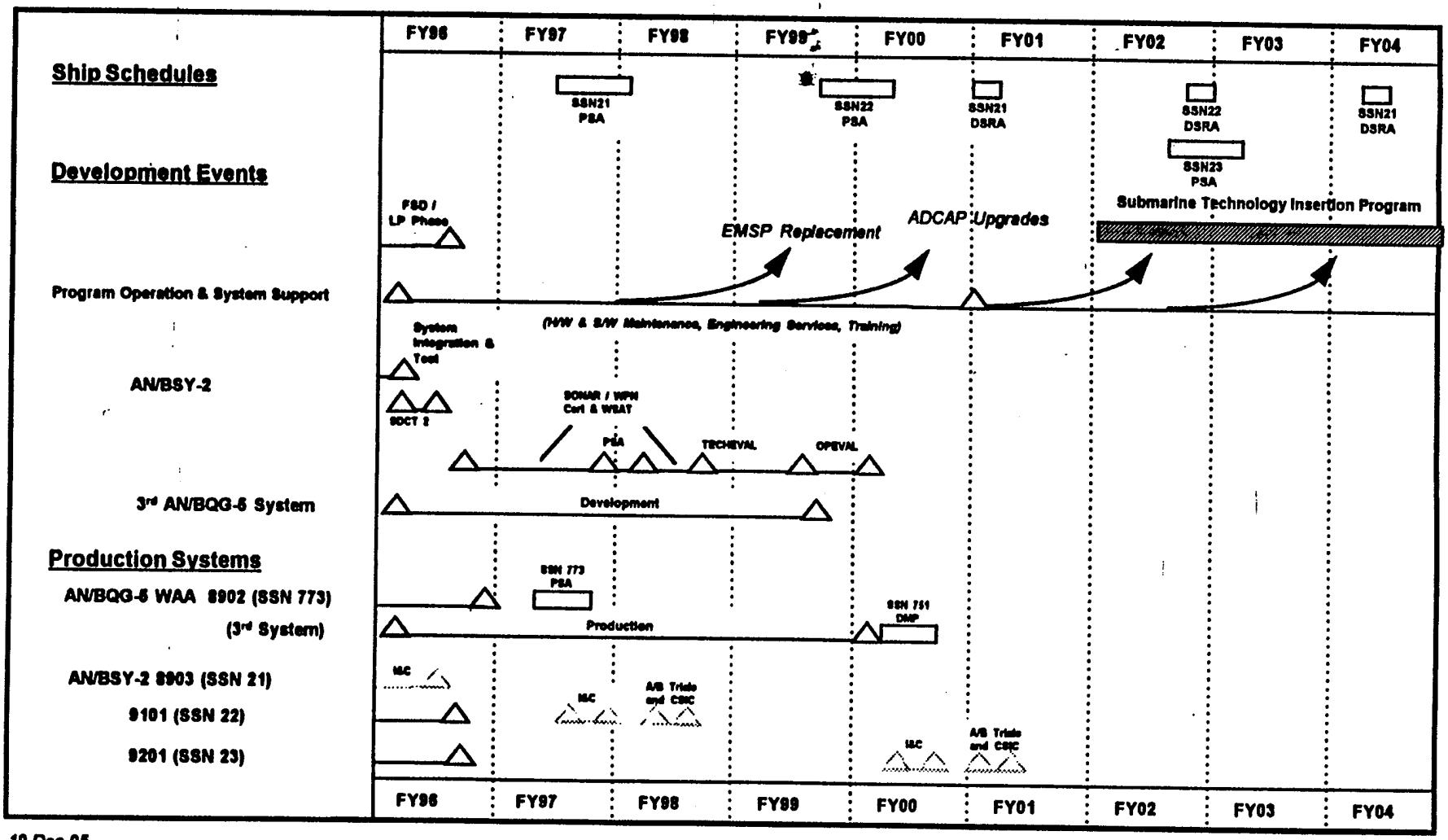
(U) RELATED RDT&E:

(U) PE 0205632N (Mk 48 ADCAP)
(U) PE 0204229N (TOMAHAWK & TMPC)
(U) PE 0604601N (Mine Development)
(U) PE 0604503N (Submarine System Equipment Development)
(U) PE 0604507N (Enhanced Modular Signal Processor)

D. (U) SCHEDULE PROFILE: See attached.

BSY-2 Submarine Combat System

MASTER SCHEDULE



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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604524N PROJECT NUMBER: F1941
PROGRAM ELEMENT TITLE: Submarine Combat System PROJECT TITLE: AN/BSY-2

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Full Scale Development/POSS	58,016	20,984	5,505
b. Technical Direction Agent / In-Service Engineering Agent	18,268	14,424	10,131
c. Naval Surface Warfare Center	872	305	0
d. Program Assessment	1,300	356	0
e. Other In-House	532	440	226
f. Contractor Support Services / Management Support Services	5,193	4,213	2,690
g. Travel	500	451	400
h. SBIR	0	658	0
Total	84,681	41,831	18,952

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604524N PROJECT NUMBER: F1941
PROGRAM ELEMENT TITLE: Submarine Combat System PROJECT TITLE: AN/BSY-2

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
LMC, Syracuse NY	C/FPI	12/87	1,227,997	1,227,997	1,130,447	58,016	20,984	5,505	15,158	1,230,110
Raytheon, Portsmouth RI	C/FPI	2/91	22,318	22,318	22,318	0	0	0	0	22,318
AT&T, Greensboro NC	C/FPI	2/91	39,912	39,912	39,912	0	0	0	0	39,912
IBM, Manassas VA	FFP	3/86	16,800	16,800	16,800	0	0	0	0	16,800
NUWC, Newport RI	WR	11/94	302,867	302,867	260,879	13,904	10,891	6,255	5,955	297,884
NSWC, Crane IN	WR	11/94	16,045	16,045	14,473	872	305	0	0	15,650
NTSC, Orlando FL	WR	11/94	5,257	5,257	5,257	0	0	0	0	5,257
Miscellaneous	Various	Various			33,183	1,032	549	626	564	35,954

UNCLASSIFIED

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604524N PROJECT NUMBER: F1941
PROGRAM ELEMENT TITLE: Submarine Combat System PROJECT TITLE: AN/BSY-2

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Support and Management										
EG&G, Rockville MD	C/CPAF	10/87	78,254	78,254	66,071	5,193	4,213	2,690	0	78,167
NUWC, Newport RI	WR/RC	11/94	39,286	39,286	27,269	3,864	3,533	2,876	1,744	39,286
MITRE, McLean VA	MIPR	11/94	6,738	6,738	5,438	1,300	356	0	0	7,094
Test and Evaluation			0	0	0	0	0	0	0	0

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development									
Miscellaneous	Various	Various	Various	3,236	0	0	0	0	3,236
Support and Management				0	0	0	0	0	0
Test and Evaluation									
Miscellaneous	Various	Various	Various	0	500	1,000	1,000	6,880	9,380

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604524N
PROGRAM ELEMENT TITLE: Submarine Combat System

PROJECT NUMBER: F1941
PROJECT TITLE: AN/BSY-2

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	1,526,505	73,824	32,729	12,386	21,677	1,667,121
Subtotal Support and Management	98,778	10,357	8,102	5,566	1,744	124,547
Subtotal Test and Evaluation		500	1,000	1,000	6,880	9,380
Total Project	1,625,283	84,681	41,831	18,952	30,301	1,801,048

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604558N
PROGRAM ELEMENT TITLE: New Design SSN Development

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
F1947 New Design SSN HM&E	135,346	230,145	284,187	234,686	146,342	120,338	122,385	399,209	1,812,219
F1950 New Design SSN Combat System Development	93,493	105,869	109,813	136,006	69,691	71,602	74,806	221,570	955,692
TOTAL	228,839	336,014	394,000	370,692	216,033	191,940	197,191	620,779	2,767,911

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: A principal challenge to the U.S. Navy is to maintain the submarine fleet essential to defend American interests. The New Attack Submarine (New SSN) is being designed to meet the potential threats of the next century in a multi-mission capable submarine that has the ability to provide covert, sustained presence in denied waters. The primary goal of the program will be to develop an affordable yet capable submarine by evaluating a broad range of system and technology alternatives, and examining cost reduction, producibility improvement, and technical risk reduction. This Program Element (PE) provides the technology, prototype components, and systems to design and construct the New SSN and build in its Command, Control, Communications, and Intelligence (C^3I) System. This PE directly supports the following New SSN missions: (1) covert strike warfare; (2) anti-submarine warfare (3) covert intelligence collection/surveillance, indication and warning, and electronic warfare; (4) anti-surface ship warfare; (5) special warfare; (6) mine warfare; and (7) battle group support.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604558N
PROGRAM ELEMENT TITLE: New Design SSN Development

(U) COST (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
F1947 New Design SSN HM&E	135,346	230,145	284,187	234,686	146,342	120,338	122,385	399,209	1,812,219

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project encompasses all the Hull, Mechanical and Electrical (HM&E) development efforts for the New SSN. The traditional distinct phasing of the design process has been replaced with a continuous concurrent engineering process called Integrated Product and Process Development (IPPD). This serves to maintain the focus of multi-discipline teams consisting of Government, shipbuilder and suppliers. This process is essential to achieve the maximum cost reduction possible in a low rate production environment. The thrust of these efforts will be to develop and apply HM&E system technologies which enable design of an attack submarine system. This approach to technology innovation will carefully balance military capability, development and acquisition cost, impact on ship weight and volume, and technical risk. Leveraging and capitalizing on existing technologies and vendor bases for existing components from SSN 688I, TRIDENT, and SEAWOLF will minimize both cost and risk. Varying degrees of re-engineering of existing systems may be required to adapt them to the new submarine's requirements and minimize vendor risks of constructing a new ship with overlapping technology development. Newly developing technologies will be transitioned from ongoing industry and Government research and development programs where doing so will offer substantial affordability payoffs, without sacrificing military capability. HM&E development will support a FY 1998 lead ship construction contract award.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($111,714) Continued system verification studies, tests and analysis in support of ship design including hydrodynamic modeling, signature modeling and testing, and structural testing. Continued development of components and technologies such as high speed diesel, modular masts, and shock electric power distribution components, electromagnetic signature reduction, ship control station, gas management system, hydraulic actuators,

weapons stowage, handling and launcher systems, hull coatings, and main propulsion unit. Initiated transition of technologies such as propulsor, ship service turbine generator, reverse osmosis desalination, non-Chlorlo Fluoro Carbons air conditioning and refrigeration units, special hull treatments, and main shaft seal from advanced development to support Milestone II decision. Conducted Cost and Operational Effectiveness Analysis (COEA), and early Operational Assessment (EOA) of New SSN platform and reported findings. Prepared test plans associated with Developmental Testing. Awarded Level of Effort (LOE) and Improved Performance Machinery Program contracts.

- (U) ($9,745) Prepared refined ship cost estimate. Continued projects which improve producibility and reduce procurement and life cycle costs. Continued Environmental Compliance and Pollution Efforts.

- (U) ($13,887) Continued to support the design process with supportability trade-off analysis. Continued to provide program and special support at Navy Labs, shipyards and in-house. Completed development of major program documentation in support of scheduled Milestone II Defense Acquisition Board (DAB).

2. (U) FY 1996 PLAN:

- (U) ($194,523) Continue design and manufacturing of prototype and engineering development models for technologies and components such as: high speed diesel, main propulsion unit, ship service turbine generator, weapons launch systems, propulsion shaft bearing, thrust bearing, electric power distribution components, electromagnetic signature reduction, air conditioning and refrigeration units, special hull treatments, gas management system, and ship control station. Complete at-sea evaluation of reverse osmosis desalination. Validate design and production processes for modular integrated decks with detailed finite element models and small scale testing of constituent items. Continue to leverage the Office of Naval Research and Advanced Research Projects Agency related research in stealth technologies and models to improve effectiveness of New SSN efforts. Continue design and development of propulsor including component evaluations on Large Scale Vehicle (LSV) evaluation. Continue system verification studies, tests, and analyses in support of ship design including signatures, survivability, and hydrodynamics analyses and testing. Provide Design/Build Team program support at Navy labs, shipyards and in-house.

- (U) ($2,669) Support introduction of a second shipbuilder (Newport News) to promote competition as required by the 1996 Defense Authorization Act. Initiate development of tools, procedures and processes to transfer the New SSN design from the Design Agent (Electric Boat Corp.) to the follow shipbuilder. Initiate development of methods needed to execute the exchange of digital design information, making the data compatible with the follow shipbuilder systems/procedures.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604558N PROJECT NUMBER: F1947
PROGRAM ELEMENT TITLE: New Design SSN Development PROJECT TITLE: New Design SSN HM&E

- (U) ($10,999) Conduct analysis in support of force effectiveness assessment and component performance trade-offs. Develop and maintain cost reducing approach to New SSN construction through use of IPPD's concurrent engineering and design/build philosophy. Conduct coordination of New SSN specifications at the shipbuilder. Provide cost estimating and validation of cost reduction ideas for New SSN overall design development. Continue Environmental Compliance and Pollution Prevention efforts.

- (U) ($18,191) Development of a New SSN logistic support concept, Reliability, Maintainability, and Availability modeling analyses of New SSN systems, concept definition and development of an Onboard Team Trainer, development of HM&E trainers, operating and support cost research, and prototyping of an Integrated Weapons System Data Base environment that supports the Joint Continuous Acquisition Life Cycle Support (JCALS) concepts, evolving toward a "paperless ship." Develop plans for Live Fire Test and Evaluation efforts.

- (U) (3,763) Portion of extramural program reserved for Small Business Innovation Research (SBIR) Assessment in accordance with 15 U.S.C.638.

3. (U) FY 1997 PLAN:

- (U) ($241,989) Initiate fabrication of prototype forward modules and continue development evaluation of components on integrated deck modules to validate performance and producibility process improvements. Continue design, manufacturing, and qualification testing of prototype technologies and components such as: main propulsion unit, ship service turbine generator, weapons stowage, handling and launch systems, thrust bearing, electromagnetic signature reduction, special hull treatments, gas management system, ship control station, hydraulic actuators and valves and reverse osmosis desalination unit. Complete design and initiate testing of scaled prototype propulsor on LSV. Initiate shock qualification testing and analyses of various components. Continue system verification studies, tests, and analyses in support of ship design including signature and survivability analyses and tests.

- (U) ($11,944) Continue effectiveness analyses and evaluations relating to force effectiveness. Conduct analysis in support of force effectiveness assessment and component performance tradeoffs. Maintain cost reducing approach to New SSN construction through use of IPPD's concurrent engineering and design/build philosophy. Continue coordination of New SSN specification at the shipbuilder. Continue cost estimating and validation of cost reduction ideas for New SSN overall design development. Continue Environmental Compliance and Pollution Prevention efforts.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604558N PROJECT NUMBER: F1947
PROGRAM ELEMENT TITLE: New Design SSN Development PROJECT TITLE: New Design SSN HM&E

- (U) ($23,440) Continue development of a New SSN logistic support concept through trade-off studies and analyses, Reliability, Maintainability & Accountability (RM&A) modeling analyses of New SSN systems, concept definition and development of an Onboard Team Trainer, development of HM&E trainers, Operating & Support (O&S) cost research, and prototyping of a digital data environment that supports the JCALS concepts. Prepare test plans associated with Developmental Testing. Conduct engineering evaluation of test results. Conduct Live Fire Test & Evaluation (LFT&E) modeling and analysis.

- (U) ($6,814) Extension of Digital Data Exchange of all data between the Navy and shipbuilder. Provide IPPD, Design/Build team program support at Navy Labs, shipyards and in-house. Conduct feasibility studies and engineering evaluation of the feasibility of incorporating late emergent technologies into later hulls of the New SSN. Conduct engineering review and analysis of shipyard and vendor proposed technology initiatives.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget	135,346	237,859	297,970
(U) Adjustments from PRESBUDG:	0	-7,714	-13,783
(U) FY 1997 PRESBUDG Submit:	135,346	230,145	284,187

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The decrease of $7,714K in FY 1996 results from Congressional Undistributed, general and inflation reductions, and revised DoD inflation rates and other minor pricing adjustments. The decrease of $13,783K in FY 1997 is attributed to revised inflation estimates and other minor pricing adjustments.

(U) Schedule: Not applicable.

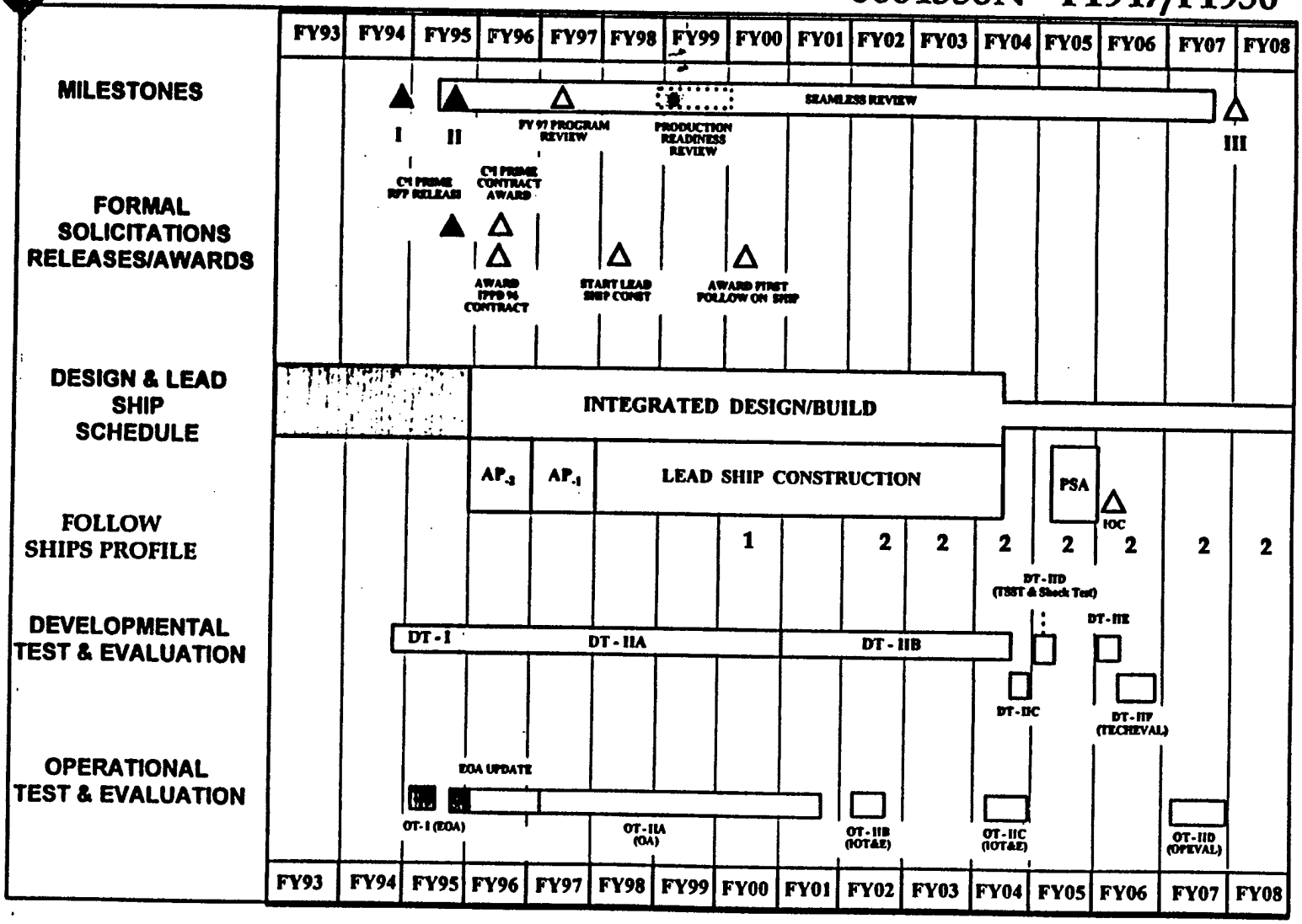
(U) Technical: Not applicable.

New Attack Submarine (NSSN)

Program Schedule

2/29/96

PROGRAM ELEMENT: 0604558N - F1947/F1950



FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604558N PROJECT NUMBER: F1947
PROGRAM ELEMENT TITLE: New Design SSN Development PROJECT TITLE: New Design SSN HM&E

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in Thousands)

FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) SCN Line 201300 PE: 0204281N								
0	678,839	296,186	2,702,110	544,001	1,899,806	1,136,681	51,370,312	58,627,935
SCN Line 201310 PE: 0204281N								
0	96,358	0	0	0	0	0	0	96,358

(U) RELATED RDT&E:

(U) PE 0603561N (Advanced Submarine System Development)
(U) PE 0603564N (Ship Preliminary Design and Feasibility Studies)
(U) PE 0603570N (Advanced Nuclear Power Systems)
(U) PE 0604567N (Ship Contract Design/Live Fire T&E)

D. (U) SCHEDULE PROFILE: See attached.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604558N PROJECT NUMBER: F1947
PROGRAM ELEMENT TITLE: New Design SSN Development PROJECT TITLE: New Design SSN HM&E

A. (U) PROJECT COST BREAKDOWN: ($ in Thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Computer Aided Design Efforts	0	0	0
b. Design/Management Support	0	392	3,450
c. Modules/Tech Upgrade Studies	0	0	0
d. General Piping	0	0	0
e. Weapons Safety	0	0	0
f. On-Site Design Support	0	3,406	3,574
g. Navy Labs	0	0	0
h. Ship System Development	0	0	0
i. Military Effectiveness/ Operational Analysis	2,500	343	250
j. Subsafe	205	1,436	316
k. Producibility/Environmental	4,242	6,179	4,970
l. Specification/ Construction Support	1,150	1,757	1,325

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604558N PROJECT NUMBER: F1947
PROGRAM ELEMENT TITLE: New Design SSN Development PROJECT TITLE: New Design SSN HM&E

A. (U) PROJECT COST BREAKDOWN: ($ in Thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
m. Cost Analysis	1,175	245	145
n. New SSN Ship & Module	5,336	22,313	30,296
o. Signature Reduction/Analysis	30,705	21,602	24,175
p. Transient Analysis	4,130	2,834	17,627
q. Structural Engineering R&D	4,800	9,252	5,710
r. Main Propulsion Unit Development	710	29,852	32,684
s. Propulsion System Engineering Development	10,052	28,047	26,654
t. Electrical System Engineering Development	13,938	19,552	34,236
u. Auxiliary System Engineering Development	22,197	26,500	31,843

UNCLASSIFIED

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604558N
PROGRAM ELEMENT TITLE: New Design SSN Development

PROJECT NUMBER: F1947
PROJECT TITLE: New Design SSN HM&E

A. (U) PROJECT COST BREAKDOWN: ($ in Thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
v. Materials/Coatings Engineering R&D	6,072	10,171	13,356
w. Weapons Launcher System Engineering R&D	13,774	14,599	10,492
x. Logistics	6,261	11,680	16,057
y. General Support	1,801	82	0
z. Test Support	1,735	1,942	0
aa. Program Support	4,563	4,258	3,310
bb. General Test Support	0	0	5,079
cc. SBIR	0	3,763	0
dd. Electronics Engineering Development	0	9,663	17,302
ee. Technical/Specifications Support	0	277	1,336
Total	135,346	230,145	284,187

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604558N PROJECT NUMBER: F1947
PROGRAM ELEMENT TITLE: New Design SSN Development PROJECT TITLE: New Design SSN HM&E

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in Thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
NSWC Carderock, MD	WR	VARIOUS	326,899	326,899	32,948	40,718	55,655	50,851	146,727	326,899
Advanced Marine Enterprises, Arlington, VA	SS/CPFF	1/94	1,464	1,464	1,170	80	94	120	0	1,464
General Dynamics/EB Div, Groton, CT	SS/CPFF	10/93	72,121	72,121	72,121	0	0	0	0	72,121
GD/EB Div., Groton, CT	SS/CPFF	1/95	211,451	211,451	0	16,195	42,450	51,806	101,000	211,451
SUPSHIP, Groton, CT	PD	VARIOUS	8,550	8,550	800	3,950	1,800	0	2,000	8,550
GD/EB Div., Groton, CT	SS/CPFF	1/95	43,418	43,418	0	43,418	0	0	0	43,418
GD/EB Div., Groton, CT	SS/CPFF	5/95	217,559	217,559	0	0	75,972	80,857	60,730	217,559
MISCELLANEOUS	VARIOUS	VARIOUS	790,137	790,137	7,765	9,194	29,277	86,571	657,330	790,137
Newport News Shipbuilding, Norfolk, VA	SS/CPFF	2/93	14,293	14,293	8,207	1,726	3,901	459	0	14,293
NUWC, Newport, RI	WR	VARIOUS	57,633	57,633	13,062	12,680	10,056	4,869	16,966	57,633
SPAWAR/ Applied Research Lab/PENN State University	SS/CPIF	1/94	7,886	7,886	175	535	3,841	2,120	1,215	7,886

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604558N
PROGRAM ELEMENT TITLE: New Design SSN Development

PROJECT NUMBER: F1947
PROJECT TITLE: New Design SSN HM&E

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Support and Management										
MISCELLANEOUS	VARIOUS	VARIOUS	32,533	32,533	2,290	5,530	4,518	3,207	16,988	32,533
Test and Evaluation										
MISCELLANEOUS	VARIOUS	VARIOUS	36,256	36,256	1,043	1,320	2,581	3,327	20,004	28,275

GOVERNMENT FURNISHED PROPERTY: Not applicable.

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	136,248	128,496	223,046	277,653	985,968	1,751,411
Subtotal Support and Management	2,290	5,530	4,518	3,207	16,988	32,533
Subtotal Test and Evaluation	1,043	1,320	2,581	3,327	20,004	28,275
Total Project	139,581	135,346	230,145	284,187	1,022,960	1,812,219

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604558N
PROGRAM ELEMENT TITLE: New Design SSN Development

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
F1950 New Design SSN Combat System Development	93,493	105,869	109,813	136,006	69,691	71,602	74,806	221,570	955,692

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project encompasses the top level systems development and overall integration into the ship of the New SSN C³I System (formerly referred to as Combat Systems), which includes multiple subsystems. The traditional distinct phasing of the ship design process has been replaced with a continuous concurrent engineering process called Integrated Product and Process Development (IPPD). This serves to maintain the focus of multi-discipline teams consisting of the Government, shipbuilder and suppliers. This process, which includes the C³I System efforts, is essential to achieve the maximum cost reduction possible in a low rate production environment. The scope of the system is expanded from Sonar and Combat Control subsystems to include Electronics Support Measures (ESM), Exterior Communications, Submarine Defensive Warfare System, Navigation, Total Ship Monitoring, Periscope/Imaging, Tactical Acoustic Communications, Radar, Navigation Sensor System Interface (NAVSSI), Interior Communications, Tactical Support Devices, Fiber Optic Backbone, and Special Purpose Subsystems, such as Battle Force Team Trainer and others. The Research, Development, Test and Evaluation funds identified encompass New SSN specific development efforts (not programmed in other program lines) and integration of these multiple subsystems at the C³I Off-Hull Assembly and Test Site (COATS).

(U) New SSN plans to use an acquisition and implementation approach based on Open System, Commercial-Off-The-Shelf (COTS) Non-Developmental Items or subsystems; leveraging on-going subsystems developments; and developing new subsystems when needed to satisfy New SSN requirements. The recurring cost of future C³I Systems must be reduced to meet the program's affordability goals. Modifications to many subsystems must be developed to: (1) reduce the shipbuilding and construction recurring costs through the use of COTS components; (2) use proven computer technologies to evolve to an Open System design; (3) enhance capabilities to support expanded operational requirements, reduced manning, and reduced shipboard component footprint.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604558N
PROGRAM ELEMENT TITLE: New Design SSN Development

PROJECT NUMBER: F1950
PROJECT TITLE: New Design SSN Combat System Development

(U) To meet the combined future threat, the submarine force must operate as effectively in littoral regions as it traditionally has in open ocean. Close coordination with surface battle groups and airborne units is essential to mission accomplishment. To support the New SSN mission, the following functional capabilities are provided or supported by the New SSN C^{3}I System: (1) Passive and Active detection of multiple contacts, including early warning threat determination through processing and analysis of sensor data; (2) classification of sensor data for the purpose of identifying contacts; (3) localization (tracking) of contacts through target motion analysis; (4) preset, launch, and control of weapons and countermeasures; (5) improved communication and connectivity with other battle group elements, airborne units, and special operations forces; (6) incorporation of Vertical Launch System to enhance strike warfare; and (7) more effective covert surveillance through video imaging with onboard digital enhancement capabilities, and improved electronic warfare analysis and exploitation capabilities.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($34,308) Awarded LOE contract. Continued system level development activities in the following areas: completed system level specifications and interface control documents; developed hardware configuration definition and functional allocation Government Furnished Information packages; conducted PHASE I Critical Item Tests; began preparation of test and integration plans for the COATS; and began C^{3}I System Integration effort. Began development of the Prime Item Development Specification (PIDS) for Simulation and Stimulation (SIM/STIM) equipment. Completed C^{3}I architecture definition. Completed development of major program documentation for the June 95 Milestone II DAB.

- (U) ($32,696) Continued commercial off the shelf (COTS) hardware and software development studies and the development and integration of a Computer Open System Module for Combat Control and Sonar subsystems. Conducted COEA, and EOA of New SSN platform and report findings. Prepared competitive Request for Proposal for Sonar, Combat Control and Architecture Development.

- (U) ($26,489) Continued development efforts to support New SSN unique requirements for other subsystems. Began Advanced Submarine Tactical Electronic Countermeasures System (ASTECS) Engineering and Manufacturing Development.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604558N PROGRAM ELEMENT TITLE: New Design SSN Development PROJECT NUMBER: F1950 PROJECT TITLE: New Design SSN Combat System Development

2. (U) FY 1996 PLAN:

- (U) ($14,687) System level development activities continue in the following areas: development of test and integration plans for the COATS; identification of unique hardware and software requirements associated with the COATS; complete development of the PIDS for SIM/STIM equipment.
- (U) ($1,300) Support introduction of a second shipbuilder (Newport News) to promote competition as required by the 1996 Defense Authorization Act. Initiate development of tools, procedures and processes to transfer the New SSN design from the Design Agent (Electric Boat Corporation) to the follow shipbuilder. Initiate development of methods needed to execute the exchange of digital design information, making the data compatible with the follow shipbuilder's systems/procedures.
- (U) ($55,345) Conduct Source Selection and award the Sonar, Combat Control and Architecture Engineering and Manufacturing Development contract. Initiate Combat Control, Sonar and Architecture detailed hardware design, software transition and development, hardware development, begin development of logistics support, and provide funding for test hardware.
- (U) ($32,774) Continue development efforts to support unique requirements for other subsystems. Complete ASTECS Preliminary Design Review.
- (U) ($1,763) Portion of extramural program reserved for Small Business Innovation Research (SBIR) assessment in accordance with 15 U.S.C.638.

3. (U) FY 1997 PLAN:

- (U) ($10,839) System level development activities continue in the following areas: development of test and integration plans for the COATS; begin procurement of unique hardware and develop or modify computer software in preparation for the testing and integration of New SSN C^3I System; start COATS development; begin development and procurement of hardware and software for SIM/STIM equipment.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604558N PROJECT NUMBER: F1950
PROGRAM ELEMENT TITLE: New Design SSN Development PROJECT TITLE: New Design SSN Combat System Development

- (U) ($68,953) Continue Combat Control, Sonar and Architecture detailed hardware design; continue software transition and development, continue hardware development, continue development of logistics support, prepare for system integration and test, and provide funding for test hardware.
- (U) ($30,021) Continue development efforts to support unique requirements for other subsystems. Complete ASTECS Critical Design Review.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	93,493	109,556	117,047
(U) Adjustments from PRESBUDG:	0	-3,687	-7,234
(U) FY 1997 PRESBUDG Submit:	93,493	105,869	109,813

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 1996 decrease of $3,687K is attributable to undistributed Congressional, general and inflation reductions, and revised DoD inflation rates and other minor pricing adjustments. The net decrease of $7,234K in FY 1997 from the PRESBUDG reflects an increase of $6,200K for the Light Weight Wide Aperature Array. The increase is offset by the following decreases: $9,000K as a result of poor FY95 execution performance; $1,050K decrease for Defense Business Operations Fund adjustments; $3,326K decrease attributable to inflation adjustments; and $58K decrease for other minor pricing reductions.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604558N PROJECT NUMBER: F1950
PROGRAM ELEMENT TITLE: New Design SSN Development PROJECT TITLE: New Design SSN Combat System Development

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in Thousands)

FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) SCN Line 201300 PE: 0204281N								
0	678,839	296,186	2,702,110	544,001	1,899,806	1,136,681	51,370,312	58,627,935
SCN Line 201310 PE: 0204281N								
0	96,358	0	0	0	0	0	0	96,358

(U) RELATED RDT&E:

(U) PE 0603504N (Advanced Submarine Combat Systems Development)
(U) PE 0603561N (Advanced Submarine System Development)
(U) PE 0603562N (Submarine Tactical Warfare Systems)
(U) PE 0603564N (Ship Preliminary Design and Feasibility Studies)
(U) PE 0603570N (Advanced Nuclear Power Systems)
(U) PE 0604503N (Submarine System Equipment Development)
(U) PE 0604567N (Ship Contract Design/Live Fire T&E)
(U) PE 0604574N (Navy Tactical Computer Resources)
(U) PE 0604777N (Navigation/ID Systems)

D. (U) SCHEDULE PROFILE: See attached.

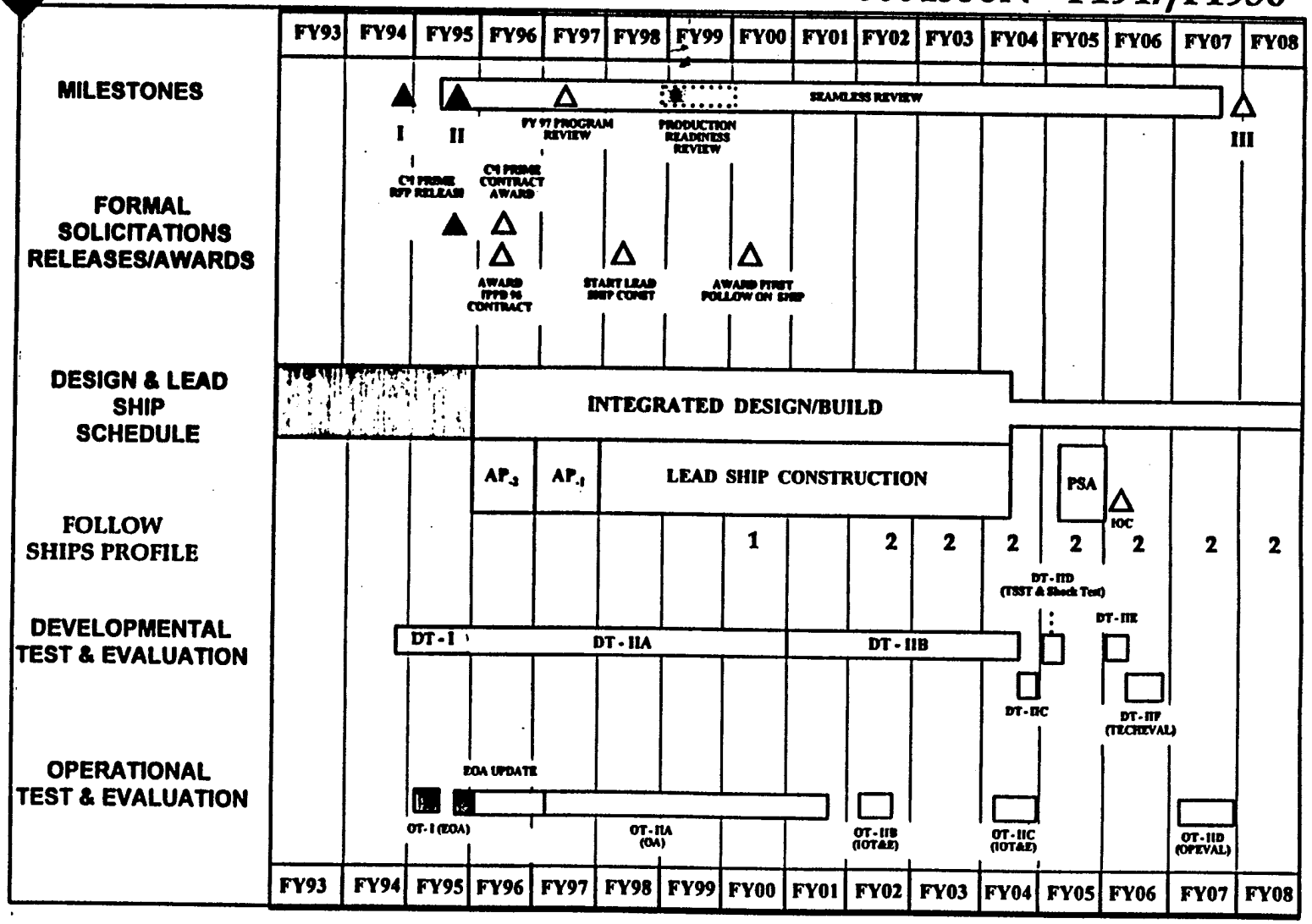
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New Attack Submarine (NSSN)

Program Schedule

2/29/96

PROGRAM ELEMENT: 0604558N - F1947/F1950



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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604558N PROGRAM ELEMENT TITLE: New Design SSN Development PROJECT NUMBER: F1950 PROJECT TITLE: New Design SSN Combat System Development

A. (U) PROJECT COST BREAKDOWN: ($ in Thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. SONAR PROGRAM	27,617	36,021	46,252
b. COMBAT CONTROL PROGRAM	5,079	16,298	18,491
c. SYSTEM LEVEL	34,308	15,987	10,839
d. EXTERIOR COMMS	2,750	750	750
e. PERISCOPES/IMAGING	5,865	4,750	2,200
f. NAVIGATION	3,968	1,235	1,339
g. INTERIOR COMMS	250	90	380
h. NAVSSI	664	917	1,500
i. C^3I ARCHITECTURE	0	3,026	4,210
j. ESM	12,992	25,032	23,852
k. SBIR	0	1,763	0
Total	93,493	105,869	109,813

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604558N
PROGRAM ELEMENT TITLE: New Design SSN Development

PROJECT NUMBER: F1950
PROJECT TITLE: New Design SSN Combat System Development

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in Thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Unisys Corp./ Loral, St. Paul, MN	SS/FFP/CPIF	9/94	18,619	18,619	624	4,727	9,973	3,295	0	18,619
Digital Systems Resources, Fairfax, VA	SS/CPIF	3/94	40,859	40,859	17,354	11,049	7,800	4,656	0	40,859
Unisys Corp./ Loral, St. Paul, MN	SS/CPFF	4/94	2,500	2,500	1,500	1,000	0	0	0	2,500
Raytheon Co., Portsmouth, RI	SS/CPIF/ CPAF	4/93	8,497	8,497	0	7,510	987	0	0	8,497
Raytheon Co., Portsmouth, RI	SS/CPFF	2/94	2,500	2,500	2,500	0	0	0	0	2,500
Sperry Marine, Inc., Charlottsville, VA	SS/CPFF	12/93	2,598	2,598	1,401	1,197	0	0	0	2,598
Sperry Marine, Inc., Charlottesville, VA	SS/FPI	3/95	1,322	1,322	0	1,222	100	0	0	1,322
GD/EB Div, Groton, CT	SS/CPFF	10/94	25,107	25,107	5,000	8,273	965	1,420	9,449	25,107
SPAWAR/ Applied Research Laboratory, Univ Texas	SS/CPIF	8/94	3,273	3,273	2,207	1,066	0	0	0	3,273
Loral, Manassas, VA	SS/CPFF	8/94	6,908	6,908	3,380	1,778	1,750	0	0	6,908

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604558N PROJECT NUMBER: F1950
PROGRAM ELEMENT TITLE: New Design SSN Development PROJECT TITLE: New Design SSN Combat System Development

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Newport News Shipbuilding, Norfolk, VA	SS/CPFF	2/96	1,300	1,300	0	0	1,300	0	0	1,300
NUWC, Newport, RI	VARIOUS	VARIOUS	175,330	175,330	27,348	37,154	22,170	16,446	72,212	175,330
Kollmorgen Northampton, MA	SS/FFP	1/94	4,840	4,840	4,060	780	0	0	0	4,840
Kollmorgen Northampton, MA	C/CPIF	1/95	11,050	11,050	0	4,500	4,500	1,300	750	11,050
NCCOSC, Northampton, MA	WR	VARIOUS	4,194	4,194	0	1,557	1,577	1,060	0	4,194
Lockheed/ Martin, Syracuse, NY	C/CPIF	7/95	62,087	62,087	0	3,509	20,639	19,047	18,892	62,087
TBD	C/VARIOUS	VARIOUS	402,390	402,390	0	0	22,301	49,356	330,733	402,390
Miscellaneous	VARIOUS	VARIOUS	85,607	85,607	4,689	2,554	4,381	4,320	69,663	85,607
Support and Management										
EG&G, Rockville, MD	C/CPFF	6/94	1,500	1,500	1,500	0	0	0	0	1,500
EG&G, Rockville, MD	C/CPFF	6/94	26,988	26,988	60	1,843	1,891	1,795	21,399	26,988
SWL, Inc., Vienna, VA	PD	10/94	35,542	35,542	0	2,344	2,354	2,905	27,939	35,542
MITRE Corp., McLean, VA	MIPR	12/94	2,902	2,902	0	128	370	428	1,976	2,902

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604558N
PROGRAM ELEMENT TITLE: New Design SSN Development
PROJECT NUMBER: F1950
PROJECT TITLE: New Design SSN Combat System Development

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Offices EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Miscellaneous	VARIOUS	VARIOUS	26,279	26,279	1,219	1,302	2,511	2,885	18,362	26,279
Test and Evaluation										
MISCELLANEOUS	VARIOUS	VARIOUS	3,500	3,500	0	0	300	900	2,300	3,500

GOVERNMENT FURNISHED PROPERTY: Not applicable.

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	70,063	87,876	98,443	100,900	501,699	858,981
Subtotal Support and Management	2,779	5,617	7,126	8,013	69,676	93,211
Subtotal Test and Evaluation	0	0	300	900	2,300	3,500
Total Project	72,842	93,493	105,869	109,813	573,675	955,692

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604561N
PROGRAM ELEMENT TITLE: SSN 21 Development

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
F1946 SSN 21 Development	69,160	80,819	91,931	32,350	23,893	1,090	0	0	1,625,272

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The SEAWOLF submarine will be a multi-mission ship that will introduce unprecedented performance capabilities. It will be the quietest, most heavily-armed attack submarine the Navy has ever built. The design of the SEAWOLF is based on an extensive research and development program and will incorporate technological advancements to provide: order of magnitude improvement in ship quieting; improved acoustic sensors; more capable combat systems; greater weapon capacity and capability; quieter launch; weapon launch at high ship speed; advanced reactor; improved performance machinery program; an advanced propulsor; increased operating depth; improved ship control; and enhanced survivability.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS: The following information is intended to highlight major Research and Development (R&D) efforts and does not include all SEAWOLF R&D efforts.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604561N
PROGRAM ELEMENT TITLE: SSN 21 Development
PROJECT NUMBER: F1946
PROJECT TITLE: SSN 21 Development

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($26,556) Continued planning for Live Fire Test (LFT), shock qualification testing of SSN 21 components, testing utilizing the Large Scale Vehicle, qualification testing of various components of the SSN 21. Completed the Aberdeen Proving Ground shock test facility. Implement Integrated Product Team (IPT) for all remaining high risk technical efforts (e.g. Ship Control, Non-Propulsion Electronics and Acoustic). These IPTs assist in integration efforts including Engineering Integration Testing (EIT) prior to shipboard system tests. Completed Full Scale Shock (FSS-8) Test Vehicle overhaul, completed FSS-8 Test Series and commenced subsequent overhaul.
- (U) ($11,700) Settlement of Main Propulsion Unit Request for Equitable Adjustment.
- (U) ($13,718) Continued hardware/software interface testing of the Ship Control System (SCS), Data Distribution System (DDS), and system and components.
- (U) ($4,807) Completed the pre-delivery portion of Advanced Special Hull Treatment (ASHT) lead ship installation. Continued development, installation, and evaluation of ASHT Mold In Place (MIP) installation technology, ASHT at-sea test patches, and ASHT (low volume) installation to support lead ship Post Shakedown Availability (PSA) installation.
- (U) ($12,379) Continued Performance Trials preparations. Completed technical assessment of 155V DC power supply equipment.

2. (U) FY 1996 PLAN:

- (U) ($26,196) Commence and support acoustic, noise, and deep submergence trials planning and analyses.
- (U) ($14,879) Complete FSS-8 overhaul and conduct shock test series.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604561N PROJECT NUMBER: F1946
PROGRAM ELEMENT TITLE: SSN 21 Development PROJECT TITLE: SSN 21 Development

- (U) ($6,964) Continue development of ASHT MIP installation technology and at-sea test patches.
- (U) ($14,271) Complete integration of DDS, interface testing of the SCS, and system and component interface during ship construction.
- (U) ($17,752) Complete qualification and testing of various systems and components. Continue EIT analysis and testing. Continue Integrated Product Team execution of Risk Management Plans in all high risk areas.
- (U) ($757) Portion of extramural program reserved for Small Business Innovation Research Assessment in accordance with 15 U.S.C.638.

3. (U) FY 1997 PLAN:

- (U) ($46,079) Commence LFT, and underwater explosion instrumentation and post-test inspection.
- (U) ($19,210) Commence PSA installation of ASHT, system qualification and inspection.
- (U) ($26,642) Complete pre-PSA trials, i.e., acoustic trials, hydroacoustic trials, electromagnetic silencing trials, sonar certification, torpedo trials, and weapons certification. Support resolution of LFT testing deficiencies. Commence certifications during PSA. Continue Integrated Product Team execution of Risk Management Plans in all high risk areas.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	65,161	83,503	97,805
(U) Adjustments from PRESBUDG:	+3,999	-2,684	-5,874
(U) FY 1997 PRESBUDG Submit:	69,160	80,819	91,931

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604561N PROGRAM ELEMENT TITLE: SSN 21 Development PROJECT NUMBER: F1946 PROJECT TITLE: SSN 21 Development

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 95 increase of $3,999K results from a below threshold reprograming to fund MPU REA. The FY 96 Congressional reduction of $1,701K is due to University Lab, FFRDC, Inflation, General R&D, $983K reduction due to revised DoD inflation rates and other minor pricing adjustments. The FY 97 reduction of $5,874K is due to revised inflation estimates and other minor pricing adjustments.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) SCN #201200	13,630	687,351	735,235	112,724	45,015	796	2,688	79,185	8,171,569
(U) MILCON P-398	0	0	0	0	0	0	0	0	27,300
(U) OPN #094900, #051000	0	4,835	60,399	30,270	26,826	7,866	8,921	0	317,742
(U) OPN #098000, #144500	2,254	0	0	0	0	0	0	0	2,254

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604561N
PROGRAM ELEMENT TITLE: SSN 21 Development

PROJECT NUMBER: F1946
PROJECT TITLE: SSN 21 Development

(U) RELATED RDT&E:

(U) PE 0603570N (Advanced Nuclear Power Systems)
(U) PE 0604524N (Submarine Combat Systems)
(U) PE 0604567N (Ship Contract Design/Live Fire T&E)

D. (U) SCHEDULE PROFILE: See attached

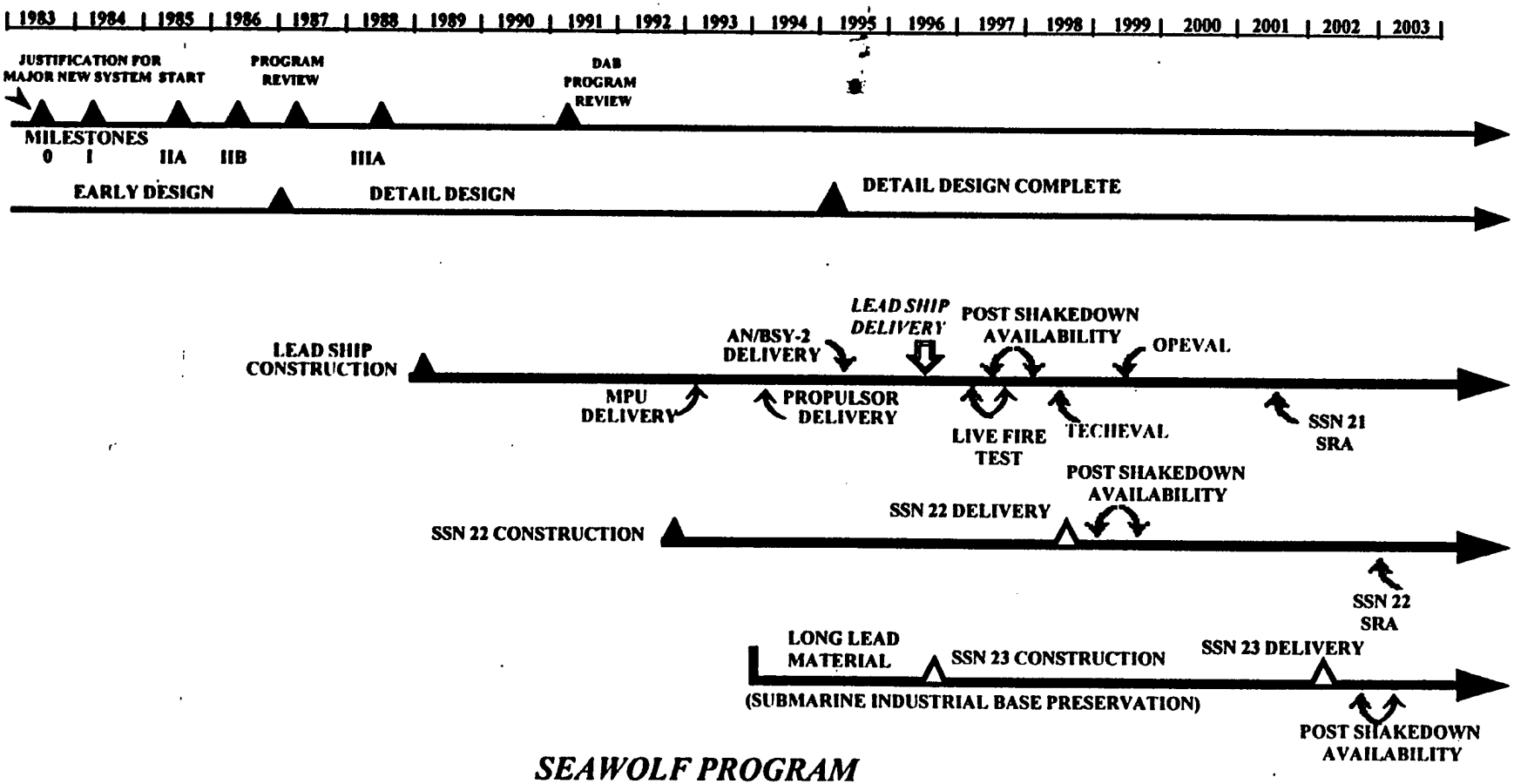
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PROGRAM ELEMENT: 0604561N
PROJECT: F1946

SEAWOLF PROGRAM



Master Schedule



SEAWOLF PROGRAM
THIRTEEN YEARS INTO FOURTEEN YEAR PROCESS
TOWARD LEAD SHIP DELIVERY

000395

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604561N
PROGRAM ELEMENT TITLE: SSN 21 Development
PROJECT NUMBER: F1946
PROJECT TITLE: SSN 21 Development

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Submarine Silencing	5,477	1,436	3,258
b. Advanced Ship Control	14,251	14,271	11,690
c. Auxiliaries/Deep Components	657	0	0
d. Improved Performance Machinery Program	1,800	1,221	949
e. Shock	16,534	14,879	2,898
f. Propulsor	6,567	3,591	2,898
g. Target Strength Reduction	4,680	6,964	19,210
h. Weapons, Stowage & Handling	2,007	1,193	1,949
i. Advanced Submarine Technology	5,948	10,311	5,898
j. Test & Evaluation	11,239	26,196	43,181
k. SBIR	0	757	0
Total	69,160	80,819	91,931

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604561N
PROGRAM ELEMENT TITLE: SSN 21 Development
PROJECT NUMBER: F1946
PROJECT TITLE: SSN 21 Development

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
General Dynamics Groton CT	SS/CPFF	7/83	339,350	339,350	298,569	7,863	9,027	20,719	3,172	339,350
Newport News Shipbuilding Newport News VA	SS/CPFF	4/87	112,183	112,183	103,309	6,027	895	1,299	653	112,183
NSWC Carderock MD	WR/RC	Various	320,253	320,253	270,356	10,958	12,735	13,889	12,315	320,253
Philadelphia Naval Shipyard PA	WR	10/93	13,271	13,271	13,058	0	213	0	0	13,271
NUWC Newport RI	WR	Various	46,481	46,481	25,697	5,280	7,272	4,109	4,123	46,481
NUWC Newport RI	RC	Various	17,242	17,242	15,401	1,410	250	181	0	17,242
Miscellaneous	Various	Various	422,409	422,409	409,447	3,351	4,495	2,789	2,327	422,409

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604561N PROGRAM ELEMENT TITLE: SSN 21 Development PROJECT NUMBER: F1946 PROJECT TITLE: SSN 21 Development

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Support and Management										
ELS Chantilly VA	C/CPAF	9/92	9,262	9,262	3,427	3,055	1,355	1,425	0	9,262
GCI Arlington VA	SS/CPFF	7/92	5,008	5,008	1,675	1,099	1,159	500	575	5,008
Miscellaneous	Various	Various	35,753	35,753	17,133	2,760	6,266	8,341	1,253	35,753
Test and Evaluation										
General Dynamics Groton CT	SS/CPFF	7/83	88,100	88,100	50,993	3,297	12,003	13,131	8,676	88,100
NSWC Carderock MD	WR	Various	91,961	91,961	41,334	7,428	18,903	14,060	10,236	91,961
Aberdeen Proving Ground MD	MP	10/93	35,905	35,905	31,530	1,752	1,051	390	1,182	35,905
Westinghouse Large PA	SS/CPFF	7/83	23,150	23,150	11,450	11,700	0	0	0	23,150
Miscellaneous	Various	Various	64,943	64,943	32,650	3,180	5,195	11,098	12,821	64,944

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5
PROGRAM ELEMENT: 0604561N
PROGRAM ELEMENT TITLE: SSN 21 Development
PROJECT NUMBER: F1946
PROJECT TITLE: SSN 21 Development

GOVERNMENT FURNISHED PROPERTY Not applicable

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	1,135,837	34,889	34,887	42,986	22,590	1,271,189
Subtotal Support and Management	22,235	6,914	8,780	10,266	1,828	50,023
Subtotal Test and Evaluation	167,957	27,357	37,152	38,679	32,915	304,060
Total Project	1,326,029	69,160	80,819	91,931	57,333	1,625,272

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY:5 PROGRAM ELEMENT: 0604562N PROJECT NUMBER: S0236
PROGRAM ELEMENT TITLE: Submarine Tactical Warfare System PROJECT TITLE: SSN Combat System Improvement

(U) COST: (Dollars in Thousands)

PROJECT NUMBER TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
S0236 SSN Combat System Improvement									
	20,277	37,269	22,899	41,054	34,235	17,407	6,552	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program develops software upgrades to integrate improved weapons capabilities within submarine Combat Control System (CCS) MK1, MK2, and AN/BSY-1 (Combat Control) and, as a part of the Obsolete Equipment Replacement (OER), the program develops improvements to hardware which has become increasingly difficult and not economical to maintain. Since FY 1994 the thrust of the CCS Improvement program is the fleet introduction of CCS MK2 Program D0, AN/BSY-1 Engineering Change Proposal (ECP) 134 and Navy Tactical Command System-Afloat (NTCS-A), and the development of CCS MK2 Program D0 Blocks 1 and 2. ECP 134 provides Tomahawk Blocks 1 and 3 capabilities to AN/BSY-1 equipped submarines. NTCS-A provides battlegroup interoperability and Over-the-Horizon correlation algorithm updates to AN/BSY-1 and CCS MK1 equipped submarines. CCS MK2 converged multiple submarine combat system developments into a single effort to minimize submarine life cycle costs, i.e., SSN 688, SSN 688I and SSBN 726 Classes. CCS MK2 Program D0 provides a modular software architecture, introduces Tomahawk Block 3 and Harpoon Block 1C capabilities, introduces Advanced Capability (ADCAP) on TRIDENT, and replaces obsolete equipment. CCS MK2 Program D0 Block 1 integrates CCS MK2 into AN/BSY-1 systems, replaces additional obsolete equipment, incorporates a direct interface to the Global Positioning System, incorporates Joint Maritime Command Information System (JMCIS) into CCS MK2, and implements Advanced Tomahawk Weapon Control System (ATWCS), Tomahawk Block IV, ADCAP torpedo improvements and several other miscellaneous enhancements. Navigation Sensor System Interface (NAVSSI) provides real-time, accurate positional and velocity information for distribution to Combat Control and other shipboard subsystems. CCS MK2 Program D0 Block 2 incorporates into submarine CCS anticipated upgrades to ADCAP, Tomahawk and Harpoon, and implements additional OER. TLAM-N Portable Launching System (PLS) provides SSN Submarines with a stand alone TLAM-N Missile launching capability.

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604562N PROJECT NUMBER: S0236
PROGRAM ELEMENT TITLE: Submarine Tactical Warfare System PROJECT TITLE: SSN Combat System Improvement

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISMENTS:
   - (U) ($500) Obtained Milestone III approval for CCS MK2 Mod 0/1.
   - (U) ($19,777) Conducted Critical Design Review (CDR) for CCS MK2 Program D0 Block 1 A/B.
2. (U) FY 1996 PLAN:
   - (U) ($16,082) Complete SDCT and Development Test (DT) for CCS MK2 Program D0 Block 1 A/B.
   - (U) ($16,713) Obtain Milestone II and award contract for CCS MK2 Program D0 Block 1C development.
   - (U) ($3,455) Specify and begin development of NAVSSI for submarines.
   - (U) ($400) Develop specifications for TLAM-N PLS.
   - (U) ($619) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.
3. (U) FY 1997 PLAN:
   - (U) ($13,847) Complete CDR for CCS MK2 Program D0 Block 1C.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604562N PROJECT NUMBER: S0236
PROGRAM ELEMENT TITLE: Submarine Tactical Warfare System PROJECT TITLE: SSN Combat System Improvement

- (U) ($4,302) Commence land-based testing of NAVSSI submarine variant. Specify and begin development of Pre-Planned Product Improvement (P3I) NAVSSI upgrade for submarines.
- (U) ($4,750) Obtain Milestone II and award contract for TLAM-N PLS.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	24,330	38,479	32,070
(U) Adjustments from PRESBUDG:	-4,053	-1,210	-9,171
(U) FY 1997 PRESBUDG Submit:	20,277	37,269	22,899

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995 funding reduced by $853K due to deletion of CCS MK2 TLAM-N nuclear certification requirement and 3,200K due to low expenditure rates in FY 1994. FY 1996 reduction is a result of undistributed Congressional reductions ($758K), and revised DOD inflation ($452K). FY 1997 reduction of $8,240K reflects adjustments due to cancelling CCS MK2 BLK 1A/B (except development testing required to support BLK 1C), rephasing funding for CCS MK2 DO BLK 1C, and adding funding for TLAM-N portable launch system development. $931K reduction in FY 1997 due to revised inflation and other minor pricing adjustments.

(U) Schedule: CCS MK2 Program DO Block 1A/B Operational Test and Milestone III deleted.

(U) Technical: Not applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604562N PROJECT NUMBER: S0236
PROGRAM ELEMENT TITLE: Submarine Tactical Warfare System PROJECT TITLE: SSN Combat System Improvement

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN Line 54200	21,291	12,534	16,287	36,463	50,765	53,622	42,237	CONT.	CONT.

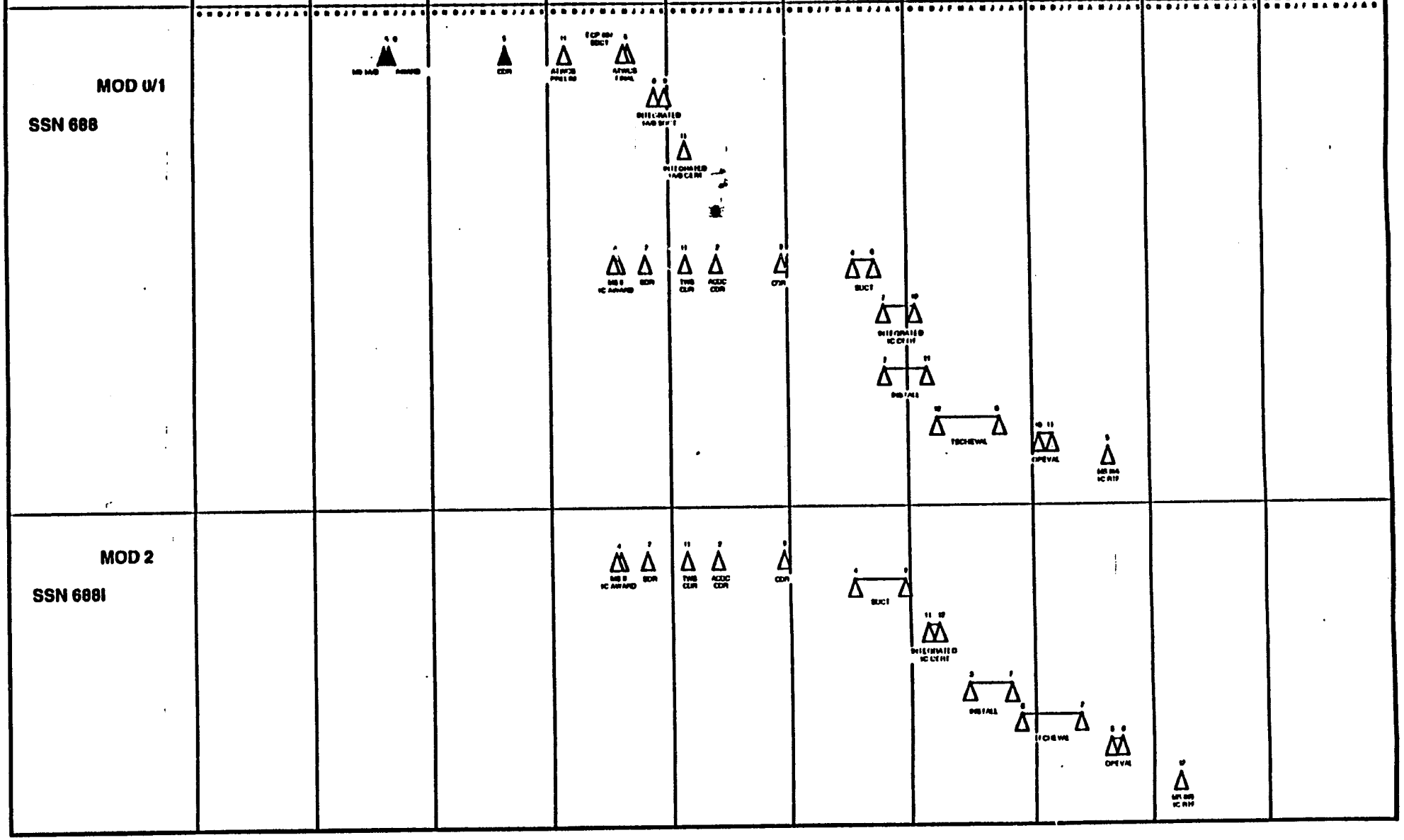
(U) RELATED RDT&E:

(U) PE 0204229N (Tomahawk & TMPC)
(U) PE 0205632N (MK 48 ADCAP)
(U) PE 0603504N (Advanced Submarine Combat Systems Development)
(U) PE 0604503N (Submarine System Equipment Development)
(U) PE 0604707N (SEW Architecture/Engineering Support)

D. (U) SCHEDULE PROFILE: See attached.

0604562N, S0236

CCS MK2 PROGRAM D0 BLOCK 1A/B&1C



LEGEND: △ SCHEDULED COMPLETION ▲ COMPLETED NOTES:

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604562N
PROGRAM ELEMENT TITLE: Submarine Tactical Warfare System

PROJECT NUMBER: S0236
PROJECT TITLE: SSN Combat System Improvement

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Primary Hardware Development	841	5,680	7,452
b. Software Development	2,917	17,746	4,065
c. Government Engineering Support/ Systems Engineering	11,636	9,360	8,843
d. Developmental Test and Evaluation	0	2,000	0
e. Operational Test and Evaluation	854	0	0
f. Independent Software Nuclear Safety Analysis	0	0	0
g. Program Management Support	2,106	2,035	2,082
h. Miscellaneous	1,923	448	457
Total	20,277	37,269	22,899

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604562N PROJECT NUMBER: S0236
PROGRAM ELEMENT TITLE: Submarine Tactical Warfare System PROJECT TITLE: SSN Combat System Improvement

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Raytheon Portsmouth, RI	SS/FPI	Jun 94	14,564	14,564	7,260	2,917	4,387	0	0	14,564
Sperry Charlottesville, VA	C/FFP	Jan 95	9,000	9,000	9,000	0	0	0	0	9,000
TBD	C/CPIF	Apr 96	46,000	46,000	0	0	13,359	4,065	28,576	46,000
TBD	C/CPFF	Jun 97	16,000	16,000	0	0	0	3,000	13,000	16,000
NUWC	WR	Oct 95	N/A	N/A	8,829	11,636	10,416	8,593	CONT.	CONT.
Cruise Missile Project		Dec 95	N/A	N/A	2,340	390	450	0	CONT.	CONT.
SPAWAR Washington, DC	PD		N/A	N/A	0	450	4,174	4,702	CONT.	CONT.
Various	TBD		N/A	N/A	205,213	1,924	448	457	CONT.	CONT.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604562N PROJECT NUMBER: S0236
PROGRAM ELEMENT TITLE: Submarine Tactical Warfare System PROJECT TITLE: SSN Combat System Improvement

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Support and Management										
EG&G Rockville, MD	C/CPFF	Jun 90	13,668	13,668	13,668	0	0	0	0	13,668
EG&G Rockville, MD	C/CPFF	Sep 94	CONT.	CONT.	0	2,106	2,035	2,082	CONT.	CONT.
Test and Evaluation										
Various					1,436	854	2,000	0	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604562N PROJECT NUMBER: S0236
PROGRAM ELEMENT TITLE: Submarine Tactical Warfare System PROJECT TITLE: SSN Combat System Improvement

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	232,642	17,317	33,234	20,817	CONT.	CONT.
Subtotal Support and Management	13,668	2,106	2,035	2,082	CONT.	CONT.
Subtotal Test and Evaluation	1,436	854	2,000	0	CONT.	CONT.
Total Project	247,746	20,277	37,269	22,899	CONT.	CONT.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604567N
PROGRAM ELEMENT TITLE: Ship Contract Design/Live Fire T&E

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
F2199 New Design SSN	129,679	9,430	0	0	0	0	0	0	139,109
S1803 Ship Contract Design	14,971	5,347	4,256	30,254	42,124	46,489	58,235	CONT.	CONT.
S2197 Ship Specifications	6,614	2,656	2,875	4,122	5,307	5,151	3,947	CONT.	CONT.
S2198 Live Fire Test and Evaluation	990	0	90	3,848	7,884	10,058	7,294	CONT.	CONT.
TOTAL	152,254	17,433	7,221	38,224	55,315	61,698	69,476	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element (PE) directly supports the Navy's Shipbuilding Plan by providing for the development of all post Preliminary Design (through FY 1996) and all post Milestone (MS) I (FY 1997 and out) engineering, programmatic and acquisition documentation, including ship specifications and contractual documents, associated with the acquisition of Navy ships. Modern day ship design and acquisition processes do not separate Preliminary Design from Contract Design. These are seamless design actions and are both conducted between MS I and II. This line also supports the New Attack Submarine (New SSN) Contract Design.

(U) Contract Design is the engineering development of the technical and contractual definition of the ship design (including ship specifications and drawings) to a level of detail sufficient for prospective shipbuilders to make a sound estimate of the construction cost and schedule. Additionally, the contract design package developed under this PE provides the technical baseline from which the Navy selects the shipbuilder who then develops the detail design package required to support the construction and eventual delivery of the ship. This PE also supports the development of design methodologies which facilitate and optimize the transition from ship design documents to efficient production of new ships and ship conversions, and supports engineering planning and ship affordability studies.

(U) This PE also supports Live Fire Test and Evaluation (LFT&E) of new ship designs.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604567N
PROGRAM ELEMENT TITLE: Ship Contract Design/Live Fire T&E

(U) For the New SSN, the traditional distinct phasing of the design process has been replaced with a continuous concurrent engineering process called Integrated Product and Process Development (IPPD). This serves to maintain the focus of multi-discipline teams consisting of the government, shipbuilder and suppliers. This process is essential to achieve the maximum cost reduction possible in a low rate production environment. The general thrust of these efforts will be to translate the early IPPD design efforts for the New SSN into a well-defined set of specifications and drawings suitable for a Request for Proposal package that supports development and construction of an effective nuclear attack submarine.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604567N
PROGRAM ELEMENT TITLE: Ship Contract Design/Live Fire T&E

(U) COST (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
F2199 New Design SSN	129,679	9,430	0	0	0	0	0	0	139,109

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project encompasses the design efforts for New SSN. The traditional distinct phasing of the design process has been replaced with a continuous concurrent engineering process called IPPD. This serves to maintain the focus of multi-discipline teams consisting of the government, shipbuilder and suppliers. This process is essential to achieve the maximum cost reduction possible in a low rate production environment. The general thrust of these efforts will be to translate the early IPPD design efforts for the New SSN into a well defined set of specifications and drawings suitable for a procurement package that supports development and construction of an effective nuclear attack submarine. Submarine systems will be specified with extreme sensitivity for vendor/manufacturing capability. Engineered systems will carefully balance military capability with the total life cycle cost and technical risk. This effort is necessary for a FY 98 lead ship construction contract award.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($88,932) Began IPPD effort to implement cost based methodology at all levels of the design. Developed drawings, commenced examination and review of Contract Data Requirements List and developed design weight estimate. Analyzed tradeoffs to improve and integrate systems for New SSN. Established Government Furnished Equipment and Contractor Furnished Equipment vendor commitments with respect to cost, schedule and performance. Developed overall schedules integrating both government and contractor developments within overall ship design to support Milestone II decision. Worked in close collaboration with the entire manufacturing industry

throughout to ensure established requirements were clearly understood, achievable, reasonable, and biddable with minimum risk to industry.

- (U) ($7,453) Examined the System Definition Documents to determine the most cost effective system approach for the New SSN design.
- (U) ($10,932) Initiated review of specifications package to remove unnecessary and "how to" requirements, reduced cost and minimized risk to the government and industry. Established specifications in detail to support the design and construction of the lead ship.
- (U) ($14,562) Initiated design and engineering studies for the Main Propulsion Unit, Ships Service Turbine Generators, and other propulsion plant components.
- (U) ($7,800) Conducted supportability analyses and studies to support ship design specification and component development efforts. Established critical ship and system logistic support guidance.

2. (U) FY 1996 PLAN:

- (U) ($9,273) Continue implementation of IPPD at system engineering levels within the program. Implement integrated master schedules with Government and manufacturing industry. Assure the Product Model, system design and procurements reflect the requirements of the ship specification.
- (U) ($ 157) Portion of extramural program reserved for Small Business Innovation Research (SBIR) assessment in accordance with 15 U.S.C.638.

3. (U) FY 1997 PLAN: Not applicable.

FY 1997 RDT&E BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604567N PROJECT NUMBER: F2199
PROGRAM ELEMENT TITLE: Ship Contract Design/ Live Fire T&E PROJECT TITLE: New Design SSN

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	133,579	9,735	0
(U) Adjustments from PRESBUDG:	-3,900	-305	0
(U) FY 1997 PRESBUDG Submit:	129,679	9,430	0

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995 reduction is attributable to a Below Threshold Reprogramming ($3,900) granted 1 Feb 95 by ASN (RD&A) to S9G Nuclear Propulsion Program (PE 0603570N/S2158). FY 96 changes are due to Congressional undistributed general and inflation reductions; and revised DoD economic rates and other minor repricing adjustments.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604567N PROJECT NUMBER: F2199
PROGRAM ELEMENT TITLE: Ship Contract Design/ Live Fire T&E PROJECT TITLE: New Design SSN

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) SCN Line PE# 0204281N 201300	0	678,839	296,186	2,702,110	544,001	1,899,806	1,136,681	51,370,312	58,627,935
201310	0	96,358	0	0	0	0	0	0	96,358

(U) RELATED RDT&E:

(U) PE 0602323N (Submarine Technology)
(U) PE 0603561N (Advanced Submarine System Development)
(U) PE 0603564N (Ship Preliminary Design and Feasibility Studies)
(U) PE 0603570N (Advanced Nuclear Power Systems)
(U) PE 0603721N (Environmental Protection)
(U) PE 0604558N (New Design SSN Development)

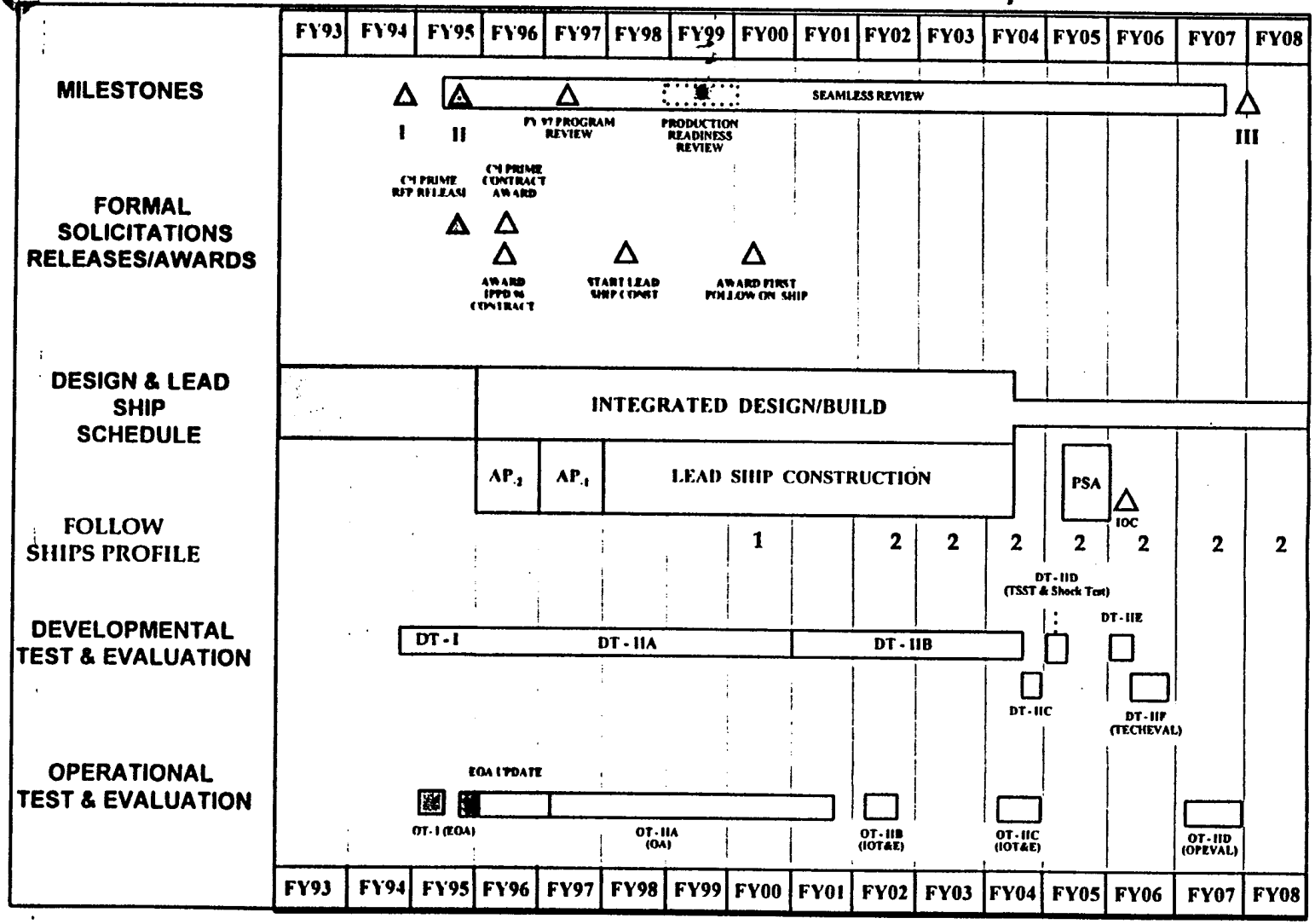
D. (U) SCHEDULE PROFILE: See attached.

New Attack Submarine (NSSN)

Program Schedule

2/29/96

PROGRAM ELEMENT: 0604567N/F2199



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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604567N PROJECT NUMBER: F2199
PROGRAM ELEMENT TITLE: Ship Contract Design/ Live Fire T&E PROJECT TITLE: New Design SSN

A. (U) PROJECT COST BREAKDOWN: ($ in Thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. DESIGN/MANAGEMENT SUPPORT	3,393	0	0
b. WEAPONS SYSTEM	183	0	0
c. ON-SITE DESIGN SUPPORT	578	0	0
d. SHIP DESIGN	103,163	9,273	0
e. MAIN PROPULSION UNIT	14,562	0	0
f. LOGISTICS	7,800	0	0
g. SBIR Assessment	0	157	
Total	129,679	9,430	0

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604567N PROJECT NUMBER: F2199
PROGRAM ELEMENT TITLE: Ship Contract Design/ Live Fire T&E PROJECT TITLE: New Design SSN

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in Thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
NAVUNSEAWARCENDIV Newport, RI	VARIOUS		2,864	2,864	0	2,864	0	0	0	2,864
General Dynamics/EB Div, Groton, CT	SS/CPFF	02/95	103,693	103,693	0	94,640	9,053	0	0	103,693
NAVSURFWARCEN Carderock, Bethesda, MD	WR	10/94	4,869	4,869	0	4,869	0	0	0	4,869
General Dynamics/EB Div, Groton, CT	SS/CPFF	02/95	2,419	2,419	0	2,419	0	0	0	2,419
General Dynamics/EB Div, Groton, CT	SS/CPFF	11/94	8,523	8,523	0	8,523	0	0	0	8,523
General Dynamics/EB Div, Groton, CT	SS/CPFF	01/95	12,143	12,143	0	12,143	0	0	0	12,143
Miscellaneous	VARIOUS	VARIOUS	2,501	2,501	0	2,124	377	0	0	2,501
Support and Management										
NAVSURFWARCEN TBD	RC VARIOUS	10/94	1,574	1,574	0	1,574	0	0	0	1,574
Miscellaneous	VARIOUS		523	523	0	523	0	0	0	523

UNCLASSIFIED

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5
PROGRAM ELEMENT: 0604567N
PROGRAM ELEMENT TITLE: Ship Contract Design/ Live Fire T&E
PROJECT NUMBER: F2199
PROJECT TITLE: New Design SSN

Test and Evaluation: Not applicable.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	0	127,582	9,430	0	0	137,012
Subtotal Support and Management	0	2,097	0	0	0	2,097
Subtotal Test and Evaluation	0	0	0	0	0	0
Total Project	0	129,679	9,430	0	0	139,109

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604567N
PROGRAM ELEMENT TITLE: Ship Contract Design/Live Fire T&E

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
S1803 Ship Contract Design	14,971	5,347	4,256	30,254	42,124	46,489	58,235	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program supports the development of all technical, programmatic, and contractual documentation required after Preliminary Design (through FY 1996) and after MS I (FY 1997 and out) for the acquisition of the ships in the Navy's Shipbuilding Program. The major effort is the engineering development of the technical and contractual definition of the ship design (e.g., ship specifications and drawings), with sufficient details for the prospective shipbuilder to make a sound estimate of construction cost and schedule. It also serves as the contractual technical definition from which the selected builder develops the shipbuilding detail design and testing package required to build and deliver the ship.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($4,840) Completed CVN 76 Contract Design.
- (U) ($9,631) Continued LPD 17 Contract Design.
- (U) ($ 500) Completed TAGOS 23 (TST).

2. (U) FY 1996 PLAN:

- (U) ($5,231) Continue LPD 17 Contract Design.
- (U) ($ 116) Portion of extramural program reserved for Small Business Innovative Research assessment in accordance with 15 U.S.C. 638.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604567N PROJECT NUMBER: S1803
PROGRAM ELEMENT TITLE: Ship Contract Design/Live Fire T&E PROJECT TITLE: Ship Contract Design

3. (U) FY 1997 PLAN:

- (U) ($ 740) Commence AOE SLEP Contract Design.
- (U) ($3,096) Commence ADC(X) Contract Design.
- (U) ($ 420) Commence TAGS 64 Contract Design.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	14,521	5,519	11,581
(U) Adjustments from PRESBUDG	+450	-172	-7,325
(U) FY 1997 PRESBUDG Submit:	14,971	5,347	4,256

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604567N PROJECT NUMBER: S1803
PROGRAM ELEMENT TITLE: Ship Contract Design/Live Fire T&E PROJECT TITLE: Ship Contract Design

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 1995 increase reflects BTRA 95-10 plus up of 612K less 162K for University Research and SBIR reductions. FY 1996 reductions reflect decreases due to Congressional undistributed general and inflation reductions. FY 1997 reflects decrease of 7325K due to transfer of funds to the newly iniated LPD-17 Development line (4400K), and revised inflation rates and other minor pricing adjustments (2925K).

(U) Schedule: The current SCN Plan is as follows:

CVN 76	FY 1995
LPD 17(L(X))	FY 1996
New Design SSN	FY 1998
TAGOS 25, AOE SLEP	FY 1999
TAGS 64	FY 1999
ADC(X)	FY 2000
CARRIER REPLACEMENT	FY 2002
Command Ship, SC 21	FY 2003
MCS(X)	FY 2004
LHA/LH(X)	FY 2005

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E:

(U) PE 0603564N (Ship Preliminary Design/Feasibility Studies)

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604567N

PROGRAM ELEMENT TITLE: Ship Contract Design/Live Fire T&E

PROJECT NUMBER: S1803

PROJECT TITLE: Ship Contract Design

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones			2Q ADC(X) MS1 1Q TAGS 64 MS1 1Q AOE SLEP MS1	

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT:0604567N
PROGRAM ELEMENT TITLE:Ship Contract Design/Live Fire T&E

PROJECT NUMBER:S1803
PROJECT TITLE:Ship Contract Design

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Systems Engineering	14,270	4,931	3,956
b. Program Management Support	601	200	200
c. Travel	100	100	100
c. SBIR Assessment	0	116	0
Total	14,971	5,347	4,256

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT:0604567N PROJECT NUMBER:S1803
PROGRAM ELEMENT TITLE:Ship Contract Design/Live Fire T&E PROJECT TITLE:Ship Contract Design

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
JJMA Arlington, Va.	C	2/88	Cont.	Cont.	3,291*	1,500	2,373	1,628	Cont.	Cont.
AME Arlington, Va.	C	2/88	Cont.	Cont.	4,534*	2,570	2,274	1,628	Cont.	Cont.
CD-NSWC Carderock,MD.	WR	A.N.**	Cont.	Cont.	1,692*	500	200	300	Cont.	Cont.
PNSY Phila,PA.	WR	A.N.**	Cont.	Cont.	130*	0	0	0	Cont.	Cont.
NAVAIR Arlington,VA.	WR	A.N.**	Cont.	Cont.	1,466*	700	300	500	Cont.	Cont.
NNS&DDCo Newport News,VA.	SS	Var.	12,845	12,845	7,758*	1,900	0	0	0	12,745
Misc.	Var.	Var.	Cont.	Cont.	12,124*	7,200	0	0	Cont.	Cont.
Support and Management										
Misc.	Var.	Var.	Cont.	Cont.	1,000*	601	200	200	Cont.	Cont.

Test and Evaluation - None.

* Amounts reflected are FY 94 only. This project has been funded for an extended number of years and dollar amounts for FYs prior to FY 89 are unknown.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT:0604567N
PROGRAM ELEMENT TITLE:Ship Contract Design/Live Fire T&E

PROJECT NUMBER: S1803
PROJECT TITLE: Ship Contract Design

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
None										
Support and Management										
None										
Test and Evaluation										
None										

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	30,995*	14,370	5,147	4,056	Cont.	Cont.
Subtotal Support and Management	1,000*	601	200	200	Cont.	Cont.
Subtotal Test and Evaluation	0	0	0	0	Cont.	Cont.
Total Project	31,995*	14,971	5,347	4,256	Cont.	Cont.

* Amounts reflected are FY 94 only. This project has been funded for an extended number of years and dollar amounts for FYs prior to FY 89 are unknown.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604567N
PROGRAM ELEMENT TITLE: Ship Contract Design/Live Fire T&E

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
S2197 Ship Specifications	6,614	2,656	2,875	4,122	5,307	5,151	3,947	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project funds the development, implementation and integration of computer-aided design/computer-aided manufacturing (CAD/CAM) systems to improve the transition from the Navy's Contract Design to the shipbuilder's detail design and production. This project also funds development, improvement and update of NAVSEA cognizant acquisition specifications including integration of Federal and Military Specifications, Handbooks and General Specifications for Ships of the U.S. Navy into a performanced based, bidable ship contract design acquisition package. These documents are required to reflect the latest technologies (i.e. fiber optics), manufacturing techniques, environmental requirements, hazardous material reduction, safety and legal/Congressional requirements. Additionally, this project funds the integration of the new fiber optic (FO) technology into the basic ship design process. (FY 1995 only)

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($ 1,940) Continued to update various outdated Federal/Military Specifications, Design Standards and Drawings. Continued to update portions of the General Specifications for Ships of the U.S. Navy. Continued development of Specification data base and Open Systems Architecture.

- (U) ($ 3,669) Continued development of CAD II analysis programs and program integration. Continued development of CAD II ship design systems and modeling techniques for application on CVN 76, LPD 17, SC 21 and ADC(X).

- (U) ($ 1,005) Continued development of FO Topology Systems. Continued development of optical cable and fiber connectors required specifications and standards, and optical waveguide measurements and standards. Integrated existing components and standards into LPD 17 and CVN 76 designs.

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604567N PROJECT NUMBER: S2197
PROGRAM ELEMENT TITLE: Ship Contract Design/Live Fire T&E PROJECT TITLE: Ship Specifications

2. (U) FY 1996 PLAN:

- (U) ($500) Continue to develop, improve and update NAVSEA cognizant acquisition specifications. Continue development of Specification data base and Open Systems Architecture.
- (U) ($2,107) Continue development of CAD II analysis programs and program integration. Continue development of CAD II ship design systems and modeling techniques for application on LPD 17, SC 21 and ADC(X).
- (U) ($49) Portion of extramural program reserved for Small Business Innovative Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($300) Continue to develop, improve and update NAVSEA cognizant acquisition specifications. Continue development of Specification data base and Open Systems Architecture.
- (U) ($2,575) Continue development of CAD II analysis programs and program integration. Continue development of CAD II ship design systems and modeling techniques for application on LPD 17, SC 21 and ADC(X).

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604567N PROJECT NUMBER: S2197
PROGRAM ELEMENT TITLE: Ship Contract Design/Live Fire T&E PROJECT TITLE: Ship Specifications

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	6,689	2,740	2,602
(U) Adjustments from PRESBUDG:	-75	-84	+273
(U) FY 1997 PRESBUDG Submit:	6,614	2,656	2,875

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995 decrease of 75K was for SBIR and University Research reductions. FY 1996 reflects decreases due to Congressional undistributed general and inflation reductions. FY 1997 reflects increase of 273K for ship award date modifications in the SCN Shipbuilding Plan.

(U) Schedule: The current SCN Plan is as follows:

CVN 76	FY 1995
LPD 17(L(X))	FY 1996
New Design SSN	FY 1998
TAGOS 25, AOE SLEP	FY 1999
TAGS 64	FY 1999
ADC(X)	FY 2000
CARRIER REPLACEMENT	FY 2002
Command Ship, SC 21	FY 2003
MCS(X)	FY 2004
LHA/LH(X)	FY 2005

(U) Technical: Not applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604567N
PROGRAM ELEMENT TITLE: Ship Contract Design/Live Fire T&E

PROJECT NUMBER: S2197
PROJECT TITLE: Ship Specifications

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E:

(U) PE 0603564N (Ship Preliminary Design/Feasibility Studies)

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	See Individual Ship Acquisition Program Documentation.			
Engineering Milestones	See Individual Ship Acquisition Program Documentation.			
T&E Milestones	See Individual Ship Acquisition Program Documentation.			
Contract Milestones	See Individual Ship Acquisition Program Documentation.			

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT:0604567N PROJECT NUMBER:S2197
PROGRAM ELEMENT TITLE:Ship Contract Design/Live Fire T&E PROJECT TITLE:Ship Specifications

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Systems Engineering	5,614	2,307	2,575
b. Software Development	1,000	300	300
b. SBIR Assessment	0	49	0
Total	6,614	2,656	2,875

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT:0604567N PROJECT NUMBER:S2197
PROGRAM ELEMENT TITLE: Ship Contract Design/Live Fire T&E PROJECT TITLE:Ship Specifications

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
SPCC Mechanicsburg,Pa.	WR	A.N.*	Cont.	Cont.	1,046	300	300	300	Cont.	Cont.
JJMA Arlington, Va.	C	2/95	Cont.	Cont.	0	1,000	750	1,000	Cont.	Cont.
AME Arlington, Va.	C	2/88	Cont.	Cont.	0	1,000	750	900	Cont.	Cont.
Misc.	Var.	A.N.*	Cont.	Cont.	1,717	4,314	856	675	Cont.	Cont.
Support and Management										
None										
Test and Evaluation										
None										

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT:0604567N PROJECT NUMBER:S2197
PROGRAM ELEMENT TITLE:Ship Contract Design/Live Fire T&E PROJECT TITLE:Ship Specifications

GOVERNMENT FURNISHED PROPERTY
None

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development									
None									
Support and Management									
None									
Test and Evaluation									
None									
* As Needed									

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	2,763	6,614	2,656	2,875	Cont.	Cont.
Subtotal Support and Management	0	0	0	0	Cont.	Cont.
Subtotal Test and Evaluation	0	0	0	0	Cont.	Cont.
Total Project	2,763	6,614	2,656	2,875	Cont.	Cont.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604567N
PROGRAM ELEMENT TITLE: Ship Contract Design/Live Fire T&E

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
S2198 Live Fire Test & Evaluation	990	0	90	3,848	7,884	10,058	7,294	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project specifically responds to the Congressionally mandated Live Fire Test and Evaluation (LFT&E) legislation which requires realistic survivability testing be conducted under all major acquisition programs before production approval is granted. Evaluations concerning the vulnerability and lethality of ships against known threat systems will be conducted using analytical prediction techniques and model testing.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

   - (U) ($ 990) Completed LPD 17 LFT&E testing and analysis.

2. (U) FY 1996 PLAN: Not applicable.

3. (U) FY 1997 PLAN:

   - (U) ($ 90) Commence ADC(X) Live Fire Test and Evaluation.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604567N PROJECT NUMBER: S2198
PROGRAM ELEMENT TITLE: Contract Design/Live Fire T&E PROJECT TITLE: Live Fire Test & Evaluation

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	1001	0	911
(U) Adjustments from PRESBUDG:	-11	0	-821
(U) FY 1997 PRESBUDG Submit:	990	0	90

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995 decrease of 11K for SBIR/University Research. FY 1997 decrease of 821K is for waiver documentation for ADC(X) vice LFT&E testing.

(U) Schedule: The current SCN Plan is as follows:

TAGS 63, MCS(CONV)	FY 1994
CVN 76	FY 1995
LPD 17(L(X))	FY 1996
New Design SSN	FY 1998
TAGOS 25, AOE SLEP	FY 1999
TAGS 64	FY 1999
ADC(X)	FY 2000
CARRIER REPLACEMENT	FY 2002
SC 21	FY 2003
MCS(X)	FY 2004
LHA/LH(X)	FY 2005

(U) Technical: Not applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604567N PROJECT NUMBER: S2198
PROGRAM ELEMENT TITLE: Ship Contract Design/Live Fire T&E PROJECT TITLE: Live Fire Test & Evaluation

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E:

(U) PE 0603564N (Ship Preliminary Design/Feasibility Studies)

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	See Individual Ship Acquisition Program Documentation.			
Engineering Milestones	See Individual Ship Acquisition Program Documentation.			
T&E Milestones	See Individual Ship Acquisition Program Documentation.			
Contract Milestones	See Individual Ship Acquisition Program Documentation.			

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT:0604567N PROJECT NUMBER:S2198
PROGRAM ELEMENT TITLE:Ship Contract Design/Live Fire T&E PROJECT TITLE:Live Fire Test & Evaluation

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Live Fire Test & Evaluation	990	0	90
Total	990	0	90

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT:0604567N PROJECT NUMBER:S2198
PROGRAM ELEMENT TITLE: Ship Contract Design/Live Fire T&E PROJECT TITLE:Live Fire Test & Evaluation

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Test and Evaluation										
CD-NSWC Carderock,MD.	WR	A.N.**	Cont.	Cont.	4,300	0	0	0	Cont.	Cont.
Misc.	Var.	A.N.*	Cont.	Cont.	7,060	990	0	90	Cont.	Cont.
Support and Management										
None										
Product Development										
None										

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT:0604567N PROJECT NUMBER:S2198
PROGRAM ELEMENT TITLE:Ship Contract Design/Live Fire T&E PROJECT TITLE:Live Fire Test and Evaluation

GOVERNMENT FURNISHED PROPERTY
None

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development									
None									
Support and Management									
None									
Test and Evaluation									
None									
* As Needed									

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	0	0	0	0	Cont.	Cont.
Subtotal Support and Management	0	0	0	0	Cont.	Cont.
Subtotal Test and Evaluation	7,060	990	0	90	Cont.	Cont.
Total Project	7,060	990	0	90	Cont.	Cont.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604574N
PROGRAM ELEMENT TITLE: Navy Tactical Computer Resources

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
S1353 Standard Hardware	8,236	9,751	2,690	2,815	2,998	2,997	3,068	CONT.	CONT.
WO845 AN/AYK-14	1,792	1,341	1,189	1,377	1,675	1,670	1,715	CONT.	CONT.
X1976 Next Generation Computer Resources	6,612	3,578	0	0	0	0	0	0	89,576
S2265 Naval Warfare Tactical Data Base	(1,460)#	(1,460)**	1,358	1,404	1,443	1,479	1,517	CONT.	CONT.
TOTAL	16,640	14,670	5,237	5,596	6,116	6,146	6,300	CONT.	CONT.

S2265 Comparability transfer:
#FY95: Funded under S1353
**FY96: Funded under x1976
Program funding increased in FY95 in support of DEPSECDEF (Dr. Perry) migration memo of Oct. 94. Program broken out into S2265 during PR-97 to provide visibility.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Standard Hardware includes computers, display systems, and peripherals, which are integral building blocks of larger weapons, sensor, and combat direction systems. This program provides the technical planning and engineering support for development and evolution of the Navy's high performance embedded computer resources for transition to an open system architecture, including product improvement of current generation computers (AN/AYK-14, AN/UYK-43 and AN/UYK-44) and the mass memory storage device (MMSD); and development of interconnects, interfaces, protocols, and standards (hardware and software) for the highly flexible architectures needed for the Navy's next generation of open systems, COTS/NDI shipboard computers, and development of naval standard C3I data elements and the subsequent development of candidate joint standard data elements.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING and MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604574N PROJECT NUMBER: S1353
PROGRAM ELEMENT TITLE: Navy Tactical Computer Resources PROJECT TITLE: Standard Hardware

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
S1353 Standard Hardware	8,236	9,751	2,690	2,815	2,998	2,997	3,068	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
Planning and support for development and modification of the Navy's high performance embedded computer resources to meet Open Systems Architecture standards via the Computer Open Systems Implementation Program (COSIP), specifically, transitional improvements to the UYK-43 and UYK-44 computers, assessment of Open Architecture display components, the Mass Memory Storage Device (MMSD), other standard peripherals, and Navy Warfare Tactical Database (NWTDB).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($250) For UYK-43, certified initial Open Systems products.
- (U) ($250) For UYK-44, certified initial Open Systems products.
- (U) ($3,342) For COSIP, completed production model of CRIB and continued to populate CRIB with NDI components; assessed and certified candidate technologies, including optical medium, flat panel displays and local area network technology, for application to AEGIS, Ship Defense and NTDS Software Improvement programs.
- (U) ($3,000) For MMSD, developed of higher capacity magnetic commercial off-the-shelf drives and upgraded the Navy's four first article units. Conducted Preliminary Design Review (PDR).
- (U) ($1,394) For NWTDB, continued development, test and evaluation.

2. (U) FY 1996 PLAN:

- (U) ($9,524) Continued AN/UYQ-70(V) Advanced Display System Development; travel to monitor COSIP and MMSD efforts funded in FY-95 and to assure that COSIP activities are prepared to undertake the assessment and certification of candidate technologies scheduled to begin in FY-97.
- (U) ($227) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C.638.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604574N
PROGRAM ELEMENT TITLE: Navy Tactical Computer Resources

PROJECT NUMBER: S1353
PROJECT TITLE: Standard Hardware

3. (U) FY 1997 PLAN:

- (U) ($2,690) Assess and certify candidate technologies, including distributed operating and network systems for AEGIS, Ship Defense, and other related activities.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	8,236	60	2,953
(U) Adjustments from PRESBUDG:	0	+9,691	-263
(U) FY 1997 PRESBUDG Submit:	8,236	9,751	2,690

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 96 increase reflects congressional plus-up for AN/UYQ-70 development. The FY-97 decrease reflects Congressional Undistributed reductions.

(U) Schedule: Not applicable

(U) Technical: Not applicable

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands) Not Applicable

(U) RELATED RDT&E:
(U) PE 0603270N (ELECTRONIC WARFARE ADVANCED TECHNOLOGY)
(U) PE 0603382N (ADV COMBAT SYSTEM TECHNOLOGY)
(U) PE 0603502N (SHALLOW WATER MCM)
(U) PE 0603755N (COOPERATIVE ENGAGEMENT)
(U) PE 0604307N (AEGIS WEAPON SYSTEM MODS)
(U) PE 0604366N (STANDARD MISSILE IMPROVEMENTS)
(U) PE 0604372N (NEW THREAT UPGRADE)
(U) PE 0604755N (SHIP SELF DEFENSE)

D. (U) SCHEDULE PROFILE: See attachment A

PROGRAM ELEMENT: 0604574N
PROJECT: S1353

000442

MMSD COTS SCHEDULE

	FY	1995 Q1	Q2	Q3	Q4	1996 Q1	Q2	Q3	Q4	1997 Q1	Q2	Q3	Q4
Issue Task	5/24/95												
Management Reviews	QUARTERLY												
Pre SRR	6/15/95												
SRR/Draft Req	7/12/95												
SRR Approval/Final Req	9/21/95												
PDR	9/11/96												
PDR Approval	9/25/96												
CDR	10/10/96												
CDR Approval	10/24/96												
TRR	12/23/96												
TRR Approval	1/6/97												
ECP (Dev) Prep													
Resubmit ECP (Dev)	1/26/96												
Fact Finding	4/15/96												
ECP (Dev) Negotiation	6/21/96												
Issue Mod	7/21/96												
Price Prop Prep	11/22/96												
Submit Price Prop	12/9/96												
Fact Finding	1/6/97												
Price Prop Nego	1/22/97												
Issue Price Table	2/14/97												
Place Initial Orders	2/14/97												
				PHASE I		PHASE II				PHASE III			

ATTACHMENT A

/96

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604574N PROGRAM ELEMENT TITLE: Navy Tactical Computer Resources PROJECT NUMBER: W0845 PROJECT TITLE: AN/AYK-14

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
W0845 AN/AYK-14	1,792	1,341	1,189	1,377	1,675	1,670	1,715	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The AN/AYK-14 project provides for airborne digital computer requirements with a standard design that has permitted state-of-the-art technology infusion through pre-planned product improvements. The focus of the Advanced AYK-14 (AAYK-14) development is to provide the bridge necessary to evolve new and existing platforms to an Open Systems Architecture (OSA). The AAYK-14 program includes: (1) the development of commercially based Reduced Instruction Set Computer (RISC) Processor Module (RPM) that will permit communications between existing AYK-14 16 bit Compiler Monitor System (CMS-2) modules and AAYK-14 32-bit Ada modules, (2) development of a backplane based on the commercial Institute of Electrical and Electronic Engineers (IEEE)/Next Generation Computer Resources (NGCR) OSA standard Futurebus+ interface, (3) support of the additional design, test and qualification necessary to meet multi-user requirements and bring other programs' non-development item/commercial off-the-shelf (NDI/COTS) Futurebus+ OSA modules into the AAYK-14 family.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($1,466) Continued SH-60 IMP/AAYK-14 and V-22 AMC/AYK-14. Conducted qualification test, began Reliability Development Test (RDT) for SH-60B IMP/AAYK-14. Completed Engineering & Manufacturing Development (E&MD) for V-22 AMC/AAYK-14.
- (U) ($326) Continued militarization of OSA commercial product to AAYK-14 family. Began AAYK-14 technology transfer to EA-6B mission processing upgrade.

2. (U) FY 1996 PLAN:

- (U) ($920) Complete E&MD and integration of SH-60 IMP/AAYK-14.
- (U) ($205) Complete AAYK-14 technology transfer for EA-6B mission processing upgrade.
- (U) ($200) Continue militarization of OSA commercial product (NDI/COTS) to the AAYK-14 family.
- (U) ($16) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638(f) (1).

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604574N PROJECT NUMBER: W0845
PROGRAM ELEMENT TITLE: Navy Tactical Computer Resources PROJECT TITLE: AN/AYK-14

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

3. (U) FY 1997 PLAN:

- (U) ($450) Begin technology shrink of existing AAYK-14 module set to the smaller 6" by 6" SEM-E form factor for tactical aircraft (F/A-18 E/F) applications.
- (U) ($365) Begin upgrading AAYK-14's OSA interface to support both 32-bit and 64-bit inter-module processing.
- (U) ($374) Begin updating AAYK-14 core modules with next generation commercial technology multi-chip module (MCM) micro-processors and memories (MIPS 5000/6000 micro-processors and 16/32MB memory chips).

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	1,792	1,410	1,423
(U) Adjustments from PRESBUDG:	0	-69	-234
(U) FY 1997 PRESBUDG Submit:	1,792	1,341	1,189

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1996 (-69K) Undistributed reductions for university laboratory cuts, FFRDC reductions, inflation reductions, and general R&D reductions and the F-16 Jordanian Rescission. FY 1997 (-234K) decrease reflects final balancing, DBOF rate adjustments, and inflation reductions.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands): Not applicable

(U) RELATED RDT&E:
(U) PE 0604212N ASW and Other Helo Development
(U) PE 0604262N V-22
(U) PE 0604270N EA-6B/EW Counter Response

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604574N PROJECT NUMBER: W0845
PROGRAM ELEMENT TITLE: Navy Tactical Computer Resources PROJECT TITLE: AN/AYK-14

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	4Q AMC/AAYK-14 PCA			
Engineering Milestones				
T&E Milestones	1Q AMC/AAYK-14 RDT	2Q IMP/AAYK-14 RDT		
Contract Milestones		2Q AMC/AAYK-14 Production		

000446

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604574N PROJECT NUMBER: S2265
PROGRAM ELEMENT TITLE: Navy Tactical Computer Resources PROJECT TITLE: NWTDB

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
S2265 Naval Warfare Tactical Data Base									
	(1,460)#	(1,460)**	1,358	1,404	1,443	1,479	1,517	CONT.	CONT

S2265 Comparability transfer:
#FY95: Funded under S1353
**FY96: Funded under X1976
Program funding increased in FY95 in support of DEFSECDEF (Dr. Perry) migration memo of Oct 94. Program broken out into S2265 during PR-97 to provide visibility.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Naval Warfare Tactical Data Base (NWTDB) provides the technical and engineering support required to develop Naval Command, Control, Communications, and Intelligence (C3I) standard data elements. These standard data elements will be published annually in a Navy standards manual for use by system developers when developing software applications and systems to ensure data element interoperability. The standard data elements are developed by registering existing tactical system's data elements using a reverse engineering methodology known as the NWTDB process. Additionally, NWTDB provides the support necessary to submit these Naval standard data elements for consideration as joint standard data elements in support of Command, Control, Communications, Computers and Intelligence (C4I) for the warrior and the Department of Defense mandated migration to Global Command and Control System (GCCS).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 95 ACCOMPLISHMENTS:
   - (U) ($150) Develop Naval Warfare Tactical Data Base (NWTDB) Standards Manual - Version three
   - (U) ($200) Continue to register Naval Tactical Systems and changes to Version Two Manual
   - (U) ($ 75) Develop three data element packages for submission to the Defense Information Agency (DISA) for joint joint consideration
   - (U) ($360) Expand Naval C3I Data Model
   - (U) ($475) Develop Ocan Atmospheric Master Library, (OAML), Information Warfare (IM), ASW Modeling and Simulation (M&S) Data Models
   - (U) ($200) Technical Support to implement DOD C3I Data Standardization Process

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604574N
PROGRAM ELEMENT TITLE: Navy Tactical Computer Resources

PROJECT NUMBER: S2265
PROJECT TITLE: NWTDB

2. (U) FY 96 PLAN:

- (U) ($150) Develop Naval Warfare Tactical Data Base (NWTDB) Standard Manual - Version Four.
- (U) ($200) Continue to register Naval Tactical Systems and changes to Version Three Manual.
- (U) ($150) Develop six data element packages for submission to the Defense Information Systems Agency (DISA) for joint consideration.
- (U) ($360) Expand Naval C3I Data Model.
- (U) ($400) Develop Ocean Atmospheric Master Library (OAML), Information Warfare (IM), ASW Modeling and Simulation (M&S) Data Models.
- (U) ($200) Technical Support to implement DOD C3I Data Standardization Process.

3. (U) FY 1997 PLAN:

- (U) ($153) Develop Naval Warfare Tactical Data Base (NWTDB) Standards Manual - Version Five.
- (U) ($200) Continue to register Naval tactical systems and changes to Version Four Manual.
- (U) ($150) Develop six data element packages for submission to the Defense Information Systems Agency (DISA) for joint consideration.
- (U) ($300) Expand Naval C3I Data Model.
- (U) ($400) Develop Ocean Atmospheric Master Library, (OAML), Information Warfare (IW), ASW Modeling and Simulation (M&S) Data Models.
- (U) ($155) Technical Support to implement DOD C3I Data Standardization Process.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604574N PROJECT NUMBER: S2265
PROGRAM ELEMENT TITLE: Navy Tactical Computer Resources PROJECT TITLE: NWTDB

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	(1,460)#	(1,460)**	0
(U) Adjustments from PRESBUDG:	0	0	+1,358
(U) FY 1997 President's Budget:	(1,460)#	(1,460)**	1,358

S2265 Comparability transfer:
#FY95: Funded under S1353
**FY96: Funded under x1976
Program funding increased in FY95 in support of DEPSECDEF (Dr. Perry) migration memo of Oct. 94. Program broken out into S2265 during PR-97 to provide visibility.

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY-97: Increase reflects program breakout.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E: Not applicable.

D. (U) SCHEDULE PROFILE: Not applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604601N
PROGRAM ELEMENT TITLE: Mine Development

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
Q0267 Mine Improvements	3,161	2,951	2,505	2,927	3,688	3,682	3,762	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This non-acquisition project is the only R&D program for mine systems, and is the sole support for the capability to maintain the effectiveness of mines facing new threat targets and increasing emphasis on major regional conflicts and littoral warfare in shallow water. Project tasks are grouped into several areas: 1a) Threat Modeling/Analysis, which collects, analyzes, and develops digital models of data on current priority threat target characteristics to support computer simulations of the "one-on-one" encounter between a mine and its target; 1b) Target Detection and Response, which uses target models to develop optimal mine designs, settings, and firing algorithms; 1c) Mine Warfare Modeling/Analysis, which uses models of the targets and the mines to support computer simulation of the "many-on-many" encounter between a minefield and all the targets and mine countermeasures; 2a) Components/Subsystems, which develops upgrades of mine components to maintain effectiveness against current threat targets using proven state-of-the-art technology; and 2b) Advanced Power Sources, which develops improved batteries without hazardous heavy metals. Typical Mine Improvements efforts include: obtaining, analyzing, and modeling threat target radiated noise signatures and damage susceptibility data; determining optimal mine settings/algorithms; updating minefield planning models and the databases supporting them; and improving the performance of mine subsystems such as sensors or batteries.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604601N PROGRAM ELEMENT TITLE: Mine Development PROJECT NUMBER: Q0267 PROJECT TITLE: Mine Improvements

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:
   - (U) ($1,850) Continued to develop signature and damage models of fast patrol boats; begin development of models of modern diesel-electric submarines. Continued development of the upgrade to the MK 57 Target-Detecting Device (TDD) to accommodate fast patrol boats. Continued improvements to the Uncountered Minefield Planning Model and upgrades to its database at COMINEWARCOM.
   - (U) ($1,311) Completed the development of an AA-size standard non-magnetic lithium cell for use in mine warfare system power supplies. Begin development of improved pressure and magnetic sensors. Completed the technical data package for the new, programmable MK 71 TDD. Conducted system concept analyses in response to the Improved Submarine-Launched Mobile Mine (SLMM) and Littoral Sea Mine Mission Need Statements. Continued to monitor the Joint Direct Attack Munition (JDAM) program and other programs permitting launching of mines from stand-off distances. Analyzed options for using QUICKSTRIKE mines as depth bombs.

2. (U) FY 1996 PLAN:
   - (U) ($2,149) Continue to develop signature and damage models of diesel-electric submarines; begin development of models of mini-submarines and surface-effect craft. Continue to determine optimal mine settings to accommodate priority threat targets. Begin development of minefield behavior evaluation model for COMINEWARCOM use in mine warfare planning.
   - (U) ($800) Begin the development of a larger lithium cell for use in standard mine warfare system power supplies. Complete development of improved magnetic sensor. Begin development of improved TDD test set. Continue development of improved pressure sensor. Continue to conduct system concept analyses in response of the Littoral Sea Mine Mission Need Statements. Continue to monitor standoff weapon programs for compatibility with mines.
   - (U) ($2) Portion of extramural program reserved for Small Business Innovative Research assessment in accordance with 15 U.S.C.638.

3. (U) FY 1997 PLAN:
   - (U) ($1,291) Continue to develop signature and damage models of diesel-electric submarines, mini-submarines, surface-effect craft; begin development of models of additional priority targets identified by COMINEWARCOM. Continue to determine optimal mine settings to accommodate threat. Begin development of countered minefield models to be used to assist in planning mine countermeasures operations. Continue development of minefield behavior evaluation model.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604601N
PROGRAM ELEMENT TITLE: Mine Development

PROJECT NUMBER: Q0267
PROJECT TITLE: Mine Improvements

3. (U) FY 1997 PLAN: (cont.)

- (U) ($1,214) Continue development of larger lithium cell for use in standard mine warfare system power supplies; evaluate the improved safety and performance potential of new power supply technologies. Continue the development of improved pressure sensor and TDD test set. Continue to conduct system concept analyses in response of the Littoral Sea Mine Mission Need Statement. Continue to monitor standoff weapon programs for compatibility with mines.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	3,161	3,045	2,762
(U) Adjustments from PRESBUDG:	0	-94	-257
(U) FY 1997 PRESBUDG Submit:	3,161	2,951	2,505

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY96 Congressional undistributed general and inflation reductions (-$94K) FY97 revised inflation estimates and other minor pricing adjustments.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E: Not applicable.

D. (U) SCHEDULE PROFILE: Not applicable.

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604603N
PROGRAM ELEMENT TITLE: Unguided Conventional Air-launched Weapons

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
A2183 SLAM ER	59,031	51,833	22,322	29,306	5,001	0	0	0	184,461
E1341 Advanced Rocket System	14,375	0	0	0	0	0	0	0	36,640
TOTAL	73,406	51,833	22,322	29,306	5,001	0	0	0	221,101

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) A2183/STANDOFF LAND ATTACK MISSILE - EXPANDED RESPONSE Description: This program funds the development of SLAM Expanded Response (ER) designed to maintain baseline SLAM capability while improving performance in the areas of launch and control aircraft survivability, immunity to countermeasures, probability of kill against hardened targets and improved user interfaces for both mission planning and launch aircraft integration. The SLAM ER consists of both hardware and software upgrades to the missile. SLAM ER incorporates many non-development items i.e., the Embedded Global Positioning System/Inertial Navigation System (GPS/INS) (EGI), modified Tomahawk wings and warhead, and the existing advanced mode of the AWW-13 data link pod. To accommodate future U.S. Air Force and Navy aircraft integration, SLAM ER will incorporate a MIL-STD-1760 interface.

(U) E1341/ADVANCED ROCKET SYSTEM (ARS) Description: The ARS is an ACAT III joint service program with the Navy, Army, and Air Force (Navy lead) that will "neck down" existing 2.75-inch and 5-inch Zuni rocket systems to one that can satisfy both helicopter and fixed wing requirements. It will provide enhance survivability through increased standoff delivery capability and improved lethality. It will also satisfy fleet safety requirements by integrating Insensitive Munitions (IM). This program terminates in FY 1995.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604603N
PROGRAM ELEMENT TITLE: Unguided Conventional Air-launched Weapons

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
SLAM ER A2183	59,031	51,833	22,322	29,306	5,001	0	0	0	184,461

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Standoff Land Attack Missile (SLAM) is designed to provide an intermediate range day/night air-to-surface weapon for use against land and in-port surface targets. The SLAM ER upgrade program provides increased hardened target penetration capability with a modified Tomahawk Block III warhead; significantly improved missile performance with derivative of the Joint Service's Embedded GPS/INS (EGI) set, enhanced software to provide a retargeting capability before launch against pop-up targets and terrain following capability. Navy has integrated SLAM mission planning into the Tactical Aircraft Mission Planning System (TAMPS) to reduce mission planning time and eliminate SLAM unique mission planning hardware; increasing stability and seeker dome rain protection using the aero nose; and increased anti-jam performance with the EGI and advanced mode of AWW-13 pod. SLAM ER is being integrated with the F/A-18 software update program OFP-13c, with potential for application/integration with other aircraft. To accommodate future U.S. Air Force and Navy aircraft integration, SLAM ER will incorporate a MIL-STD-1760 interface.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($44,374) Initiated Engineering and Manufacturing Design (E&MD) efforts, conducted Integrated Baseline Review and conducted Preliminary Design Review (PDR) and commenced support of Critical Design Review (CDR).

- (U) ($ 2,000) Continued F/A-18 aircraft integration efforts and commenced flight clearance and software efforts. Completed F/A-18 SLAM ER wind tunnel testing portion of the aircraft integration efforts.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604603N
PROGRAM ELEMENT TITLE: Unguided Conventional Air-launched Weapons

PROJECT NUMBER: A2183
PROJECT TITLE: SLAM ER

- (U) ($ 5,100) Commenced Osprey Jaywalker efforts.
- (U) ($ 6,557) Attained MS IV/II. Completed Warhead initial design and testing. Continued Government and Contractor support.
- (U) ($ 1,000) Continued Test and Evaluation planning; and commenced subsystem & contractor section level testing.

2. (U) FY 1996 PLAN:

- (U) ($36,045) Continue E&MD efforts and complete CDR.
- (U) ($ 5,265) Continue F/A-18 aircraft integration, commence flight clearance testing and software efforts.
- (U) ($ 2,100) Continue Osprey Jaywalker efforts.
- (U) ($ 450) Continue Test and Evaluation. Complete subsystem testing and contractor section level testing.
- (U) ($ 7,035) Continue Warhead development and testing, Government and Contractor support.
- (U) ($ 938) Portion of program reserved for Small Business Innovation Research (SBIR) assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($10,820) Continue E&MD efforts. Deliver SLAM ER flight test missiles and support testing.
- (U) ($ 2,700) Continue F/A-18 aircraft integration, flight clearance and software efforts.
- (U) ($ 1,000) Continue Osprey Jaywalker efforts.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604603N
PROGRAM ELEMENT TITLE: Unguided Conventional Air-launched Weapons

PROJECT NUMBER: A2183
PROJECT TITLE: SLAM ER

- (U) ($ 4,275) Continue Warhead development and testing, Government and Contractor support.

- (U) ($ 3,527) Perform Flight Readiness Review and start Missile Flight Test and Evaluation and complete Assistant Secretary of the Navy (Research, Development and Acquisition) Program Review for Low Rate Initial Production.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 95	FY 96	FY 97
(U) FY 1996/1997 President's Budget:	62,927	40,517	35,729
(U) Adjustments from PRESBUDG:	-3,896	+11,316	-13,407
(U) FY 1997 President's Budget:	59,031	51,833	22,322

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY95 decrease of $3,896 thousands reflects below threshold reprogrammings to the Weapons Advanced Technology program (0603217N/R0447) and Link Plumeria program (0603748N/Z1978). The FY96 net adjustment of +$11,316 thousands reflects a $13,000 thousands Congressional increase of which $3,000 thousands funds the acceleration of the SLAM/SLAM ER development program; $10,000 thousands funds the integration of SLAM/SLAM-ER onto Air Force Platforms. SLAM integration on USAF platforms is new work scope and was not budgeted for in the SLAM development program. Reducing SLAM ER RDT&E funding by $10,000 thousands in FY97 requires the Navy to use the $10,000 thousands FY 96 Congressional plus up for SLAM ER baseline development tasks, and not for beginning SLAM integration on USAF aircraft. Adjustments of -$1,684 thousands reflects-$1,054 thousands for Congressional undistributed general and inflation reductions and -$630 thousands for Defense Business Operating Fund adjustments. The FY97 net adjustment of -$13,407 thousands reflects a $10,000 thousands decrease to the SLAM program as a result of the FY96 Congressional increase and adjustments of -$2,500 thousands rephasing of requirements adjustment; -$153 thousands for Defense Business Operating Fund adjustments; -$674 thousands for revised DoD inflation rates and -$80 thousands for minor pricing adjustments.

(U) Schedule: Due to the acceleration of SLAM ER development two LRIPs are now being planned instead of the one LRIP as reflected in the 1996 President's Budget. This also resulted in several minor schedule changes to events tied to LRIP.

(U) Technical: Not applicable.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604603N PROJECT NUMBER: A2183
PROGRAM ELEMENT TITLE: Unguided Conventional Air-launched Weapons PROJECT TITLE: SLAM ER

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
WPN Line 7									
Quantity	58	75	0	0	0	0	0	0	812
SLAM BASELINE	66,808	83,082	0	0	0	0	0	0	1,087,400
WPN Line 17									
Quantity	0	0	23	23	85	180	188	201	700
SLAM-ER			22,673	23,266	47,143	77,129	79,105	145,005	394,321

(U) RELATED RDT&E: Not applicable

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestone	2Q MS IV/II 4Q IBR		2Q FRR 2Q LRIP (I)	1Q/99 MSIII 2Q/98 LRIP (II)*
Engineering Milestones	2Q SRR 4Q PDR	2Q CDR 4Q SEPARATION TEST*		
T&E Milestones	2Q TEMP	2Q F/A-18 FLT TEST	1Q CC 1Q DT 2Q DT-1 MSL FIRE	2Q/98 DT/OT* 1Q/98 DT* 2Q/98 OTRR* 1Q/99 OPEVAL* 1Q/99 FRP
Contract Milestones	2Q EMD AWARD			

*REPRESENTS COMPLETION DATES

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604603N
PROGRAM ELEMENT TITLE: Unguided Conventional Air-launched Weapons

PROJECT NUMBER: A2183
PROJECT TITLE: SLAM ER

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. EM&D Support	44,374	36,045	10,820
b. Osprey Jaywalker CCM/Sep	5,100	2,100	1,000
c. F/A-18 Flight/AC Integration	2,000	3,165	1,700
d. F/A-18 Software Development	0	2,100	1,000
e. Systems Engineering	2,168	1,000	1,000
f. Warhead Development	3,200	4,887	2,500
g. Test and Evaluation	1,000	450	3,527
h. Government Field Support	953	848	549
i. Consulting Service (CS)	136	151	151
j. Travel	100	149	75
k. SBIR Assessment		938	
Total	59,031	51,833	22,322

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604603N PROJECT NUMBER: A2183
PROGRAM ELEMENT TITLE: Unguided Conventional Air-launched Weapons PROJECT TITLE: SLAM ER

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in Thousands)

PERFORMING ORGANIZATIONS:

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development:										
McDonnell Douglas St. Louis, MO	SS/CPIF	9/94	111,421	111,421	12,500	44,374	36,045	10,820	7,682	111,421
China Lake, CA	WX	11/96	23,816	23,816	3,461	5,368	5,887	3,500	5,600	23,816
NAVSUP	PD	10/96	10,200	10,200	0	5,100	2,100	1,000	2,000	10,200
Miscellaneous	WX	11/96	16,920	16,920	166	3,053	6,262	3,324	4,115	16,920
Support and Management:										
Prometheus Alexandria, VA IDIQ+T&M		07/97	638	638	40	136	151	151	160	638
Test and Evaluation:										
Pt Mugu, CA	WX	11/96	20,528	20,528	801	1,000	450	3,527	14,750	20,528

GOVERNMENT FURNISHED PROPERTY: Not Applicable.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604603N
PROGRAM ELEMENT TITLE: Unguided Conventional Air-launched Weapons

PROJECT NUMBER: A2183
PROJECT TITLE: SLAM ER

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	16,127	57,895	50,294	18,644	19,397	162,357
Subtotal Support and Management	40	136	151	151	160	638
Subtotal Test and Evaluation	801	1,000	450	3,527	14,750	20,528
SBIR Assessment			938			938
Total Project	16,968	59,031	51,833	22,322	34,307	184,461

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604610N
PROGRAM ELEMENT TITLE: LIGHTWEIGHT TORPEDO DEVELOPMENT

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
V2234 LTWT HYBRID TORP (ADV)	10,754	21,336	15,019	18,423	7,584	4,934	2,354	0	89,302

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The funding is to design, integrate and test a Lightweight Hybrid Torpedo (LHT) by taking advantage of current USN investments in torpedo hardware and torpedo technology. The torpedo will be comprised of components and software from the MK 46 Torpedo, MK 50 Torpedo, and MK 48 ADCAP Torpedo. The Lightweight Hybrid Torpedo will incorporate improvements in the shallow water, littoral warfare counter-countermeasure environment.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($3,074) Procured Commercial-Off-The-Self (COTS) processing cards and conducted thermal and shock risk mitigation efforts in COTS packaging.
- (U) ($3,053) Procured MK 50 Torpedo Forebody Component Government Furnished Material (GFM) LHT Pre-Production Models (PPMs).
- (U) ($1,568) Performed systems engineering and integration efforts in support of risk mitigation, conducted environmental impact analysis, and Pre-Production Model request for proposal development.
- (U) ($900) Initiated Lightweight Hybrid Software Development Plan. Wrote approximately 2,000 lines of code

for Control and Acoustic Test Vehicle (CATV).

- (U) ($679) Conducted CATV in-water runs to aid in vehicle self-noise risk mitigation.
- (U) ($480) Analyzed LHT components simulated performance for incorporation in weapons analysis simulation facility.
- (U) ($1,000) Stored Chemical Energy Propulsion System boiler design effort and the completion of the P5/Compressed Oxygen alternate fuels and demonstration.

2. (U) FY 1996 PLAN

- (U) ($13,761) Procurement of LHT PPMs. ($6,500 is for forward funding of FY 1997 $14,725 PPM contract requirement.)
- (U) ($1,595) Continue development of tactical and signal processing software.
- (U) ($1,628) Conduct digital and hybrid simulation in support of software development.
- (U) ($3,994) Continue system engineering and integration efforts.
- (U) ($358) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($8,225) Continue procurement of LHT PPMs. (FY 1997 requirements for PPM contract are $14,725; $6,500 is forward funded from FY 1996.)
- (U) ($1,431) Continue development of tactical and signal processing software.
- (U) ($1,082) Continue digital and hybrid simulation in support of software development.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604610N PROJECT NUMBER: V2234
PROGRAM ELEMENT TITLE: LIGHTWEIGHT TORPEDO DEVELOPMENT PROJECT TITLE: LIGHTWEIGHT HYBRID TORPEDO

- (U) ($3,962) Continue system engineering and system integration efforts.
- (U) ($319) Begin simulation model validation to support FY 1998 developmental testing.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	10,876	22,027	16,688
(U) Adjustments from PRESBUDG:	-122	-691	-1,669
(U) FY 1997 PRESBUDG Submit:	10,754	21,336	15,019

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 1995 Program Funding Change is due to general undistributed assessments of -$122K. The FY 1996 Program Funding Change of -$691K is a result of Congressional Undistributed Reductions. The FY 1997 net Program Funding change of -$1,669 is a result of a net -$1,000K program restructuring and -$669K for revised inflation estimates and other minor pricing adjustments.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
** WPN/321500								
0	0	0	0	22,161	20,154	37,858	706,241	786,414

** Funding in line FYs 1994-1998 is not Lightweight Hybrid Related and is therefore not shown here.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604610N PROJECT NUMBER: V2234
PROGRAM ELEMENT TITLE: LIGHTWEIGHT TORPEDO DEVELOPMENT PROJECT TITLE: LIGHTWEIGHT HYBRID TORPEDO

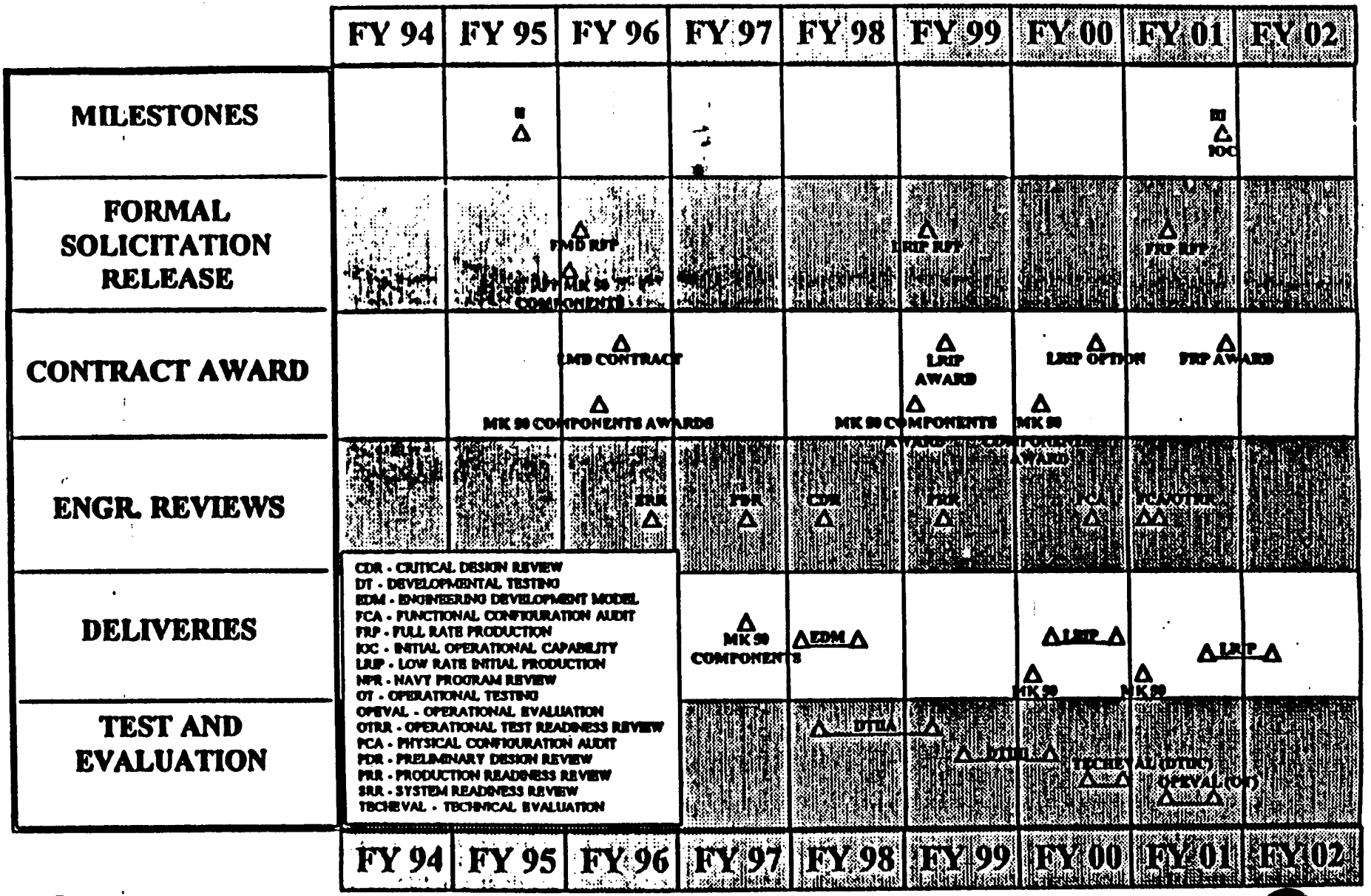
(U) RELATED RDT&E:
(U) PE 0603691N (MK 48 ADCAP (ADV))
(U) PE 0603610N (MK 50 SHALLOW WATER PERFORMANCE)

D. (U) SCHEDULE PROFILE:

See attached.

ACQUISITION STRATEGY / PROGRAM STRUCTURE

ANNEX A - LIGHTWEIGHT HYBRID TORPEDO PROGRAM STRUCTURE



FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604610N
PROGRAM ELEMENT TITLE: LIGHTWEIGHT TORPEDO DEVELOPMENT

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Hardware Development	5,090	13,761	8,225
b. Software Development	1,187	1,595	1,431
c. Integrated Logistics Support	277	343	361
d. Developmental Test & Evaluation	1,207	1,628	1,401
e. Systems Engineering	2,704	3,361	2,961
f. Program Management Support	289	648	640
Total	10,754	21,336	15,019

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604610N PROJECT NUMBER: V2234
PROGRAM ELEMENT TITLE: LIGHTWEIGHT TORPEDO DEVELOPMENT PROJECT TITLE: LIGHTWEIGHT HYBRID TORPEDO

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING: ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
NUWC, Newport	WR	NOV 95	41,736	41,736	6,349	5,929	5,895	5,654	17,909	41,736
Prime Contract	C/CPAF	JUN 96	32,295	32,295	0	0	13,761	8,225	10,309	32,295
Various (SCEPS)	VAR	N/A	1,528	1,528	318	1,100	110	0	0	1,528
Support and Management										
APL/ARL	C/CPFF	MAR 96	5,033	5,033	2,228	383	922	500	1,000	5,033
Various	VAR	APR 96	2,580	2,580	3	289	648	640	1,000	2,580
Test and Evaluation										
COMOPTEVFOR	WR	N/A	3,077	3,077	0	0	0	0	3,077	3,077

GOVERNMENT FURNISHED PROPERTY:

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development									
Prime Contractor	C/FP	MAR 96		0	3,053	0	0	0	3,053
Support and Management				0	0	0	0	0	0
Test and Evaluation				0	0	0	0	0	0

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604610N PROJECT NUMBER: V2234
PROGRAM ELEMENT TITLE: LIGHTWEIGHT TORPEDO DEVELOPMENT PROJECT TITLE: LIGHTWEIGHT HYBRID TORPEDO

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	6,667	10,082	19,766	13,879	28,218	78,612
Subtotal Support and Management	2,231	672	1,570	1,140	2,000	7,613
Subtotal Test and Evaluation	0	0	0	0	3,077	3,077
Total Project	8,898	10,754	21,336	15,019	33,295	89,302

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604612M
PROGRAM ELEMENT TITLE: Marine Corps Mine Countermeasures (Engineering)

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C1969 Mine Neutralization Equipment	1,465	930	3,032	6	0	0	0	CONT.	CONT.
C2104 Off/Route Smart Mine Clearance (ORSMC)[1]	0	0	0	0	0	4,734	4,705	CONT.	CONT.
C2106 Advanced Countermeasures System (ACS)[2]	0	0	2,710	3,023	3,333	5,983	1,810	CONT.	CONT.
TOTAL	1,465	930	5,742	3,029	3,333	10,717	6,515	CONT.	CONT.

1. This program was formerly titled Wide Area Mine Clearing (WAMC) System. FY 1995 and FY 1996 funding is contained in Program Element (PE) 0603640M, Marine Corps Advanced Technology Demonstrations (ATD), Project C2223, the consolidated Marine Corps ATD project. FY 1997 through FY 1999 funding is contained in PE 0603612M, Marine Corps Mine Countermeasures, Project C2104.

2. This program was formerly titled Distributed Explosive Mine Neutralization System (DEMNS) and Advanced Countermeasures System (ACS). FY 1995 and FY 1996 funding is contained in PE 0603612M, Project C2106.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This PE covers a wide variety of present and emerging technologies which are projected to contribute to the Marine Corps mine/countermine capability. Largely focused on countermine efforts, this PE will specifically develop systems which will neutralize mines. The dynamic nature and complexity of the countermine problem and its relative urgency necessitates the advanced development of a variety of systems which will each contribute to achieving overall countermine effectiveness.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

Exhibit R-2

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604612M
PROGRAM ELEMENT TITLE: Marine Corps Mine/Countermeasures (Engineering)

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C1969 Mine Neutralization Equipment	1,465	930	3,032	6	0	0	0	0	29,055

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program contains the Marine Corps' mine neutralization equipment for countermine systems in the Engineering and Manufacturing Development (EMD) phase. This program will test and evaluate existing mine neutralization systems for both individuals and vehicles. The project includes the Anti-personnel Obstacle Breaching System (APOBS) which neutralizes both anti-personnel mines and light obstacles. In addition, the project includes the development of the Magnetic Countermine System (MACS) for neutralizing magnetically influenced anti-tank (AT) mines which are emerging as the mine of choice, particularly in the scatterable mine arena.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($1,130) Conducted APOBS system flight testing. Prepared new fuze for testing and completed system for final reliability flight tests in FY 1996. Obtained final APOBS Weapons System Safety Explosive Review Board approval.
- (U) ($335) Started preparation of MACS Milestone I/II documentation, and solicitation package.

2. (U) FY 1996 PLAN:

- (U) ($160) Obtain a M/S I/II decision and award an EMD contract with production options for MACS.
- (U) ($770) Test final APOBS systems. Complete final APOBS Milestone III documentation. Complete APOBS Milestone III decision. Complete documentation of APOBS.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604612M PROGRAM ELEMENT TITLE: Marine Corps Mine Countermeasures (Engineering) PROJECT NUMBER: C1969 PROJECT TITLE: Mine Neutralization Equipment

- (U) The APOBS program completes at the end of FY 1996.

3. (U) FY 1997 PLAN:

- (U) ($123) Consolidate MACS test data.
- (U) ($2,874) Conduct MACS contractor integration, DT and data coordination. Conduct Operational Testing (OT).
- (U) ($35) Prepare MACS Milestone III documentation.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	420	263	123
(U) Adjustments from FY 1996 PRESBUDG:	+1,045	+667	+2,909
(U) FY 1997 PRESBUD Submit:	1,465	930	3,032

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 1995 increase of $695 to APOBS provides funding to investigate, repair and provide a new fuze for testing in addition to completing the system for final reliability flight tests. This program was previously scheduled to complete system flight testing in FY 1995; however, a fuze failure, attributed to inadequate manufacture design, caused the system to fail flight tests. The additional FY 1995 funding corrects the fuze manufacturing error and after schedule adjustments, the program is proceeding favorably. FY96 funding increased APOBS $667K from SMB(PE 0603612M/C2106) to complete the fuze development and to complete the Reliability program.

The FY 1995 increase of $350 and the FY 1997 net increase of $2,909 provided funding for the MACS program. The MACS program underwent program restructure which streamlined the non-developmental item (NDI) approach in which the writing of performance specifications was revised.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604612M PROGRAM ELEMENT TITLE: Marine Corps Mine Countermeasures (Engineering) PROJECT NUMBER: C1969 PROJECT TITLE: Mine Neutralization Equipment

(U) Schedule: The MACS program restructure caused: the scheduled Milestone I in the second quarter of FY 1995 to change to a Milestone I/II in the third quarter of FY 1996; the fourth quarter FY 1995 DT/OT II to be rescheduled to a contractor DT in the second quarter of FY 1997 and an OT in the fourth quarter of FY 1997; and the first quarter FY 1996 Milestone II/III decision to change to a first quarter FY 1998 Milestone III decision. In addition, a fourth quarter FY 1996 contractor selection and a first quarter FY 1997 contractor integration and prototype construction initialization was added to the schedule.

The APOBS final system flight was delayed to FY 1996 due to a delay in contractor delivery of fuzes. This delay caused the final prototype to slip to FY 1996; Milestone III to move to the fourth quarter of FY 1996; and the production baseline to move to the first quarter of FY 1998 vice the second quarter of FY 1996.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) PMC Line 3 (BLI# 103000) Linear Charges, All Types -- (APOBS)	0	0	0	10,857	11,257	11,578	504	CONT.	CONT.
(U) PMC Line (BLI# 641300) Mine/Countermine Systems -- (MACS)	0	0	0	14,500	0	0	0	0	14,500

(U) RELATED RDT&E: Not applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604612M
PROGRAM ELEMENT TITLE: Marine Corps Mine Countermeasures (Engineering)
PROJECT NUMBER: C1969
PROJECT TITLE: Mine Neutralization Equipment

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	4TH QTR MS I/II (MACS)	4TH QTR MS III (APOBS)		1ST QTR MS III (FY98 MACS)
Engineering Milestones		FINAL PROTOTYPE (APOBS)	1ST QTR START INTEGRATION & PROTOTYPE CONSTRUCTION (MACS)	1ST QTR PRODUCTION BASELINE (FY98 APOBS)
T&E Milestones			3RD QTR DT (MACS) 4TH QTR OT (MACS)	
Contract Milestones		4TH QTR CONTRACTOR SELECTION (MACS)	2ND QTR FRP PROD CONTRACT AWARD (APOBS) *ARMY FUNDED*	

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKOUT

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604612M
PROGRAM ELEMENT TITLE: Marine Corps Mine Counter-measures (Engineering)

PROJECT NUMBER: C1969
PROJECT TITLE: Mine Neutralization Equipment

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Primary Hardware Development	300	0	2,864
b. Government Engineering Support	450	745	0
c. Systems Engineering	150	0	0
d. Test and Evaluation	305	0	0
e. Technical Data	190	110	123
f. Integrated Logistics Support	50	58	35
g. Travel	20	10	10
Total	1,465	930	3,032

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKOUT

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604612M
PROGRAM ELEMENT TITLE: Marine Corps Mine Countermeasures (Engineering)

PROJECT NUMBER: C1969
PROJECT TITLE: Mine Neutralization Equipment

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
NSWC (CSS), Panama City, FL	WR/RCP	JAN 95	2,295	2,295	1,520	555	220	0	0	2,295
NSWC, Crane, IN	WR	OCT 94	1,624	1,624	1,614	10	0	0	0	1,624
NSWC, Indian Head, MD	WR	NOV 95	3,410	3,410	2,347	538	525	0	0	3,410
NCEL, Port Hueneme, CA	WR	JAN 96	2,981	2,981	2,871	110	0	0	0	2,981
Night Vision Electronics Sensors Directorate (NVESD), Ft. Belvoir, VA	MIPR	OCT 95	6,859	6,859	3,877	118	0	2,864	0	6,859
MARCORSYSCOM (PM SSE), Quantico, VA	WR	JAN 96	129	129	90	12	17	10	0	129
Total Product Development			17,298	17,298	12,319	1,343	762	2,874	0	17,298

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKOUT

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604612M
PROGRAM ELEMENT TITLE: Marine Corps Mine Countermeasures (Engineering)

PROJECT NUMBER: C1969
PROJECT TITLE: Mine Neutralization Equipment

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Support and Management										
NVESD, Ft. Belvoir, VA	MIPR	OCT 95	771	771	419	81	148	123	0	771
MKI, Dumfries, VA	RCP	JAN 96	696	696	600	41	20	35	0	696
Total Support and Management			1,467	1,467	1,019	122	168	158	6	1,467
Test and Evaluation			234	234	234	0	0	0	0	234

GOVERNMENT FURNISHED PROPERTY: Not applicable.

Subtotal Product Development	12,319	1,343	762	2,874	0	17,298
Subtotal Support and Management	1,019	122	168	158	6	1,467
Subtotal Test and Evaluation	234	0	0	0	0	234
Total Project	13,572	1,465	930	3,032	6	18,999

C. (U) FUNDING PROFILE: Not applicable.

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604612M
PROGRAM ELEMENT TITLE: Marine Corps Mine/Countermeasures (Engineering)

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C2106 Standoff Minefield Breacher (SMB)	0	0	2,710	3,023	3,333	5,983	1,810	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project was formerly titled Distributed Explosive Mine Neutralization System (DEMNS) and Advanced Countermeasures System (ACS). The SMB program centers on neutralization of blast-hardened and complex-fuzed mines, and unexploded munitions (current and future threat) that defeat the effectiveness of current minefield breaching systems. Primary goals are: neutralization in-stride from a standoff position; very high neutralization percentages against all types of mines; and joint applicability for use with primary assault platforms to include land and amphibious assaults. This joint Army/Marine Corps program, with the Army as the lead service, satisfies the Army's standoff minefield breaching requirement.

(U) The SMB program researches and develops assault minefield breaching capabilities that will neutralize current and future blast-hardened and complex-fuzed mines from a standoff position. SMB will alleviate a critical deficiency in breaching minefields during amphibious operations. Current breaching assets are 1950s technology that do not meet breaching mission requirements.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS: FY 1995 funding ($5,215) is contained in PE 0603612M, Project C2106.

2. (U) FY 1996 PLAN: FY 1996 funding ($1,729) is contained in PE 0603612M, Project C2106.

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604612M PROGRAM ELEMENT TITLE: Marine Corps Mine Countermeasures (Engineering) PROJECT NUMBER: C2106 PROJECT TITLE: Standoff Minefield Breacher (SMB)

3 (U) FY 1997 PLAN:

- (U) ($2,460) Complete the Demonstration/Validation (DEM/VAL) contract to include contractor testing of prototype systems and ammunition. Support government Developmental and Operational Tests and delivery of three systems and fifteen rounds of ammunition.
- (U) ($230) Update all program documentation for the Milestone II decision and provide management support analysis of contractor results using a management support contract.
- (U) ($20) Continue to provide travel support in preparation of milestone documentation and contract deliverables.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	0	0	0	2,791
(U) Adjustments from FY 1996 PRESBUDG:	N/A	0	0	-81
(U) FY 1997 Presidents Budget Submit:	0	0	0	2,710

(U) CHANGE SUMMARY EXPLANATION: Decrease of $81 in FY97 is due to programmatic reductions.

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E:

(U) PE 0603606A/0603619A/0604080A (Army Standoff Minefield Breacher Program)
(U) PE 0602131M (Marine Corps Landing Force Technology)
(U) PE 0603612M (Marine Corps Mine Countermeasures)
(U) PE 0603640M (Marine Corps Advanced Technology Demonstrations)
(U) The joint Memorandum of Agreement between the Army and Marine Corps was signed on 01 March 1995.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604612M PROGRAM ELEMENT TITLE: Marine Corps Mine Countermeasures (Engineering) PROJECT NUMBER: C2106 PROJECT TITLE: Standoff Minefield Breacher (SMB)

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				1Q FY 1998 MS II 1Q FY 2002 MS III
Engineering Milestones			1Q PROTOTYPE DELIVERED	1Q FY 2001 LRIP
T&E Milestones			2Q EDT* DT/OT I	1Q FY 2001 IOT&E
Contract Milestones	3Q AWARD DEM VAL			

* EDT is Engineering Developmental Testing (performed by the government)

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKOUT

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604612M
PROGRAM ELEMENT TITLE: Marine Corps Mine Countermeasures (Engineering)

PROJECT NUMBER: C2106
PROJECT TITLE: Standoff Minefield Breacher (SMB)

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Program Manager Civilian Salaries	0	0	0
b. Travel	0	0	20
c. Professional and Management Service	0	0	320
d. Hardware Development	0	0	1,614
e. Software Development	0	0	50
f. Systems Engineering	0	0	300
g. Integrated Logistics Support	0	0	30
h. Govt Engineer Support	0	0	30
i. Developmental Test and Evaluation	0	0	300
j. Miscellaneous	0	0	46
Total	0	0	2,710

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKOUT DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604612M PROGRAM ELEMENT TITLE: Marine Corps Mine Countermeasures (Engineering) PROJECT NUMBER: C2106 PROJECT TITLE: Standoff Minefield Breacher (SMB)

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Tracor Aerospace, Austin, Texas	C/CPIF	JUN 95			0	0	0	2,262	CONT.	CONT.
Support and Management										
Night Vision Electronics Sensors Directorate (NVESD), Ft. Belvoir, VA	MIPR	OCT 95			0	0	0	0	CONT.	CONT.
MCCDC, Quantico, VA					0	0	0	100		
CAMBER, Springfield, VA	CONTRACT	OCT 95			0	0	0	0	CONT.	CONT.
MARCORSYSCOM, Quantico, VA					0	0	0	250		
Total Support and Management					0	0	0	350	CONT.	CONT.
Test and Evaluation										
Miscellaneous					0	0	0	98	CONT.	CONT.
TOTAL TEST AND EVALUATION					0	0	0	98	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKOUT

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604612M
PROGRAM ELEMENT TITLE: Marine Corps Mine Countermeasures (Engineering)

PROJECT NUMBER: C2106
PROJECT TITLE: Standoff Minefield Breacher (SMB)

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	0	0	0	2,262	CONT.	CONT.
Subtotal Support and Management	0	0	0	350	CONT.	CONT.
Subtotal Test and Evaluation	0	0	0	98	CONT.	CONT.
Total Project	0	0	0	2,710	CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604618N PROJECT NUMBER: E2137
PROGRAM ELEMENT TITLE: Joint Direct Attack Munitions (JDAM) PROJECT TITLE: JDAM

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
E2137 JDAM	24,021	29,568	35,130	16,912	11,962	11,434	14,235	0	174,835

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: JDAM is a joint acquisition program combining Department of Navy and Air Force requirements for upgrading existing General Purpose Bomb capabilities in adverse weather and medium to high altitude releases. The Air Force is the executive service. The Navy's participation in JDAM involves joint development of JDAM components and support of Navy-Marine Corps unique requirements such as aircraft integration on the F/A-18. JDAM will provide an accurate (defined as not more than 13 meters) adverse weather capability. The program will incorporate commonality with the Joint Standoff Weapon where feasible. The JDAM Product Improvement Program (PIP) will field improvements to the JDAM system with initial emphasis on attaining precision (3 meters or less) accuracy through non-seeker and seeker initiatives.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($ 1,856) Continued planning and test engineering in support of Developmental Testing (DT-IIA) testing.
- (U) ($ 4,214) Continued Operational Flight Program (OFP) software development for flight testing, and initiated JDAM Mission Planning Module for Tactial Air Mission Planning System (TAMPS).
- (U) ($ 3,600) Procured JDAM Test Assets.
- (U) ($ 5,969) Performed wind tunnel tests, Instrumented Measurement Vehicle (IMV) tests and airworthiness analysis.
- (U) ($ 7,494) Performed systems engineering and program support for two JDAM Engineering & Manufacturing Development (E&MD) Phase I contracts, and prepared for Milestone (MS) II decision.
- (U) ($ 888) Continued Joint Programmable Fuze (JPF) systems engineering, Integrated Logistics Support (ILS), program support, and testing support.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604618N PROJECT NUMBER: E2137
PROGRAM ELEMENT TITLE: Joint Direct Attack Munitions (JDAM) PROJECT TITLE: JDAM

2. (U) FY 1996 PLAN:

- (U) ($ 4,148) Perform DT-IIA testing and test engineering support, and planning for DT-IIB/Operational Testing (OT-IIA) testing.
- (U) ($ 8,885) Continue OFP software development for flight testing, and continue JDAM Mission Planning Module development for TAMPS.
- (U) ($ 4,260) Procure JDAM test assets.
- (U) ($ 9,290) Perform systems engineering and program support for JDAM E&MD Phase II contract.
- (U) ($ 1,592) Continue systems engineering, ILS, program support, and testing support for the JPF E&MD program.
- (U) ($ 1,393) Portion of program reserved for Small Business Innovation Research (SBIR) assessment in accordance with 15 U.S.C. 638 (f)(1).

3. (U) FY 1997 PLAN:

- (U) ($11,864) Complete DT-IIA testing and test engineering support, initiate DT-IIB/OT-IIA testing, initiate DT-IIC/OT-IIB, and planning efforts for OT-IIC Operational Evaluation (OPEVAL) testing.
- (U) ($ 4,636) Continue OFP software development for flight testing, and JDAM Mission Planning Module development for TAMPS.
- (U) ($ 5,377) Procure JDAM Test Assets.
- (U) ($11,548) Perform systems engineering and program support for the JDAM E&MD Phase II contract and prepare for Low Rate Initial Production (LRIP) decision.
- (U) ($ 1,705) Continue systems engineering, ILS, program support, and testing for JPF E&MD program.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604618N PROJECT NUMBER: E2137
PROGRAM ELEMENT TITLE: Joint Direct Attack Munitions (JDAM) PROJECT TITLE: JDAM

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	25,860	37,832	36,576
(U) Adjustments from PRESBUDG:	-1,839	-8,264	-1,446
(U) FY 1997 President's Budget Submit:	24,021	29,568	35,130

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 95 decrease of -$1.839 million consists of -$1.100 million for SBIR adjustment and a decrease of -$0.739 million for Major Range Test Facility Base (MRTFB) adjustment. The FY 96 net decrease of -$8.264 million consists of -$5.300 million for MRTFB adjustment; -$1.999 million due to rephasing of program requirements; Congressional undistributed general and inflation reductions -$.607 million; and revised inflation rates and other minor pricing adjustments -$.358 million. The FY 97 decrease of -$1.446 million reflects revised inflation estimates and other minor pricing adjustments -$1.139 million; and -$.307 million for Defense Business Operating Fund (DBOF).

(U) Schedule: DT-IIB, OT-IIA, OT-IIB, and OT-IIC were revised to reflect DT/OT testing by OFP phase. No schedule slippage. MS II & III acceleration was approved by the Under Secretary of Defense for Acquisition and Technology. MS II Cost Analysis Requirement Document (CARD) reflects this decision.

(U) Technical: Not Applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
WPN/B.A-5 - Ammunition - JDAM	-	-	-	39,322	45,177	37,103	30,974	561,533	714,109
MPAF/B.A-2 - Other Missiles									
USAF (3020) Weapons Procurement	23,010	61,513	62,659	144,571	234,381	812,820	1,338,954		

(U) RELATED RDT&E:

(U) Air Force PE 0604618F Joint Direct Attack Munitions (JDAM).

149,007	85,927	38,636	34,717	24,567	1,459	1,238	1,800	337,351

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604618N
PROGRAM ELEMENT TITLE: Joint Direct Attack Munitions (JDAM)

PROJECT NUMBER: E2137
PROJECT TITLE: JDAM

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	4Q MS-II			3Q/98 MS-III
Engineering Milestones	1Q PDR 4Q CDR			
T&E Milestones		1Q DT-IIA	1Q DT-IIB 1Q OT-IIA 3Q DT-IIC 3Q OT-IIB	1Q/98 OT-IIC
Contract Milestones		1Q DOWNSELECT		

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604618N
PROGRAM ELEMENT TITLE: Joint Direct Attack Munitions (JDAM)
PROJECT NUMBER: E2137
PROJECT TITLE: JDAM

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories		FY 1995	FY 1996	FY 1997
a.	System Engineering	5,057	4,802	6,442
b.	Airworthiness (Flight Cert)	5,969	1,382	1,141
c.	OFP S/W Development	2,667	5,066	4,031
d.	TAMPS S/W Development	1,547	3,819	605
e.	Development Test & Evaluation	1,804	4,068	7,629
f.	Operational Test & Evaluation	52	80	4,235
g.	Test Asset Hardware	3,600	4,260	5,377
h.	Integrated Logistics Support (ILS)	383	792	1,164
i.	Training	236	451	540
j.	Travel	195	150	175
k.	Contractor Engineering Support	1,623	1,713	2,086
l.	Joint Programmable Fuze (JPF)	888	1,592	1,705
m.	SBIR Assessment		1,393	
TOTAL		24,021	29,568	35,130

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604618N
PROGRAM ELEMENT TITLE: Joint Direct Attack Munitions (JDAM)
PROJECT NUMBER: E2137
PROJECT TITLE: JDAM

(U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Contract Costs ($1.0M or more):										
OFP Software Dev. WX McDonnel Douglas Aircraft		10/96	14,301	14,301	5,167	2,280	3,946	2,600	308	14,301
JDAM (Software Dev) WX (TAMPS) Texas Instruments		10/96	4,426	4,426	0	1,000	3,024	130	272	4,426
Less than $1.0M (Aggregate Total)										
IMV	MIPR	N/A	883	883	0	883	0	0	0	883
In-house Support:										
NAWC, CL JDAM DEV.	WX	10/96	96,496	96,496	19,552	9,576	10,346	11,805	45,217	96,496
Support and Management:										
Less than $1.0M (Aggregate Total):					3,015	1,877	1,864	2,261	3,860	12,877

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5
PROGRAM ELEMENT: 0604618N
PROGRAM ELEMENT TITLE: Joint Direct Attack Munitions (JDAM)
PROJECT NUMBER: E2137
PROJECT TITLE: JDAM

(U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
PERFORMING ORGANIZATIONS (Continued)										
Test and Evaluation:										
Contract Costs ($1.0M or more):										
F/A-18 A/C (McDonnell Douglas, St.Louis, MO)	C/FP	9/95	7,031	7,031	1,000	3,994	1,200	837	0	7,031
In-house Support:										
JDAM TEST										
NAWC-PAX	WX	10/96	3,881	3,881	239	759	2,263	620	0	3,881
NAWC-CL	WX	10/96	16,897	16,897	0	52	1,272	11,500	4,073	16,897

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development				0	0	0	0	0	0
Support and Management				0	0	0	0	0	0
Test and Evaluation:									
Test Assets	C/FP MIPR	10/95	Oct 96 - Mar 98	2,610	3,600	4,260	5,377	803	16,650

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604618N
PROGRAM ELEMENT TITLE: Joint Direct Attack Munitions (JDAM)

PROJECT NUMBER: E2137
PROJECT TITLE: JDAM

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	24,719	13,739	17,316	14,535	45,797	116,106
Subtotal Support and Management	3,015	1,878	1,864	2,261	3,860	12,877
Subtotal Test and Evaluation	3,849	8,405	8,995	18,334	4,876	44,459
SBIR Assessment			1,393			1,393
Total Project	31,583	24,021	29,568	35,130	54,533	174,835

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604654N
PROGRAM ELEMENT TITLE: Joint Service Explosive Ordnance Disposal Development

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
Q1829 Explosive Ordnance Disposal Procedures	6,242	5,240	7,346	5,205	6,257	6,256	6,405	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This is a Joint Service Program. DOD assigned development responsibility for Explosive Ordnance Disposal (EOD) procedures and equipment to the Navy in support of the Joint Services. This program provides for the technical development, validation, preparation, joint service verification and approval of EOD render-safe procedures for all known domestic and foreign conventional and nuclear ordnance. This program also provides for the implementation of the DOD/DOE/FBI Memorandum of Understanding for response to Improvised Nuclear Devices (INDs). This project develops procedures in accordance with CNO approved NAPDD 426-852.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($4,900) Obtained foreign ordnance and developed EOD render-safe procedures for new sophisticated domestic and foreign ordnance.
- (U) ($1,342) Continued to develop IND countermeasures procedures and participated in joint exercises and joint working groups.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604654N PROJECT NUMBER: Q1829
PROGRAM ELEMENT TITLE: Joint Service Explosive Ordnance Disposal Development PROJECT TITLE: Explosive Ordnance Disposal Procedures

2. (U) FY 1996 PLAN:

- (U) ($4,288) Continue to obtain foreign ordnance and develop EOD render-safe procedures for new sophisticated domestic and foreign ordnance.
- (U) ($931) Continue to develop IND countermeasures procedures and participate in exercises and joint working groups.
- (U) ($21) Portion of extramural program reserved for Small Business Innovative Research assessment in accordance with 15 U.S.C.638.

3. (U) FY 1997 PLAN:

- (U) ($5,846) Continue to obtain foreign ordnance and develop EOD render-safe procedures for new sophisticated domestic and foreign ordnance.
- (U) ($1,500) Continue to develop IND countermeasures procedures and participate in exercises and joint working groups.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	6,242	5,408	5,221
(U) Adjustments from PRESBUDG:	0	-168	+2,125
(U) FY 1997 PRESBUDG Submit:	6,242	5,240	7,346

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604654N PROJECT NUMBER: Q1829
PROGRAM ELEMENT TITLE: Joint Service Explosive Ordnance Disposal Development PROJECT TITLE: Explosive Ordnance Disposal Procedures

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 96 - Congressional undistributed general and inflation reductions. FY97 - +$625 Additional funding will provide for the development of EOD render-safe procedures for additional known foreign ordnance, complete support of DOD Technical Response Group (DTRG), and full participation in inter-agency exercises and Joint Agency Working Groups; +$1,500K to support FY 1997 Mine Warfare Campaign Plan.
(U) Schedule: Not applicable.
(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E: All conventional or nuclear ordnance related developments, both domestic and foreign, manufactured or improvised.

(U) 0603654N (Joint Service Explosive Ordnance Disposal Development)

D. (U) SCHEDULE PROFILE: Not applicable.

BUDGET ACTIVITY: 5

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

PROGRAM ELEMENT: 0604703N
PROGRAM ELEMENT TITLE: Manpower, Personnel, and Training, Simulation and Human Factors

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
L1822 Manpower, Personnel, Training, Simulation and Human Factors	1,117	1,013	1,013	1,027	1,264	1,265	1,293	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program applies advanced technologies to operational requirements in manpower, personnel, training, and human factors, and transitions into operation those projects demonstrated in advanced development. Enabling technologies include adaptive testing, math optimization, statistical and econometric forecasting, computer-based simulation, and decision support systems.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under RDT&E OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($300) Transitioned prototype version of unrestricted line officer career management model to other officer communities and integrated with officer promotion planning systems.
- (U) ($381) C-School Planning System delivered to the Bureau of Naval Personnel for test and evaluation in an operational environment. Prototype C-School Feasibility Planner delivered to Chief of Naval Education and Training for user evaluation and feedback.
- (U) ($170) Began evaluation and expansion of the Brig Retraining System.
- (U) ($266) Transitioned to officer communities the Target System, for defining loss incentive populations.

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604703N PROJECT NUMBER: L1822
PROGRAM ELEMENT TITLE: Manpower, Personnel, and Training, Simulation and Human Factors PROJECT TITLE: Manpower, Personnel, and Training, Simulation and Human Factors

2. (U) FY 1996 PLANS:

- (U) ($212) Implement the C and A School Planning Systems to permit feasibility analyses based on school capacities to estimate PCS move costs of training plans, and to estimate effects of training on fleet readiness.
- (U) ($145) Test and refine the QOL socioeconomic model to predict increases/decreases in retention and readiness in response to varying levels of QOL support.
- (U) ($146) Begin conversion of demonstration Medical Manpower Allocation Model to an all-Navy model.
- (U) ($160) Complete implementation of the Enlisted Community Managers' Integrated modeling system, developed in advanced technology demonstration.
- (U) ($240) Develop rate forecasting models for Military Personnel Navy Appropriation for use by Pers-2 and Pers-7 to ensure implemented personnel policiles are consistent with cost impact and to link budgetry need to personnel readiness.
- (U) ($100) Develop tools to enable trailored corrections programs to raise the potential of prisoner retention/reassignment to the fleet.
- (U) ($10K) Portion of extramural program reserved for Small Business Innovation Research Assessment in accordance with 15 U.S.C.638.

3. (U) FY 1997 PLANS:

- (U) ($293) Transition the demonstrated Future Generation Decision Support System for Detailers including integrated information display in a Windows-like environment, to improve detailer response to constituents and to allow the advertisement of job vacancies to the fleet.

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5
PROGRAM ELEMENT: 0604703N
PROGRAM ELEMENT TITLE: Manpower, Personnel, and Training, Simulation and Human Factors

PROJECT NUMBER: L1822
PROJECT TITLE: Manpower, Personnel, and Training, Simulation and Human Factors

- (U) ($300) Transition the demonstrated Assignment Policy Management System to assess assignment policy tradeoffs, to measure policy compliance and to suggest corrective actions.
- (U) ($220) Complete conversion of demonstration manpower allocation model to an all-Navy model and transition to implementation at NAVMAC, N932 and BUMED.
- (U) ($200) Implement the Accession Incentive Management Support System that tracks execution of incentive plans and estimates elasticities of "take rates" for alternative incentive programs.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	1,117	1,043	1,013
(U) Adjustments from PRESBUDG:	0	-30	0
(U) FY 1997 Program Review Submit:	1,117	1,013	1,013

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1996 price reductions are due to Congressional undistributed general and inflation reductions (-18); and revised DoD inflation rates and other minor pricing adjustments (-12).

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

UNCLASSIFIED

FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604703N PROJECT NUMBER: L1822
PROGRAM ELEMENT TITLE: Manpower, Personnel, and Training, Simulation and Human Factors PROJECT TITLE: Manpower, Personnel, and Training, Simulation and Human Factors

(U) RELATED RDT&E:
(U) PE 0601152N, In-House Independent Lab Research
(U) PE 0601153N, Defense Research Sciences
(U) PE 0602233N, Mission Support Technology
(U) PE 0602722A, Personnel and Training
(U) PE 0603707N, Manpower, Personnel and Training Advanced Technology Development
(U) PE 0603731A, Manpower and Personnel
(U) PE 0603704F, Manpower and Personnel Systems Technology

D. (U) SCHEDULE PROFILE: Not applicable.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604710N
PROGRAM ELEMENT TITLE: Navy Energy Program (ENG)

A. (U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R0371 Energy Conservation (ENG)	3,156	2,548	1,983	2,117	2,531	2,537	2,605	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Develop energy-efficient systems and practices for ships, facilities, and aircraft. Resulting energy efficiency gains contribute to fleet sustainability, combat capability (e.g., greater range, time on station), and reduced operating costs. Efforts include fuel use optimization aids for aircraft; anti-fouling paints, air conditioning and lighting for ships; and adaptation of renewable energy technologies to Navy facility needs. Provide test and evaluation support to the companion PE 0603724N Project R0829. As currently funded, annual savings are projected to be $130M by FY 1995 and $155M by FY 2000 compared to FY 1985 cost.

This program, and the companion PE 0603724N Navy Energy Program (ADV), support the achievement of Executive Department, DoD, and Navy Energy Management Goals. Navy is TRISERVICE lead for the implementation of renewable/alternative energy systems across DoD.

Joint Mission Areas/Support Areas (JMA/SA): This program directly supports the Readiness, Support, and Infrastructure SA. It also supports the following JMA's: Forward Presence, Joint Surveillance, Strategic Sealift, and Joint Strike.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:
   - (U) ($750) Aircraft: Tested and Evaluated (T&E) Flight Optimization Routines for Energy Management (FOREM) for F/A-18 (-402 engine), F-14B/D, and T-45; distributed to fleet. Successor to Pocket-Sized Aircraft Performance Advisory Computer (P-S APAC) was demonstrated to fleet squadrons--consists of palmtop DOS compatible computer running FOREM software.

and P-3 FPAS systems. Provide palmtop portable computers running FOREM to: 1) transport type aircraft (C-2, C-9, KC-130, UC-12) for on-board real-time updates for fuel state, weather changes, engine out performance; and 2) MARINE CORPS squadrons for in-the-field flight planning.

- (U) ($983) Ships: Install multiple bow bulb and stern propeller hydrodynamic enhancements on a TAO-187 class oiler (or other suitable ship) to demonstrate reduced powering requirements. Continue airconditioning T&E and advanced AF coating ship trials (full hull demonstrations and life cycle management studies). Optimize airconditioning impeller designs as necessary to avoid efficiency losses in R114 replacement program.
- (U) ($500) Facilities: T&E advanced PV systems incorporating thin film receptors and ganged, parallel, processors/controllers. Continue T&E of solar/wind and solar/fuel cell hybrid power systems.

B. (U) PROGRAM CHANGE SUMMARY

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	3,156	2,628	2,557
(U) Adjustments from FY 1996 PRESBUDG:	0	-80	-574
(U) FY 1997 PRESBUDG Submit:	3,156	2,548	1,983

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1996 adjustment is due to the following: Congressional undistributed general and inflation reductions (-49); and revised DOD inflation rates and other minor pricing adjustments (-31). FY 1997 funding adjustment is due to the following: revised DOD inflation estimates and other minor pricing adjustments (-574).

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604710N PROGRAM ELEMENT TITLE: Navy Energy Program (ADV) PROJECT NUMBER: R0371 PROJECT TITLE: Mobility Fuels (ADV)

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E:
(U) PE 0601153N (Defense Research Sciences)
(U) PE 0602121N (Surface Ship and Submarine HM&E Technology)
(U) PE 0602122N (Aircraft Technology)
(U) PE 0602234N (Materials, Electronics, and Computer Technology)
(U) PE 0603508N (Ship and Submarine HM&E Advanced Technology)
(U) PE 0603712N (Environmental Quality and Logistics Advanced Technology)
(U) PE 0603724N (Navy Energy Program (ADV))
(U) This program also relates to two OSD managed TRISERVICE energy conservation programs: Energy Conservation Investment Program (ECIP) and the Federal Energy Management Program (FEMP).

D. (U) SCHEDULE PROFILE: Not applicable.

UNCLASSIFIED

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604710N
PROGRAM ELEMENT TITLE: Navy Energy Program (ENG)

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Engineering Development & Testing	3,156	2,548	1,983
Total	3,156	2,548	1,983

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION: Not applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604721N
PROGRAM ELEMENT TITLE: BATTLE GROUP PASSIVE HORIZON EXTENSION SYSTEM

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X2134 BGPHES-ST	5,835	5,076	1,853	2,152	2,647	1,014	755	CONT.	CONT.
X2135 CHBDL-ST	8,833	5,563	1,851	2,724	5,911	1,608	1,624	CONT.	CONT.
TOTAL	14,668	10,639	3,704	4,876	8,558	2,622	2,379	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Battle Group Passive Horizon Extension System - Surface Terminal (BGPHES-ST) extends the Battle Group's line-of-sight radio horizon by using remote receivers in the ES-3A's sensor payload, and sends this information via the Common High Bandwidth Data Link - Surface Terminal (CHBDL-ST) to the surface ships.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604721N
PROGRAM ELEMENT TITLE: BATTLE GROUP PASSIVE HORIZON EXTENSION SYSTEM

PROJECT NUMBER: X2134
PROJECT TITLE: BGPHES-ST

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X2134	5,835	5,076	1,853	2,152	2,647	1,014	755	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Battle Group Passive Horizon Extension System Surface Terminal (BGPHES-ST) extends the Battle Group's line-of-sight radio horizon by using remote receivers in the ES-3A's sensor payload, via the Common High Bandwidth Data Link Shipboard Terminal (CHBDL-ST). BGPHES-ST will be located in LHD, LHA and CV/CVN Ships Signal Exploitation Space (SSES). The BGPHES-ST 5-position, 6-rack cryptologic control, analysis and reporting center uses Navy-standard DTC/TAC-N series workstations and integral local intercept receivers. The design downsizes and corrects deficiencies from the 14-rack AN/SLQ-50 (XN-1) model tested on USS EISENHOWER (CVN-69) during FY87 (factory verification completion in fall 1989). Development will proceed in two stages, first reducing risk by demonstrating operation with the ship's local receivers (the Ship's Signals Exploitation Equipment (SSEE) Upgrade)), then (timed to meet CHBDL-ST development) adding control and use of the remote airborne payload (RS-6BN).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($2,386) Completed factory integration and qualification testing with remoted receiver payload. Demonstrated access to ES-3A prime mission equipment (PME) direction-finding system. Conducted FCA/PCA.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604721N
PROGRAM ELEMENT TITLE: BATTLE GROUP PASSIVE HORIZON EXTENSION SYSTEM

PROJECT NUMBER: X2134
PROJECT TITLE: BGPHES-ST

- (U) ($1,068) Conducted integration and test of the BGPHES-ST with the BGPHES data link (CHBDL) and ES-3A remoted sensor payload at the Land Based Test Site (LBTS).
- (U) ($900) Performed DT and IOT&E on overall BGPHES at the LBTS (i.e., BGPHES-ST with CHBDL and Navy airborne segments).
- (U) ($300) Completed definition of software interfaces for P^3I and USAF interoperability; conducted U-2 interoperability demonstration of RS-6B, RAS-1/COMINT.
- (U) ($681) Continued rehost of software to TAC-N computer and definition of software interfaces to host ship's C^4I system.
- (U) ($250) Initiated P^3I access to other ES-3A PME, including special signals.
- (U) ($250) Initiated hardware design for LHD and LHA ship configurations.

2. (U) FY 1996 PLAN:

- (U) ($1,327) Perform at-sea TECHEVAL/OPEVAL on CVN on overall BGPHES; obtain MS-III decision.
- (U) ($2,281) Continue rehost of software to TAC-N computer and definition of software interfaces to host ship's C^4I system.
- (U) ($600) Continue P^3I access to other ES-3A Prime Mission Equipment (PME), including special signals.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604721N
PROGRAM ELEMENT TITLE: BATTLE GROUP PASSIVE HORIZON EXTENSION SYSTEM

PROJECT NUMBER: X2134
PROJECT TITLE: BGPHES-ST

- (U) ($300) Complete hardware design for LHD and LHA ship configurations.
- (U) ($500) Initiate P^3I access to other USAF U-2R PME, including special signals.
- (U) ($68) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C.638.

3. (U) FY 1997 PLAN:

- (U) ($558) Complete rehost of software to TAC-N computer and definition of software interfaces to host ship's C^4I system.
- (U) ($400) Continue P^3I access to other ES-3A PME, including special signals.
- (U) ($595) Continue P^3I access to other USAF U-2R PME, including special signals.
- (U) ($300) Initiate USAF U-2R interoperability test with rehosted configuration.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY1996 President's Budget:	5,841	5,244	2,107
(U) Adjustments from FY1996 PRESBUDG:	-6	-168	-254
(U) FY1997 President's Budget:	5,835	5,076	1,853

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604721N
PROGRAM ELEMENT TITLE: BATTLE GROUP PASSIVE HORIZON EXTENSION SYSTEM

PROJECT NUMBER: X2134
PROJECT TITLE: BGPHES-ST

(U) CHANGE SUMMARY EXPLANATION:

(U) FY1995 was reduced $6K; -$4K for actual update, -$2K to cover the Major Range Test Facility Base Shortfall.

(U) FY 1996: Congressional undistributed general and inflation reductions ($108K); and revised DOD inflation rates and other minor pricing adjustments ($60K).

(U) FY 1997: Revised inflation estimates and other minor pricing adjustments ($254K).

(U) Schedule: Current schedule unchanged.

(U) Technical: N/A

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
OPN Line 2434*	0	0	4,209	9,526	14,849	14,630	6,257	Cont.	Cont.
O&M,N 4B7N	0	0	1,435	1,770	1,921	2,009	2,048	Cont.	Cont.

(U) RELATED RDT&E: N/A

*(PARTIAL)

D. (U) SCHEDULE PROFILE:

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604721N
PROGRAM ELEMENT TITLE: BATTLE GROUP PASSIVE HORIZON EXTENSION SYSTEM

PROJECT NUMBER: X2134
PROJECT TITLE: BGPHES-ST

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones		MSIII 4TH QTR		IOC
Engineering Milestones	FCA/PCA			
T&E Milestones	DT-IIG-H 2nd Qtr USAF INTEROP 3rd Qtr	TECHEVAL 2nd Qtr OPEVAL 2nd Qtr		
Contract Milestones			Award Prod Contract 1st Qtr	

UNCLASSIFIED

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604721N
PROGRAM ELEMENT TITLE: BATTLE GROUP PASSIVE HORIZON EXTENSION SYSTEM

PROJECT NUMBER: X2134
PROJECT TITLE: BGPHES-ST

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Project Management	500	331	141
b. Systems Engineering	950	740	150
c. Software Development	1,561	227	304
d. Hardware Development	930	300	153
e. System Test & Evaluation	1,694	3,328	1,055
f. Integrated Logistic Support	200	150	50
Total	5,835	5,076	1,853

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604721N PROJECT NUMBER: X2134
PROGRAM ELEMENT TITLE: BATTLE GROUP PASSIVE HORIZON EXTENSION SYSTEM PROJECT TITLE: BGPHES-ST

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development:										
E-Systems Inc, Melpar Div Falls Church, VA	CPFF BOA	1/96	20,070	20,070	11,503	3,435	1,267	607	Cont.	Cont.
Support and Management					1,560	706	481	191	Cont.	Cont.
Test and Evaluation					2,739	1,694	3,328	1,055	Cont.	Cont.

GOVERNMENT FURNISHED PROPERTY

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604721N
PROGRAM ELEMENT TITLE: BATTLE GROUP PASSIVE HORIZON EXTENSION SYSTEM

PROJECT NUMBER: X2134
PROJECT TITLE: BGPHES-ST

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development				0	0	0	0	N/A	N/A
Support and Management				0	0	0	0	N/A	N/A
Test and Evaluation				0	0	0	0	N/A	N/A

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	11,503	3,435	1,267	607	Cont.	Cont.
Subtotal Support and Management	1,560	706	481	191	Cont.	Cont.
Subtotal Test and Evaluation	2,739	1,694	3,328	1,055	Cont.	Cont.
Total Project	15,802	5,835	5,076	1,853	Cont.	Cont.

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604721N
PROGRAM ELEMENT TITLE: Battle Group Passive Horizon Extension System

PROJECT NUMBER: X2135
PROJECT TITLE: CHBDL-ST

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X2135	8,833	5,563	1,851	2,724	5,911	1,608	1,624	Cont.	Cont.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Common High Bandwidth Data Link-Ship Terminal (CHBDL-ST) equipment will provide a common high bandwidth data link shipboard terminal for the receipt of signal and imagery intelligence data from remote airborne sensors and the transmission of link and sensor control data to airborne platforms. Signal intelligence data is received from the Battle Group Passive Horizon Extension System (BGPHES) Airborne Component (AC) and delivered to the BGPHES Shipboard Terminal. Imagery intelligence data is received from various tactical airborne reconnaissance systems and delivered to the Joint Service Imagery Processing System - Navy (JSIPS-N).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($5,034) Completed prime equipment fabrication for factory qualification testing.
- (U) ($2,049) Delivered and integrated DT/OT-II equipment to LBTS and completed Navy acceptance testing.
- (U) ($1,500) Completed CVN installation work plans and equipment installation of DT/OT-II equipment aboard CV-67.
- (U) ($ 250) Initiated LHA installation design planning.

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604721N
PROGRAM ELEMENT TITLE: Battle Group Passive Horizon Extension System

PROJECT NUMBER: X2135
PROJECT TITLE: CHBDL-ST

2. (U) FY 1996 PLAN:

- (U) ($3,112) Initiate and complete environmental testing.
- (U) ($1,256) Initiate rehost to TAC-4 computer, initiate design for Solid State Power Amplifier, new embedded COMSEC, and spectrum analyzer.
- (U) ($500) Complete Technical Evaluation (TECHEVAL) and Operational Evaluation (OPEVAL) of the CHBDL-ST system leading to Milestone III in fourth quarter.
- (U) ($250) Complete LHA installation design planning.
- (U) ($350) Develop Technical Data Package for Production Contract.
- (U) ($95) Portion f extramural program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($300) Complete Physical and Functional Configuration Audits.
- (U) ($200) Complete rehost to TAC 4 computers, complete design for Solid State Power Amplifier, new embedded COMSEC, and spectrum analyzer.
- (U) ($500) Incorporate design changes from DT/OT.
- (U) ($350) Update supporting documentation for production.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604721N PROJECT NUMBER: X2135
PROGRAM ELEMENT TITLE: Battle Group Passive Horizon Extension System PROJECT TITLE: CHBDL-ST

- (U) ($501) Continue Test and Evaluation with other systems such as Joint Services Imagery Processing System (JSIPS), Advanced Tactical Airborne Reconnaissance System (ATARS), and Tier II+ Unmanned Air Vehicle (UAV). Includes foward financing of $460K from FY 96 due to low expenditures in FY 95.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY1996 President's Budget:	12,237	2,356	2,888
(U) Adjustments from FY1996 PRESBUDG:	-3,404	+3,207	-1,037
(U) FY1997 President's Budget:	8,833	5,563	1,851

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995: Decreased by $3,404K: $1,900K reprogrammed by Navy to accommodate Communications Support System (CSS) deficiency; $1,499K reduction to fund Geodetic/Geophysical Satellite (GEOSAT) deficiency; $4K reduction to reflect actuals; and $1K reduction for Navy reprogramming to fund the Major Range Test Facility Base (MR&FB) shortfall. FY 1996: Increased (+$3,400K) to conduct environmental testing; Congressional undistributed general and inflation reductions (-$19K); and revised DOD inflation rates and other minor pricing adjustments (-$174K). FY 1997: Revised inflation estimates and other minor pricing adjustments (-$1,037K).

(U) Schedule: Environmental testing was delayed from FY 95 to FY 96.

(U) Technical: System hardware and software modifications are required to exploit additional sensor capabilities on ES-3A and U-2R aircraft.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604721N
PROGRAM ELEMENT TITLE: Battle Group Passive Horizon Extension System

PROJECT NUMBER: X2135
PROJECT TITLE: CHBDL-ST

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
OPN Line 2434*	0	0	34,905	51,859	93,814	89,559	20,857	Cont.	Cont.
O&M,N	0	0	704	1,053	1,199	1,286	1,311	Cont.	Cont.

*(PARTIAL)

(U) RELATED RDT&E:

(U) PE (0603261N) Project A2174 Joint Service Imagery Processing Systems - Navy (JSIPS-N)

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones		4Q MS III	1Q FCA 1Q PCA	
Engineering Milestones				
T&E Milestones	1Q DT/OT-II	2Q - TECHEVAL 2Q - OPEVAL		

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: MARCH 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604721N PROJECT NUMBER: X2135
PROGRAM ELEMENT TITLE: Battle Group Passive Horizon Extension System PROJECT TITLE: CHBDL-ST

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Project Management	560	323	262
b. Systems Engineering	1,547	525	544
c. Hardware & Software Development	3,482	516	210
d. System Test & Evaluation	1,138	3,733	501
e. ILS Management	265	206	254
f. Site/Platform Integration	1,841	260	80
Total	8,833	5,563	1,851

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development		10/93	22,889	22,889	15,600	3,600	814	210	Cont.	Cont.
Loral Salt Lake City, UT	FFP	W/Options								

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: MARCH 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604721N
PROGRAM ELEMENT TITLE: Battle Group Passive Horizon Extension System

PROJECT NUMBER: X2135
PROJECT TITLE: CHBDL-ST

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Other Product Support				3,654	3,570	488	624	Cont.	Cont.
Support and Management									
Other Support		Various		585	825	528	516	Cont.	Cont.
Test & Evaluation		Various		1,094	1,138	3,733	501	Cont.	Cont.
TOTAL				20,934	8,833	5,563	1,851	Cont.	Cont.
GOVERNMENT FURNISHED PROPERTY: Not applicable									
Product Development									
Support and Management									
Test and Evaluation									
Subtotal Product Development				19,255	6,870	1,302	834	Cont.	Cont.
Subtotal Support and Management				585	825	528	516	Cont.	Cont.
Subtotal Test and Evaluation				1,094	1,138	3,733	501	Cont.	Cont.
Total Project				20,934	8,833	5,563	1,851	Cont.	Cont.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604727N
PROGRAM ELEMENT TITLE: Joint Standoff Weapon System

(U) COST: (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
E2068 JSOW	114,396	79,259	86,266	61,368	76,197	52,619	34,741	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Joint Standoff Weapon (JSOW) is an air-to-ground weapon designed to attack a variety of targets during day, night and adverse weather conditions. JSOW will enhance aircraft survivability as compared to current interdiction weapon systems by providing the capability for launch aircraft to standoff outside the range of most target area surface-to-air threat systems. The JSOW launch-and-leave capability will allow several target kills per aircraft sortie.

(U) The JSOW program will first develop a baseline weapon for use against fixed area targets. The JSOW baseline variant will include a kinematically efficient airframe, and integrated Inertial/Global Positioning System (INS/GPS) navigation capability, and a BLU-97/B submunition payload. This weapon will be designed upfront for pre-planned product improvements. The Unitary Warhead variant will add a terminal seeker, a man-in-the-loop data link, and a unitary warhead to enable the attack of blast/frag sensitive or moving point targets. The JSOW Unitary will provide increased accuracy and lethality, and the capability for aimpoint selection, target discrimination, and bomb impact assessment. The JSOW/BLU-108 variant incorporates the Sensor Fuze Weapon submunition (BLU-108) into the baseline vehicle. The JSOW/BLU-108 variant will provide a standoff delivery capability against massed armor and land combat vehicles.

(U) Through adherence to international standards for weapons interfaces and minimized weight and dimension considerations, JSOW will be compatible with Air Force and NATO aircraft. JSOW is a joint Navy/Air Force program.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING AND MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604727N
PROGRAM ELEMENT TITLE: Joint Standoff Weapon System

PROJECT NUMBER: E2068
PROJECT TITLE: JSOW

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

(U) BASELINE:

- (U) ($75,040) Continued Engineering and Manufacturing Development (E&MD) efforts.
- (U) ($13,781) Continued Systems Engineering Technical efforts and conducted Critical Design Review (CDR).
- (U) ($ 4,873) Completed Developmental Test and Evaluation (DT-IIA) testing, conducted DT-IIB testing and commenced qualification testing.
- (U) ($ 1,760) Continued F/A-18 Integration efforts.

(U) UNITARY:

- (U) ($ 3,846) Commenced & completed E&MD risk reduction efforts.
- (U) ($1,947) Continued Systems Engineering Technical efforts, prepared for Milestone II, Defense Acquisition Board (DAB)
- (U) ($ 4,401) Commenced E&MD.
- (U) ($ 78) Continued F/A-18 Integration efforts.

(U) Navy BLU-108:

- (U) ($ 1,899) Continued Systems Engineering Technical efforts, prepared for Milestone II, DAB.
- (U) ($ 2,114) Commenced E&MD.
- (U) ($ 4,585) Smart Racks.
- (U) ($ 72) Continued F/A-18 Integration efforts.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604727N PROJECT NUMBER: E2068
PROGRAM ELEMENT TITLE: Joint Standoff Weapon System PROJECT TITLE: JSOW

2. (U) FY 1996 PLAN:

(U) BASELINE:

- (U) ($27,992) Continue E&MD efforts.
- (U) ($8,214) Continue Systems Engineering Technical efforts, conduct Functional Configuration Audit (FCA), Production Verification Review (PVR) and conduct Production Readiness Review (PRR).
- (U) ($ 7,015) Conduct DT-IIC.
- (U) ($ 2,737) Conduct Operational Testing (OT-IIA).
- (U) ($ 2,000) Continue F/A-18 Integration efforts.

(U) UNITARY:

- (U) ($21,810) Continue E&MD efforts.
- (U) ($ 7,060) Continue Systems Engineering Technical efforts, conduct Critical Process Review (CPR) Phase #1.
- (U) ($ 160) Continue F/A-18 Integration efforts.

(U) Navy BLU-108:

- (U) ($ 565) Continue E&MD.
- (U) ($ 1,201) Conduct Preliminary Design Review (PDR).
- (U) ($ 205) Continue F/A-18 Integration efforts.

(U) SBIR:

- (U) ($ 300) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604727N
PROGRAM ELEMENT TITLE: Joint Standoff Weapon System

PROJECT NUMBER: E2068
PROJECT TITLE: JSOW

3. (U) FY 1997 PLAN:

(U) BASELINE:

- (U) ($13,451) Complete E&MD efforts.
- (U) ($ 6,350) Continue Systems Engineering Technical efforts and continue DT-IIC.
- (U) ($ 7,557) Conduct OT-IIB testing.
- (U) ($ 2,000) Complete F/A-18 Integration efforts.

(U) UNITARY:

- (U) ($36,618) Continue E&MD efforts.
- (U) ($ 7,463) Continue Systems Engineering Technical efforts and conduct DT&E test planning.
- (U) ($ 530) Continue F/A-18 Integration efforts.

(U) BLU-108:

- (U) ($ 5,382) Continue E&MD efforts.
- (U) ($ 4,162) Procure Government Furnished Equipment (GFE) assets.
- (U) ($ 2,514) Continue Systems Engineering Technical efforts, conduct CDR, and conduct DT&E.
- (U) ($ 239) Continue F/A-18 Integration efforts.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604727N PROJECT NUMBER: E2068
PROGRAM ELEMENT TITLE: Joint Standoff Weapon System PROJECT TITLE: JSOW

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	113,368	81,837	89,344
(U) Adjustments from PRESBUDG	+ 1,028	- 2,578	- 3,078
(U) FY 1997 President's Budget Submit:	114,396	79,259	86,266

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 1995 net adjustment of +$1.028 million represents an increase of +$1.100 million to cover additional requirements and a decrease of -$.072 million for HARM cost overrun. The FY 1996 reduction of -$2.578 million consists of Congressional undistributed general and inflation reductions -$1.613 million; and revised inflation rates and other minor pricing adjustments -$.965 million. The FY 1997 net reduction of -$3.078 million consists of -$.271 million for Defense Business Operating Fund (DBOF); and revised inflation estimates and other minor pricing adjustments of -$2.807 million.

(U) Schedule: Unitary and BLU-108 schedule changed based on the approved Acquisition Decision Memorandum (ADM) and the Acquisition Program Baseline dated 26 April 1995. Baseline Milestone III schedule was incorrectly reported (typo) on the FY 1996 PRESBUDG submission. Baseline Milestone III schedule has been corrected to reflect 1Q/99. JSOW Unitary E&MD contract awarded 30 August 1995. The April 1995 DAB resulted in the following schedule changes:

	From:	To:
Unitary MSI	2Q/95	Eliminated
Unitary MSII	1Q/99	3Q/95
Unitary MSIII	3Q/04	4Q/02

Unitary engineering milestones were redefined based on acquisition reform streamlining initiatives. Unitary T&E milestone schedule changes resulted from contract definitization. BLU-108 schedule changes resulted from delayed contract award. The Acquisition Program Decision Memorandum I of August 1994 directed Navy BLU-108 MSIII to FY02. BLU-108 DT&E schedule changed from 4Q/95 to 1Q/97 reflecting the Navy's start date versus the previously reported Air Force date. There were no Navy funds in FY 95 to support the Air Force 4Q/95 DT&E.

(U) Technical: Not Applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604727N
PROGRAM ELEMENT TITLE: Joint Standoff Weapon System

PROJECT NUMBER: E2068
PROJECT TITLE: JSOW

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
USN WPN, PE: 223000									
JSOW Baseline	0	25,458	64,426	93,160	154,021	127,028	71,355	1,585,150	2,120,598
Quant/Baseline	0	0	100	186	517	503	284	7210	8800
BLU-108	0	0	0	1,024	11,198	97,356	138,677	237,563	485,818
Quant/BLU-108	0	0	0	0	8	244	364	584	1200
Unitary	0	0	0	1,438	34,993	80,134	261,681	4,623,509	5,001,755
Quant/Unitary	0	0	0	0	21	51	328	7400	7800
USAF WP, APPN: 3020									
PE: 27324F	0	0	0	8,117	20,486	24,182	30,522	530,585	613,892
Quant/Baseline	0	0	0	22	77	102	139	2660	3000
BLU-108	0	0	0	0	7,853	23,685	37,248	1,075,108	1,143,894
Quant/BLU-108	0	0	0	0	15	58	102	2825	3000
(U)RELATED RDT&E:									
(U) PE: 0604727F (USAF RDT&E,F BLU-108)									
Prior to FY-94 ($28,555)									
	53,304	41,607	23,544	16,738	10,865	8,202	0	0	182,815

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604727N
PROGRAM ELEMENT TITLE: Joint Standoff Weapon System

PROJECT NUMBER: E2068
PROJECT TITLE: JSOW

D.(U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				
Baseline				1Q/99 MS-III
Unitary	3Q MS-II			4Q/02 MS-III
BLU-108	3Q MS-II			1Q/02 MS-III
Engineering Milestones				
Baseline	3Q CDR	1Q FCA 2Q PVR 4Q PRR		
Unitary		3Q CPR PHASE #1		2Q/99 CPR PHASE #2 4Q/00 CPR PHASE #3
BLU-108		1Q PDR	1Q CDR	

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604727N
PROGRAM ELEMENT TITLE: Joint Standoff Weapon System

PROJECT NUMBER: E2068
PROJECT TITLE: JSOW

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
T&E Milestones				
Baseline	2Q DT-IIB	2Q DT-IIC 2Q OT-IIA	2Q OT-IIB	
Unitary				2Q/00 OT-IIA 2Q/01 DT&E 1Q/02 OT-IIB
BLU-108			1Q DT&E	3Q/98 IOT&E
Contract Milestones				
Baseline			2Q LRIP (OPTION)	4Q/98 LRIP (FIRST DELIVERY)
Unitary	4Q E&MD (CONTRACT AWARD)			1Q/01 LRIP (OPTION)
BLU-108	3Q E&MD (CONTRACT AWARD)			2Q/00 LRIP (OPTION)

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604727N
PROGRAM ELEMENT TITLE: Joint Standoff Weapon System

PROJECT NUMBER: E2068
PROJECT TITLE: JSOW

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Primary Hardware Development	89,986	50,367	59,613
b. Systems Engineering	11,441	9,795	5,609
c. Integrated Logistics Support	2,128	2,158	2,402
d. Training Development	768	487	661
e. F/A-18 Integration	1,910	2,365	2,769
f. Developmental Test and Evaluation	4,873	7,015	3,226
g. Operational Test and Evaluation	0	2,737	7,557
h. Government Engineering Support	1,704	2,017	2,246
i. Program Management Support	1,332	1,678	1,803
j. Travel	254	340	380
k. SBIR Assessment		300	
Total	114,396	79,259	86,266

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604727N
PROGRAM ELEMENT TITLE: Joint Standoff Weapon System

PROJECT NUMBER: E2068
PROJECT TITLE: JSOW

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Major Contracts:										
T.I. E&MD	C/CPIF	10/94	241,417	241,417	124,934	75,040	27,992	13,451	0	241,417
TI UNITARY PRE-E&MD	C/CPIF	10/94	8,216	8,216	4,370	3,846	0	0	0	8,216
TI UNITARY E&MD	C/CPIF	08/95	242,723	242,723	0	4,401	21,810	36,618	179,894	242,723
TI BLU-108 PREMDC	C/CPIF	01/94	474	474	474	0	0	0	0	474
TI BLU-108 E&MD	C/CPIF	06/95	17,268	17,268	0	2,114	565	5,382	CONT	CONT
MTech(Smart Rk)	C/CPIF	10/95	4,585	4,585	0	4,585	0	0	0	4,585
MCDONNELL DOUGLAS F/A-18 Integ	C/CPIF	10/95	9,767	9,767	9,767	0	0	0	0	9,767
Textron BLU-108	CPFF	10/96	4,162	4,162	0	0	0	4,162	0	4,162
Misc Contracts:					0	0	0	0	0	0
In-House Support										
NAWCAD, PAX	WX	10/94			1,000	0	0	0	0	1,000
NAWCWD, C.L.	WX	10/96			7,206	14,337	12,440	8,672	CONT	CONT
PMA-265-F/A-18	PD	10/96			1,700	1,910	2,365	2,769	CONT	CONT
Misc Contracts:					0	0	0	0	0	0
Support and Management										
Major Contracts:					0	0	0	0	0	0
In-House Support:										
Misc Contracts:					2,620	3,290	4,035	4,429	CONT	CONT

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604727N
PROGRAM ELEMENT TITLE: Joint Standoff Weapon System

PROJECT NUMBER: E2068
PROJECT TITLE: JSOW

GOVERNMENT FURNISHED PROPERTY: "NOT APPLICABLE"

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	FY 1994 &Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Test and Evaluation									
Major Contracts:				0	0	0	0	0	0
In-House Support:									
NAWCWD, C.L.	WX	10/96		3,900	4,873	7,015	3,226	CONT	CONT
OPTEVFOR	WX	10/96		0	0	2,737	7,557	CONT	CONT
Misc Contracts:				0	0	0	0	0	0

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604727N
PROGRAM ELEMENT TITLE: Joint Standoff Weapon System

PROJECT NUMBER: E2068
PROJECT TITLE: JSOW

	FY 1994 & Prior	FY 1995 Budget	FY-1996 Budget	FY-1997 Budget	To Complete	Total Program
Subtotal Product Development	149,451	106,233	65,172	71,054	CONT	CONT
Subtotal Support and Management	2,620	3,290	4,035	4,429	CONT	CONT
Subtotal Test and Evaluation	3,900	4,873	9,752	10,783	CONT	CONT
SBIR Assessment			300			300
Total Project	155,971	114,396	79,259	86,266	CONT	CONT

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604755N
PROGRAM ELEMENT TITLE: Ship Self Defense

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
U0166 SPS IMPROVEMENT PROGRAM	6,309	13,185	9,892	6,182	2,711	1,750	1,790	CONT.	CONT.
U0167 5" RAM MISSILE	17,845	25,139	20,016	18,147	8,729	8,491	8,704	CONT.	CONT.
U0172 CIWS PHALANX	23,968	5,526	5,017	14,643	10,851	6,082	5,540	CONT.	CONT.
U0173 NATO SEASPARROW	45,318	63,234	47,475	49,308	14,337	5,918	4,107	CONT.	CONT.
U0665 IRST	16,004	13,521	3,880	14,580	30,736	29,218	10,212	CONT.	CONT.
U0954 SHIPBOARD EW DEV	23,823	14,611	9,094	18,631	29,942	30,117	32,723	CONT.	CONT.
U2176 SSD ENGAGE IMPROV	0	0	0	5,037	9,009	9,129	9,511	CONT.	CONT.
U2178 QRCC	38,806	52,924	29,480	30,076	28,521	13,597	13,688	CONT.	CONT.
U2190 NULKA	12,729	7,751	4,377	1,906	1,937	948	942	CONT.	CONT.
U2256 SEMI-ACTIVE FUZE	0	4,433	5,446	4,588	1,049	0	0	0	16,038
U2258 ADVANCED DISPLAY SYS	24,193	0	0	0	0	0	0	0	24,193
TOTAL	208,995	200,324	134,677	163,098	137,822	105,250	87,217	CONT.	CONT.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604755N
PROGRAM ELEMENT TITLE: Ship Self Defense

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element, effective for FY 1994, consolidates currently ongoing and planned programmatic efforts related to Ship Self Defense (SSD). The consolidation facilitates effective planning and management of these efforts, exploiting the synergistic relationship inherent in each. These projects are directed by a single program manager in Program Executive Office for Theater Air Defense. Analysis and demonstration have established that surface SSD based on single-sensor detection, point-to-point control architecture performs marginally against current and projected Anti-Ship Cruise Missile (ASCM) threats. The supersonic seaskimming ASCM reduces the effective battle space to the horizon and the available reaction time-line to less than 30 seconds, from first opportunity to detect until the ASCM impacts its target ship. Against such a threat: multi-sensor integration is required for effective detection; parallel processing is essential to reduce reaction time to acceptable levels and to provide vital coordination/integration of hardkill and softkill assets; and improvements in terminal gun system effectiveness and in missile kinematics, control and homing accuracy are required for successful hardkill engagement. These SSD projects address and coordinate the detect, control, and engage functions necessary to meet the rigorous SSD requirements within a development structure dedicated to systems engineering.

(U) DETECTION: Improved coordinated sensor performance to increase the probability of detecting low altitude, low observable targets is to be achieved through the synergism gained from the integration of dissimilar sensor sources. Multi-sensor integration is being addressed through the efforts of Quick Reaction Combat Capability (QRCC) (U2178), while sensor improvements are addressed through the SPS Improvements (U0166), Infrared Search and Track (U0665), and Shipboard Electronic Warfare Improvements (U0954) projects. These improvements to both active and passive detection capabilities are complementary to the ship signature reduction technology also being pursued through project U0954.

(U) CONTROL: Multi-sensor integration, parallel processing and the coordination of hardkill/softkill capabilities in an automated response to the ASCM threat are the cornerstones of Ship Self Defense System (SSDS) being developed through QRCC (U2178) efforts. In addition, that project provides for the central system engineering management of SSD developments, including efforts required to integrate SSDS with the Advanced Combat Direction System (CDS) for those ships having a CDS.

(U) ENGAGEMENT: Both missile and terminal gun system improvements necessary to meet their requirements are being addressed via NATO Seasparrow Missile System (NSSMS) (U0173), 5" Rolling Airframe Missile (RAM) (U0167), and CIWS PHALANX (U0172). Missile improvements are to include improved kinematic performance plus advanced seeker and low elevation fuzing/warhead capabilities.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604755N
PROGRAM ELEMENT TITLE: Ship Self Defense

Gun system improvements address system detection, rate-of-fire, number of rounds on target, first round accuracy, and reliability and maintenance. The Fuze improvement will provide Evolved SeaSparrow Missile (ESSM) and possibly other missiles with improvements to accurately discriminate targets in high clutter/chaff environments and will provide increased capability in high closing rate engagements.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604755N
PROGRAM ELEMENT TITLE: Ship Self Defense

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
U0166 SPS Improvement Program	6,309	13,185	9,892	6,182	2,711	1,750	1,790	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program develops and tests performance and reliability upgrades for search radar equipment to meet the evolving threat.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($100) Continued SSDS integration engineering.
- (U) ($4,277) Funded ongoing AN/SPQ-9B Radar development contract.
- (U) ($1,132) Continued managing the AN/SPQ-9B Radar development contract including conduct of Preliminary Design Review (PDR). Continued radar integration task to MK 86 Gun Fire Control System.
- (U) ($800) Completed at-sea-test of the AN/SPQ-9B ADM Radar.

2. (U) FY 1996 PLAN:

- (U) ($300) Continue radar analysis/trade-off studies and implementation of functional and performance allocations among elements comprising integrated Ship Self Defense System (SSDS), including system interface adaptations and preparation/conduct of associated tests and demonstrations.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROJECT NUMBER: U0166
PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT TITLE: SPS Improvement Program

- (U) ($9,402) Continue to fund ongoing AN/SPQ-9B Radar development contract.
- (U) ($3,066) Continue managing the AN/SPQ-9B Radar development contract including conduct of a Critical Design Review (CDR) and a Production Readiness Review (PRR). Continue radar integration task to MK 86 Gun Fire Control System.
- (U) ($183) Analyze and demonstrate Digital Sidelobe Cancellation development as a product improvement to the AN/SPQ-9B Radar.

(U) ($234) Portion of extramural program reserved for Small Business Innovation Research (SBIR) assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($200) Continue radar analysis/trade-off studies and implementation of functional and performance allocations among elements comprising integrated Ship Self Defense System (SSDS), including system interface adaptations and preparation/conduct of associated tests and demonstrations.
- (U) ($6,887) Continue funding ongoing AN/SPQ-9B Radar development contract. Conduct First Article Testing (FAT) on two production proof kits. Support integration into MK 86 system at Land Based Test Site (LBTS).
- (U) ($2,636) Continue managing the AN/SPQ-9B Radar development contract including conduct of First Article Testing (FAT) at contractor site and MK 86 integration testing at the NAVSURFWARCENDIV PORT HUENEME.
- (U) ($169) Continue Digital Sidelobe Cancellation development as a product improvement to the AN/SPQ-9B Radar.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROJECT NUMBER: U0166
PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT TITLE: SPS Improvement Program

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	6,380	8,811	7,200
(U) Adjustments from PRESBUDG:	-71	+4,374	+2,692
(U) FY 1997 PRESBUDG Submit:	6,309	13,185	9,892

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: Decrease in FY 1995 results from program rebalancing. Increase in FY 1996 is due to program restructuring, Congressional appropriation increase ($4,800), Congressional undistributed general and inflation reductions; and revised DOD inflation rates and other minor pricing adjustments (-$426). Increase in FY 1997 is due to program restructuring and revised inflation estimates and other minor pricing adjustments.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

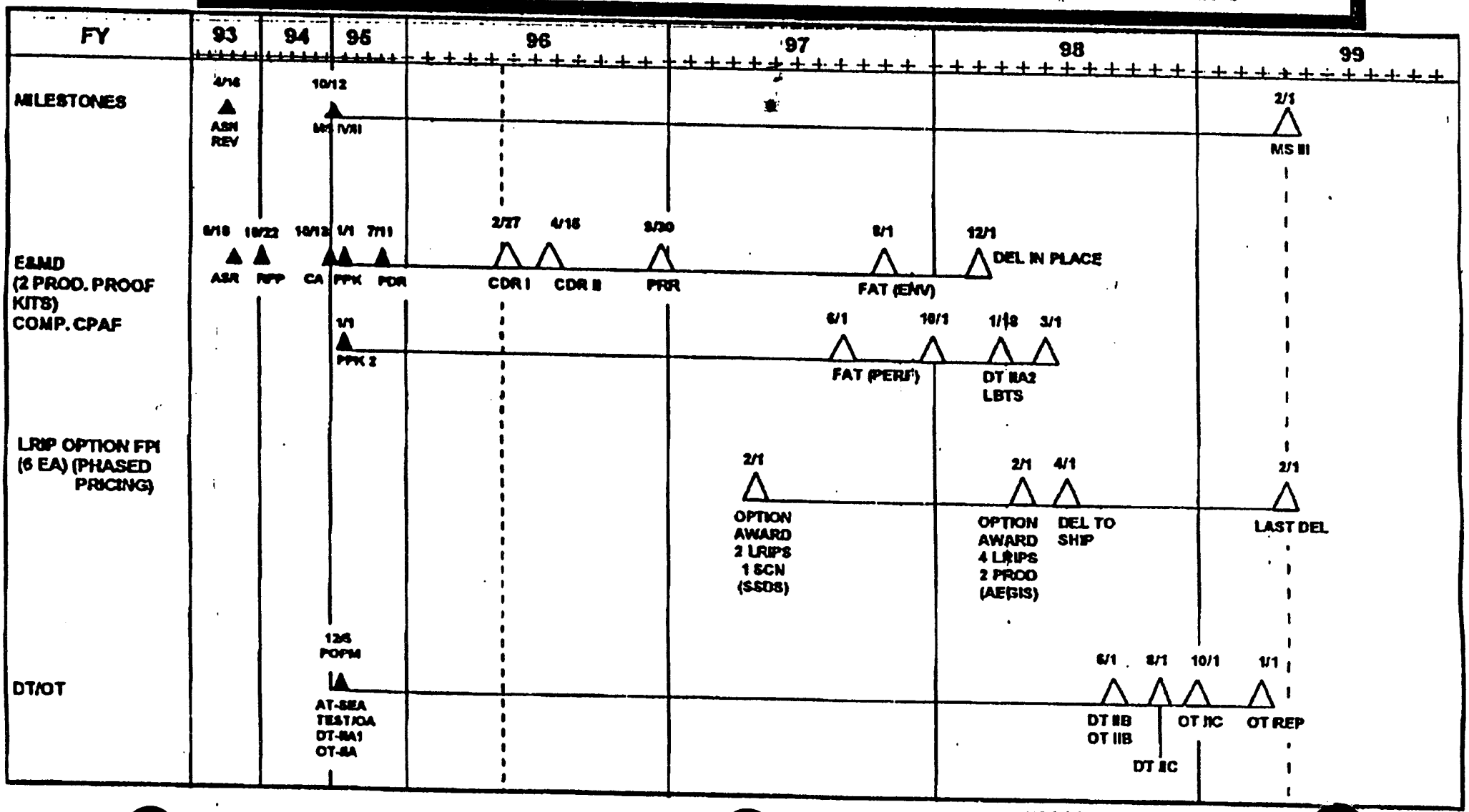
C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN 14UK040	67	223	6,845	19,891	26,657	23,542	16,345	CONT.	CONT.

(U) RELATED RDT&E: Not applicable.

D. (U) SCHEDULE PROFILE: See attached.

SPQ-9B ORDALT KIT PROCUREMENT PLAN



FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N
PROGRAM ELEMENT TITLE: Ship Self Defense
PROJECT NUMBER: U0166
PROJECT TITLE: SPS Improvement Program

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. System Development Contract	4,277	9,402	6,837
b. Contractor Engineering Support	155	75	150
c. Government Engineering Support	1,847	3,175	2,855
d. Miscellaneous	30	533	50
Total	6,309	13,185	9,892

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROJECT NUMBER: U0166
PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT TITLE: SPS Improvement Program

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands):

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Westinghouse/ Norden Sys Melville, NY	C/CPAF/Reqn	10/94	CONT.	CONT.	5,450	4,277	9,645	6,837	CONT.	CONT.
NRL Washington, DC	WR/RC	VAR	CONT.	CONT.	5,548	800	1,090	1,232	CONT.	CONT.
NAVSURFWARCENDIV Port Hueneme, CA	WR	VAR	CONT.	CONT.	3,161	897	1,265	943	CONT.	CONT.
MISC (APL, CD, NSWC)	PD/WR	VAR	CONT.	CONT.	2,340	150	850	0	CONT.	CONT.
Support and Management -										
MISC (EG&G, Techmatics)	CPFF	VAR	2,335	2,335	1,705	185	75	180	190	2,335
Test and Evaluation										
MISC (NRL, PHD, NSWC)	WR/RC	VAR	4,223	4,223	1,523	0	0	200	2,500	4,223

UNCLASSIFIED

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROJECT NUMBER: U0166
PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT TITLE: SPS Improvement Program

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development									
Transmitter (Air Force)	MIPR	1/95	3/95	259	0	260	500	0	1,019

Support and Management - Not applicable.

Test and Evaluation - Not applicable.

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	16,758	6,124	13,110	9,512	CONT.	CONT.
Subtotal Support and Management	1,705	185	75	180	CONT.	CONT.
Subtotal Test and Evaluation	1,523	0	0	200	CONT.	CONT.
Total Project	19,986	6,309	13,185	9,892	CONT.	CONT.

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UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604755N
PROGRAM ELEMENT TITLE: Ship Self Defense

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
U0167 5" ROLLING AIRFRAME MISSILE	17,845	25,139	20,016	18,147	8,729	8,491	8,704	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The purpose of this program is to develop a surface-to-air self-defense system utilizing a dual mode, passive Radio Frequency/Infrared 5" Rolling Airframe Missile. The baseline system provided a self-defense capability against active radar-guided anti-ship missiles and was developed on an equal cost share basis with the Government of the Federal Republic of Germany. This effort will provide a capability against passive anti-ship missiles, very low altitude missiles, and maneuvering missiles through the incorporation of an infrared all-the-way mode seeker and improved fuze. This system is designed to counter anti-ship cruise missile raids and provide for ship survivability with accurate terminal guidance, proven lethality, and no shipboard post launch dependence.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($15,000) Completed Preliminary Design Review (PDR) of INFRARED (IR) seeker design and integration into the current missile. Completed design models. Conducted Integrated Seeker/IR Processor Experiment. Continued development of Algorithms for IR Processor. Built and commenced testing of MK 20 Mod 2 Target Detector.

- (U) ($2,845) Continued to support analysis/trade-off studies to coordinate and refine element roles with SSD strategy. Supported development of system interface adaptations as necessary to provide effective SSD integration.

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROJECT NUMBER: U0167
PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT TITLE: 5" Rolling Airframe Missile

2. (U) FY 1996 PLAN:

- (U) ($3,000) Continue Algorithm and Electronics Development.
- (U) ($2,000) Prepare technical data and conduct Critical Design Review (CDR).
- (U) ($2,000) Prepare for at-sea testing phase.
- (U) ($6,000) Continue Seeker Hardware Development.
- (U) ($7,000) Assemble Engineering Development Models (EDM) and conduct flight testing. (DT/OT-IIA).
- (U) ($1,000) Conduct Aircraft Captive Carry Seeker Testing.
- (U) ($2,000) Conduct Government and Contractor Simulation efforts.
- (U) ($1,670)Continue to support development of system interface adaptations as necessary to provide effective SSD integration.
- (U) ($469) Portion of extramural program reserved for the Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($2,000) Conduct Government Electromagnetic Compatibility (EMC) testing.
- (U) ($4,000) Continue Algorithm Development.
- (U) ($2,000) Conduct Government and Contractor Simulations.
- (U) ($1,000) Documentation of test results.
- (U) ($3,000) Complete Electronics Design.
- (U) ($5,000) Complete Seeker Design.
- (U) ($1,016) Continue to support development of system interface adaptations as necessary to provide effective SSD integration.
- (U) ($2,000) Prepare for Technical/Operational Evaluation (TECH/OPEVAL) Testing.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROJECT NUMBER: U0167
PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT TITLE: 5" Rolling Airframe Missile

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	18,148	26,098	24,533
(U) Adjustments from PRESBUDG:	-303	-959	-4,517
(U) FY 1997 PRESBUDG Submit:	17,845	25,139	20,016

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: Decrease in FY 1995 is due to program rebalancing. Decrease in FY 1996 is due to Congressional undistributed general and inflation reductions; and revised DOD inflation rates and other minor pricing adjustments. Reductions in FY 1997 are due to program restructuring and revised inflation estimates and other minor pricing adjustments.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROJECT NUMBER: U0167
PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT TITLE: 5" Rolling Airframe Missile

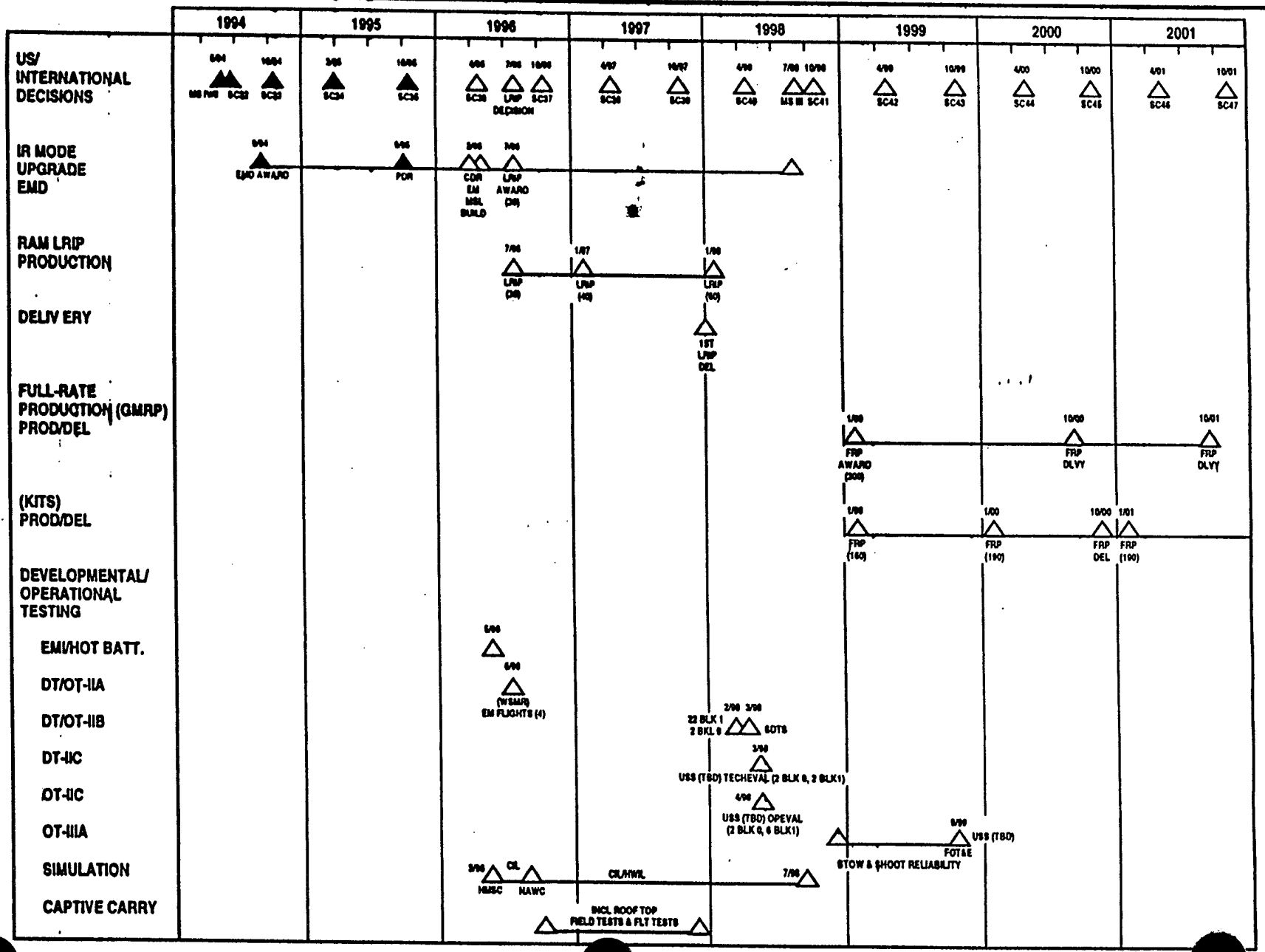
C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in Thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN LINE 166:	53,490	48,548	50,765	48,869	54,082	51,984	53,319	CONT.	CONT.
(U) WPN LINE 10:	66,351	67,198	48,663	33,242	78,920	35,206	36,097	CONT.	CONT.

(U) RELATED RDT&E: Not applicable.

D. (U) SCHEDULE PROFILE: See attached.

RAM IRMU BLOCK I PROGRAM STRUCTURE



9/25/9
1116/9

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT NUMBER: U0167 PROJECT TITLE: 5" Rolling Airframe Missile

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Primary Hardware Development	12,291	14,541	11,599
b. Ancillary Hardware Development	825	1,450	300
c. Test and Evaluation Government Furnished Property	0	3,687	0
d. Developmental Test and Evaluation	536	365	1,384
e. Operational Test and Evaluation	0	0	1,700
f. Contractor Engineering Support	314	292	447
g. Government Engineering Support	3,009	2,562	3,716
h. Travel	160	165	170
i. Miscellaneous	710	2,077	700
Total	17,845	25,139	20,016

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT NUMBER: U0167 PROJECT TITLE: 5" Rolling Airframe Missile

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development:										
*HMSC-89C5339	SS/CPFF	9/89	19,630	19,630	19,630	0	0	0	0	19,630
*HMSC-94C5435	SS/CPAF	6/94	CONT.	CONT.	4,331	11,752	12,909	10,593	CONT.	CONT.
*HMSC-94c5430	SS/CPFF	12/94	CONT.	CONT.	27	540	1,633	1,650	CONT.	CONT.
NAWC/WD/China Lake, CA	WR	10/93	CONT.	CONT.	7,721	2,677	1,838	2,800	CONT.	CONT.
Miscellaneous			CONT.	CONT.	202,442	2,026	4,415	2,086	CONT.	CONT.
Support and Management:										
Miscellaneous			CONT.	CONT.	2,212	314	292	447	CONT.	CONT.
Test and Evaluation:										
*HMSC		10/96	CONT.	CONT.	0	0	0	1,056	CONT.	CONT.
Miscellaneous		10/94	CONT.	CONT.	0	536	365	1,384	CONT.	CONT.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROJECT NUMBER: U0167
PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT TITLE: 5" Rolling Airframe Missile

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development				0	0	0	0	0	0
Support Management				0	0	0	0	0	0
Test and Evaluation									
*Targets and Missile Sections	SS/CPAF	12/95	12/96	0	0	3,687	0	0	3,687

* Hughes Missile Systems Company, Tucson, AZ.

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	234,151	16,995	20,795	17,129	CONT.	CONT.
Subtotal Support and Management	2,212	314	292	447	CONT.	CONT.
Subtotal Test and Evaluation	0	536	4,052	2,440	CONT.	CONT.
Total Project	236,363	17,845	25,139	20,016	CONT.	CONT.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604755N
PROGRAM ELEMENT TITLE: Ship Self Defense

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
U0172 Close-In Weapons System (Phalanx)	23,968	5,526	5,017	14,643	10,851	6,082	5,540	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
The Phalanx mission is to be a fast reaction terminal defense against low and high-flying, high speed maneuvering anti-ship missiles penetrating outer fleet defenses and to counter small surface threats and low, slow-flying air threats. The Phalanx Improvement Program is designed to upgrade Phalanx Block 0 systems to a Block I system configuration and to provide improvements to Block I systems for performance, reliability and maintainability enhancements. The Block I improvements solve safety, reliability and maintainability problems. Performance improvements in development include: (1) Phalanx Surface Mode (PSuM) which will satisfy the operational requirement to counter small surface threats and low, slow-flying air threats; (2) AAW improvements directed towards improving system susceptibility to EMI and jamming; and (3) integration within the Integrated Ship Defense System (ISDS).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($12,257) Continued development and began testing of PSuM which included: development of software, integration of NDI electro-optic hardware, and preliminary contractor testing.
- (U) ($3,767) Continued development of AAW improvements which included: Design engineering and documentation of AAW subsystems, component qualification, integration of hardware modifications and EO/RF Fire Control Integration.
- (U) ($3,375) Completed development of initial SSDS integration with Baseline 2 which included: development of initial DT/OT software delivery and support of preliminary testing.
- (U) ($3,326) Completed DT/OT on the High Order Language Computer and operational program.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT NUMBER: U0172 PROJECT TITLE: Close-In Weapon System

- (U) ($1,243) Continued Phalanx EMI mitigation testing to define the interference mechanism and determine software and hardware fixes.

2. (U) FY 1996 PLAN:

- (U) ($5,460) Complete development and continue contractor testing and evaluation of PSuM and the AAW improvements to include: finalize hardware and software development and prepare for Navy testing and evaluation.

o (U) ($66) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($5,017) Complete Navy test and evaluation and DT/OT testing on the Surfacd Mode upgrade portion of the Phalanx Improvement Program (PSuM).

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	25,756	5,703	14,916
(U) Adjustments from PRESBUDG:	-1,788	-177	-9,899
(U) FY 1997 PRESBUDG Submit:	23,968	5,526	5,017

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604755N
PROGRAM ELEMENT TITLE: Ship Self Defense

PROJECT NUMBER: U0172
PROJECT TITLE: Close-In Weapon System

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: Changes in FY 1995 due to reductions for University Research and Small Business Innovative Research (SBIR). Changes in FY 1996 due to Congressional undistributed general and inflation reductions; and revised DOD inflation rates and other minor pricing adjustments. Changes in FY 1997 due to program restructuring and revised inflation estimates and other minor pricing adjustment.

(U) Technical: Not applicable.

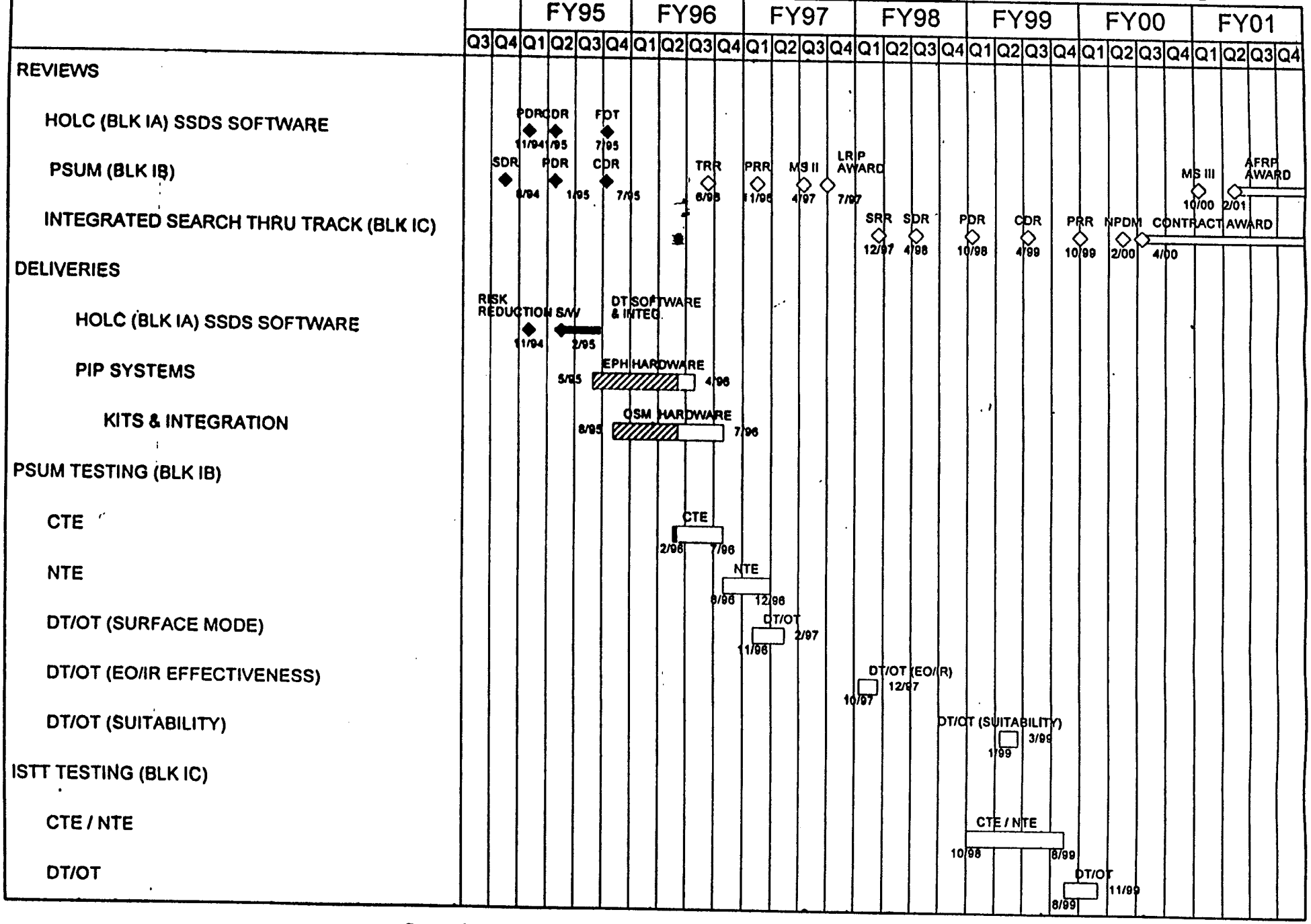
C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 COMPLETE	TO PROGRAM	TOTAL
WPN (41)	0	0	0	0	0	0	0	0	1,433,100
SCN (VAR)	0	0	0	0	0	0	0	0	960,800
SCN ORDALTS	0	36,819	29,993	46,264	55,258	57,610	49,384	CONT.	CONT.
WPN MODS	49,278	36,248	25,430	36,369	35,432	47,938	48,104	CONT.	CONT.

(U) RELATED RDT&E:
(U) PE 0603755N (Ship Self Defense)

D. (U) SCHEDULE PROFILE: See Attached.

PHALANX IMPROVEMENT PROGRAM SCHEDULE



000549

U0172

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROJECT NUMBER: U0172
PROGRAM ELEMENT TITLE: SHIP SELF DEFENSE PROJECT TITLE: CLOSE-IN WEAPON SYSTEM

(AU) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. MAJOR CONTRACT	16,300	2,400	1,635
b. SUPPORT CONTRACT	730	730	550
c. IN-HOUSE SUPPORT	3,923	1,223	1,000
d. GFE/OTHER	3,015	1,173	1,832
Total	23,968	5,526	5,017

FY 1997 PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604755N
PROGRAM ELEMENT TITLE: SHIP SELF DEFENSE

PROJECT NUMBER: U0172
PROJECT TITLE: CLOSE-IN WEAPON SYSTEM

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
PRODUCT DEVELOPMENT										
NAVSURFWARCENDIV Dahlgren, VA	WR	VAR	CONT.	CONT.	17,419	2,618	1,005	1,000	CONT	CONT
General Dynamics Pomona, CA	CPFF	VAR	8,068	8,068	8,068	0	0	0	0	8,068
Hughes Missile System Co. Tucson, AZ	CPAF	VAR	CONT	CONT	31,936	16,300	2,400	1,635	CONT	CONT
Miscellaneous	VAR	VAR	24,146	24,146	21,141	1,305	218	0	0	22,664
SUPPORT AND MANAGEMENT										
Miscellaneous	VAR	VAR	CONT	CONT	3,169	730	730	550	CONT	CONT

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 4 PROGRAM ELEMENT: 0604755N PROJECT NUMBER: U0172
PROGRAM ELEMENT TITLE: SHIP SELF DEFENSE PROJECT TITLE: CLOSE-IN WEAPON SYSTEM

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
TEST AND EVALUATION										
Crowley Maritime Bremerton, WA	CPAF	VAR	3,943	3,943	3,943	0	0	0	0	3,943
NAVSURFWARCENDIV Port Hueneme, CA	WR	VAR	CONT	CONT	23,987	3,015	1,173	1,832	CONT	CONT
Miscellaneous	VAR	VAR	846	846	846	0	0	0	0	846

GOVERNMENT FURNISHED PROPERTY: Not Applicable

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	78,564	20,223	3,623	2,635	CONT	CONT
Subtotal Support and Management	3,169	730	730	550	CONT	CONT
Subtotal Test and Evaluation	28,776	3,015	1,173	1,832	CONT	CONT
Total Project	110,509	23,968	5,526	5,017	CONT	CONT

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604755N
PROGRAM ELEMENT TITLE: Ship Self Defense

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
U0173 NATO SeaSparrow	45,318	63,234	47,475	49,308	14,337	5,918	4,107	CONT	CONT

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program encompasses three (3) primary efforts to enhance ship self defense:

1. (U) EVOLVED SEASPARROW MISSILE (ESSM): A cooperative effort amoung 10 NATO SeaSparrow Nations, including the U.S., improving the capability of the SeaSparrow Missile to counter the low altitude, highly maneuverable Anti-Ship Cruise Missile (ASCM) threat. The program consists of evolving the SeaSparrow Missile through development of a new rocket motor with tail control, thrust vector control and ordnance (warhead) upgrade. Modifications to the MK41 VLS to fire from a single cell 4 ESSM (QuadPack), and modifications to NATO SEASPARROW Surface Missile System (NSSMS) for ESSMs capability.

2. (U) The MK91 NATO SEASPARROW Guided Missile Fire Control System (GMFCS) Rearchitecture Program integrates NSSMS into the Ship Self Defense System (SSDS) Architecture to provide an additional layer of ship missile defense. This effort consists of combining the Firing Officer Console and Radar Set Console functionality into a single Advanced Display System Console AN/UYQ 70; modifying the Signal Data Processor and eliminating the MK157 Computer Signal Data Converter, and System Evaluation and Trainer (SEAT) which cannot accommodate further upgrade; and redistributing this functionality within SSDS compatible microprocessors. This approach will eliminate the analog, point-to-point architecture, limited input-output channel and computer processing reserve deficiencies resident in the existing MK57 NSSMS, as well as to allow for full exploitation of the capabilities of the future ESSM, as well as provides significant reductions (50%) in NSSM cost of ownership and manning.

3. (U) Improvements to the Self Defense Surface Missile System (SDSMS), SWY-1 NSSMS/Target Acquisition System (TAS) to sustain effective capability. This focus is primarily on modifications to operational computer programs to support integration on multiple ship classes and MK23 TAS Radar modification to support battle group operation.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT NUMBER: U0173 PROJECT TITLE: NATO SeaSparrow

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

(a) (U) ESSM [34,542]

- (U) (26,198) Awarded ESSM EMD Contract to Hughes Missile System Co..
- (U) (3,818) Awarded MK41 VLS QuadPack Contracts to United Defense (1,989) and Lockheed Martin (1,829).
- (U) (1,500) Awarded Contract to Lockheed Martin to commence engineering efforts to integrate ESSM with AEGIS Weapon System to provide Ship Self Defense capability on DDG-51 Flight IIA Ships.
- (U) (2,109) Awarded Contract to Raytheon to initiate development modifications to NSSMS to fire ESSM.
- (U) (917) Provide development engineering efforts associated with the ESSM/MK41 Program.

(b) (U) MK91 Rearchitecture [5,693]

- (U) (5,693) Award Mk91 NSSMS EMD contract to Raytheon Equipment Division. Commenced development of MK 91 NSSMS modifications required to support a distributed architecture and integration with SSDS. Initiated development effort associated with remote operating capability for the NATO SeaSparrow system installation in the Self Defense Test Ship (SDTS).

(c) (U) OTHER SDSMS (SWY-1/2/3) [5,083]

- (U) (1,545) Continued SDSMS SWY-1/2/3 common computer program Combat System Integration Testing (CSIT). Conducted Software Qualification Test (SQT) on LHD-4. Initiated engineering investigations into failures identified during LHD-4 SQT.
- (U) (3,538) Commenced modifications to MK23 TAS hardware and associated common computer program software in support of integration with Cooperative Engagement Capability (CEC) and ship self defense capability.

2. (U) FY 1996 PLAN:

- (U) (1,287) Portion of extramural program reserved for Small Business Innovation Research (SBIR) assessment in accordance with 15 U.S.C. 638.

(U) ESSM [48,618]

- (U) (18,841) Provide incremental funding to continue ESSM EMD effort at Hughes, includes exercise of option to develop S-Band capability for AEGIS ESSM uplink. Conducted System Design Review (SDR) and Preliminary Design Review (PDR).

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROJECT NUMBER: U0173
PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT TITLE: NATO SeaSparrow

- (U) (3,210) Provide incremental funding to continue ESSM Warhead development and start warhead qualification process.
- (U) (9,046) Continue ESSM integration (Integrated Product Team participation) and government lab/engineering including support efforts for SDR and PDR.
- (U) (15,893) MK41 QuadPack Development & Qualification effort at United Defense & Lockheed Martin.
- (U) (1,628) Continue development on Raytheon Contract of NSSMS Modifications to fire ESSM.

(b) (U) MK91 Rearchitecture [10,726]
- (U) (8,634) Continue effort on EMD Contract with Raytheon, to modify NSSMS MK91 to integrate with SSDS Architecture.
- (U) (2,092) Initiated integration engineering efforts to support NSSMS MK91 SSDS. Completed Systems Requirement Review (SRR) and support System Design Review (SDR) in Jan 96. Conduct Preliminary Design Review (PDR) Sept 96.

(c) (U) OTHER SDSMS (SWY-1/2/3) [2,603]
- (U) (2,603) Based on results of engineering investigations initiated as a result of LHD-4 SQT failures, modify common program software package and rectify hardware deficiencies. Commence a follow-on SQT to certify correction of fixes. Initiate follow-on CSIT to allow validation of these modifications. Continue modification to the MK23 TAS hardware and software program, participate in ship installation/integration tests (light off) and begin first deliveries of software for CSIT testing.

3. (U) FY 1997 PLAN:

(a) (U) ESSM [39,548]
- (U) (14,016) Provide incremental funding to continue ESSM EMD efforts at Hughes including the S-Band capability for AEGIS ESSM Uplink. Conduct CDR, deliver 12 production representative missiles to support the first major development test event (DTIIA).
- (U) (1,675) Provide incremental funding for continuation of ESSM Warhead development. Finalize warhead qualification tests and deliver assets for warhead arena and vulnerability testing.
- (U) (13,740) Continue MK41 QuadPack development effort at United Defense (6,925) and Lockheed Martin (6,815). Deliver first Canisters for Packaging, Handling, Storage and Transportation Qualification.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROJECT NUMBER: U0173
PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT TITLE: NATO SeaSparrow

- (U) (1,048) Continue development on Raytheon Contract of NSSMS Modifications to fire ESSM.
- (U) (9,069) Continue ESSM Integration (Integrated Product Team participation) and government lab/Engineering efforts associated with EMD. Support of CDR, conduct of the first major Development Test event (DT-IIA) and conduct Insensitive munitions testing.

(b) (U) MK91 Rearchitecture [7,214]
- (U) (5,804) Continue effort on EMD Contract to Raytheon to modify NSSMS MK91 to integrate with SSDS Architecture.
- (U) (1,410) Initiated integration engineering efforts to support NSSMS MK91 SSDS. Critical Design Review (CDR) in Nov 1996 will kick-off software development which will lead to formal qualification testing in Sept 1997.

(c) (U) OTHER SDSMS (SWY-1/2/3) [713]
- (U) (713) Continue modification to MK23 TAS hardware and common computer program on the first battle group installation (LHD, CVN). Continue parallel development effort to support modifications to MK23 hardware to support installation of TAS radar in SSDS configured Ships.

B. (U) PROGRAM CHANGE SUMMARY: Adjustments for undistributed reductions.

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	48,865	65,390	59,978
(U) Adjustments from PRESBUDG:	-3,547	-2,156	-12,503
(U) FY 1997 PRESBUDG Submit:	45,318	63,234	47,475

(U) CHANGE SUMMARY EXPLANATION:
- (U) Funding: Changes in FY 1995 due to reduction for Undistributed Congressional adjustment and Navy reduction based poor expenditure performance.
  Changes in FY 1996 due to Congressional undistributed general and inflation reductions; and revised DOD inflation rates and other minor pricing adjustments.
  Changes in FY 1997 due to program restructuring and revised inflation estimates and other minor pricing adjustmensts.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT NUMBER: U0173 PROJECT TITLE: NATO SeaSparrow

- (U) Schedule: As a result of Contract Award June 95 vs April 95, a 3 month schedule delay occurred.
- (U) Technical: Not Applicable.

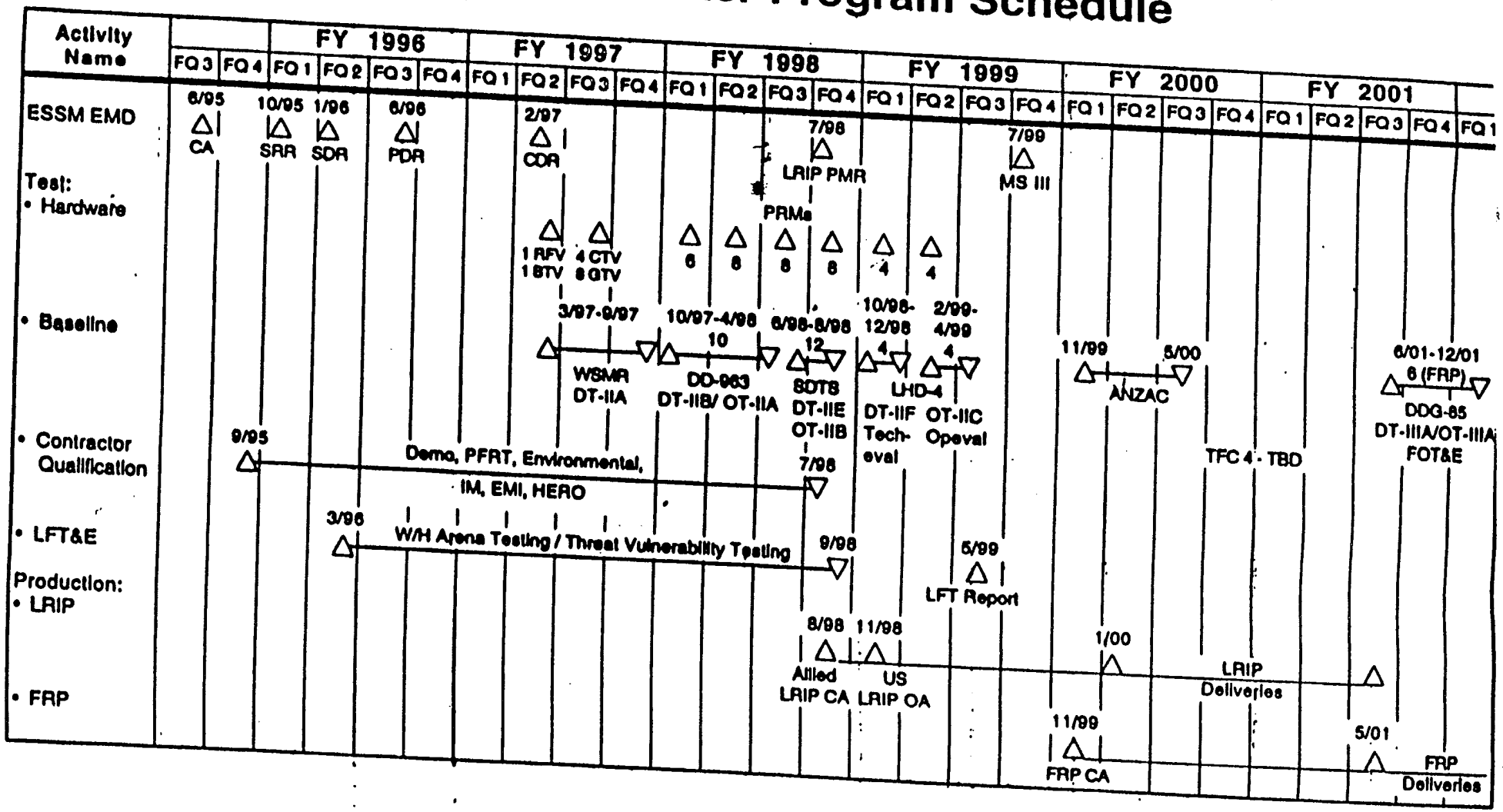
C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
• (U) 1. WPN BA-2 Other Missiles, Sparrow Modifications including the AIM/RIM-7P, ESSM and MHIP programs (ESSM production startup begins in FY97, Low Rate Initial Production (LRIP) in FY99 and Full Rate Production (FRP) in FY99). Reflects ESSM element only:								
2,530	16,701	38,292	47,145	48,722	CONT.	CONT.		
• (U) 2. OPN BA-4 NATO SEASPARROW P-1 166 (FY96-outyears): Provides funding for follow-on production/installation of R&D related efforts (ESSM and MK 91 rearchitecture system mods beginning in FY99 and non-R&D related mods and installation FY96-01).								
14,999	41,813	54,355	CONT.	CONT.				

(U) RELATED RDT&E:
- (U) PE 0603609N (Conventional Munitions)
- (U) PE 0604307N (AEGIS Combat System Engineering)
- (U) PE 0604755N (U2176 SSD Engagement Improvement)
- (U) PE 0604755N (U2178 Quick Reaction Combat Capability-QRCC)
- (U) PE 0604755N (U2256 Semi-Active Fuze Improvement)

D. (U) SCHEDULE PROFILE: See attached.

ESSM EMD Master Program Schedule



FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604755N
PROGRAM ELEMENT TITLE: Ship Self Defense

PROJECT NUMBER: U0173
PROJECT TITLE: NATO SeaSparrow

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Primary Hardware Development	33,122	32,313	19,864
b. Ancillary Hardware Development	3,818	15,893	13,740
c. Software Development	3,538	1,248	0
d. System Engineering	1,750	8,372	7,530
e. Development Test & Evaluation	655	2,299	2,823
f. Integrated Logistics Support	0	688	730
g. Engineering Support	616	767	712
h. Program Mgmt Support	0	240	256
i. Program Mgmt Personnel	280	975	1,220
j. Travel	151	200	200
k. Miscellaneous (less than 15%)	1,388	239	400
Total:	45,318	63,234	47,475

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROJECT NUMBER: U0173
PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT TITLE: NATO SeaSparrow

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
1. PERFORMING ORGANIZATIONS										
a. Product Development										
(1) SDSM ENHANCEMENTS:										
Raytheon Wayland, MA	SS/CP	6/95	TBD	TBD	2,074	4,815	8,634	4,800	CONT.	CONT.
HUGHES Fullerton, CA	SS/CPFF	6/95	TBD	TBD	0	3,538	1,248	0	CONT.	CONT.
VITRO Rockville, MD	SS/CPFF	3/95	TBD	TBD	151	1,250	1,092	1,099	CONT.	CONT.
Various	SS/CPFF	VARIOUS	TBD	TBD	17,915	0	0	0	CONT.	CONT.
(2) ESSM/QUAD PACK:										
HUGHES Tuscon, AZ	LC/CPAF	6/95	TBD	TBD	0	26,198	18,841	14,016	CONT.	CONT.
Lockheed/Martin/ UNDEF Baltimore, MD/MINN, MN	LCC/CPAF	6/95	TBD	TBD	743	5,318	15,893	13,740	CONT.	CONT.
Raytheon/ED Wayland, MA	SS/CPFF	6/95	TBD	TBD	0	2,109	1,628	1,048	CONT.	CONT.

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604755N
PROGRAM ELEMENT TITLE: Ship Self Defense

PROJECT NUMBER: U0173
PROJECT TITLE: NATO SeaSparrow

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
1. PERFORMING ORGANIZATIONS (Cont'd)										
a. Product Development (Cont'd)										
(2) ESSM/QUAD PACK: (Cont'd)										
TDW (German Co.)	LC/CP	8/95	TBD	TBD	750	0	3,210	1,675	CONT.	CONT.
[NSWC Dahlgren Contracted with a German Contractor to Manufacture Warhead]										
VARIOUS	SS/CPFF	VARIOUS			2,060	135	350	0	CONT.	CONT.
b. Support and Management										
(1) SDSM ENHANCEMENTS:										
Vitro Rockville, MD	SS/CPFF	11/93	4,125	4,125	3,580	189	450	368	CONT.	CONT.
(2) ESSM/QUAD PACK:										
VARIOUS	VARIOUS				0	0	520	656	CONT.	CONT.
c. Test and Evaluation										
2. GOVERNMENT FURNISHED PROPERTY										
a. Product Development										
(1) SDSM ENHANCEMENTS:										
VARIOUS	WR				1,029	100	1,163	800	CONT.	CONT.
(2) ESSM/QUAD PACK:										
NAWC C. LAKE/NWSC DDWR					4,785	127	2,401	1,995	CONT.	CONT.
NSWC/PHD	WR				1,239	93	2,514	1,934	CONT.	CONT.
Various	WR				0	232	1,843	1,043	CONT.	CONT.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROJECT NUMBER: U0173
PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT TITLE: NATO SeaSparrow

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
2. GOVERNMENT FURNISHED PROPERTY (Cont'd)									
b. Support and Management									
(1) SDSM ENHANDCMENTS:									
Various	WR			1,566	229	567	760	CONT.	CONT.
(2) ESSM/QUAD PACK:									
NSPO/Various	PD			192	330	581	718	CONT.	CONT.
c. Test and Evaluation									
(1) SDSM ENHANCEMENTS:									
Various	WR			596	655	175	100	CONT.	CONT.
(2) ESSM/QUAD PACK:									
Various	WR			0	0	2,124	2,723	CONT.	CONT.
Subtotal Product Development				30,764	43,915	58,817	42,150	CONT.	CONT.
Subtotal Support and Management				5,418	748	2,118	2,502	CONT.	CONT.
Subtotal Test and Evaluation				596	655	2,299	2,823	CONT.	CONT.
Total Project				36,778	45,318	63,234	47,475	CONT.	CONT.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604755N
PROGRAM ELEMENT TITLE: Ship Self Defense

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
U0665 IR Search & Track	16,004	13,521	3,880	14,580	30,736	29,218	10,212	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The sophistication and diversity of threats facing naval surface combatants is increasing with respect to lower radar cross-section, use of passive anti-radiation missile (ARM), increased speed,and lower altitudes. This program element provides funding for acquisition of two infrared sensors-the Infrared Search & Track (IRST)and Thermal Imaging Sensor System (TISS). The IRST provides passive augmentation to complement radar, electronic support measures(ESM)and visual surveillance systems for air targets. It will declare those air targets to the ships' combat system. The TISS provides surface ships with a day/night high resolution surveillance capability for small cross-section targets. It supports anti-surface warfare (ASUW), mine warfare (MIW) and anti-submarine warfare (ASW) missions. The system will be an non-developmental item (NDI) procurement.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($1,225) Obtained MS II decision progressed towards awarding IRST contract.
- (U) ($5,398) Performed continuing assessment of risk reduction efforts.
- (U) ($5,841) Awarded TISS E&MD contract which includes integration with the Land Based Test Site (LBTS).
- (U) ($1,675) Conducted technical evaluation (TECHEVAL) and operational assessment of the TISS. NOTE: $600 is being used to forward finance FY 1996.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROJECT NUMBER: U0665
PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT TITLE: I/R Search & Track

- (U) ($1,865) Obtained MS II and began preparations to obtain Milestone III decision for TISS to enter full rate production.

2. (U) FY 1996 PLAN:
   - (U) ($10,828) Continue IRST EDM design development (performance, safety, reliability, environmental suitability, human factors, and combat system integration).
   - (U) ($1,535) Support IRST logistics support development and prepare for test and evaluation.
   - (U) ($937) Prepare for IRST preliminary design review (PDR).
   - (U) ($221) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:
   - (U) ($2,130) Complete construction of EDM-1 and deliver to land based test site (LBTS).
   - (U) ($1,450) Begin preparations for IRST installation at the LBTS.
   - (U) ($300) Conduct IRST PDR.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	21,824	4,472	1,615
(U) Adjustments from PRESBUDG:	-5,820	+9,049	+2,265
(U) FY 1997 PRESBUDG Submit:	16,004	13,521	3,880

(U) CHANGE SUMMARY EXPLANATION:
(U) Funding: Changes in FY 1995 due to University Research and Small Business Innovative Research adjustments, and program restructuring. Changes in FY 1996 due to Congressional appropriation increase ($9,500) and Congressional undistributed general and inflation reductions; and revised DOD inflation rates and other minor pricing adjustments (-$451).
FY 1997 changes due to program restructuring and revised inflation estimates and other minor pricing adjustments.

(U) Schedule: IRST development delayed one year due to FY 94 reprogramming and delay in requirements formulation. Follow-on Engineering Development slipped two years to accommodate a 2-phase development approach.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604755N
PROGRAM ELEMENT TITLE: Ship Self Defense

PROJECT NUMBER: U0665
PROJECT TITLE: I/R Search & Track

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
• (U) OPN Line 204200	7,108	8,210	0	9,186	9,490	5,567	12,583	CONT.	CONT.
• (U) O&M,N AG/SAG 1D4D	0	0	0	0	1,400	1,452	2,600	CONT.	CONT.

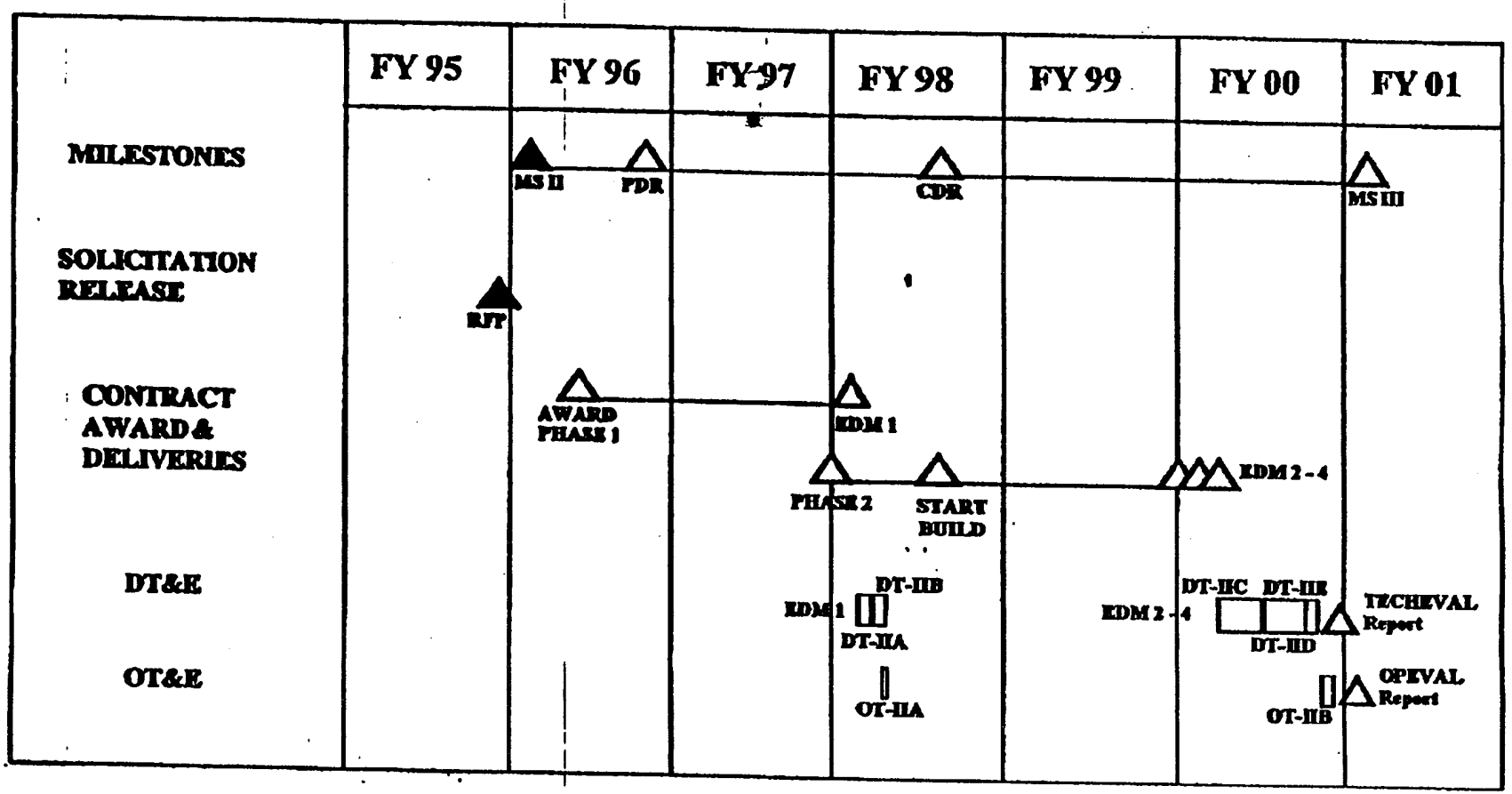
(U) RELATED RDT&E: Not applicable.

D. (U) SCHEDULE PROFILE: See Attached.

THEATER AIR DEFENSE
PROGRAM EXECUTIVE OFFICE

IRST PROGRAM PLAN (SYSTEM)

THEATER AIR DEFENSE



FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604755N
PROGRAM ELEMENT TITLE: Ship Self Defense

PROJECT NUMBER: U0665
PROJECT TITLE: I/R Search & Track

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Hardware	5,558	10,894	1,519
b. Program Management	1,732	1,068	361
c. TDA (Technical Design Agent)	5,154	1,288	1,000
d. ISEA	3,560	50	1,000
e. SBIR	0	221	0
Total	16,004	13,521	3,880

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROJECT NUMBER: U0665
PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT TITLE: I/R Search & Track

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
TBD	C/CP(IRST)	4/96	TBD	19,338	0	2,531	9,536	1,519	CONT.	CONT.
McDonnell-Douglas	FFP (TISS)	9/95	3,027	3,027	0	3,027	0	0	CONT.	CONT.
NAVSURFWARCEN Dahlgren, VA	WR	11/94	TBD	TBD	2,390	4,654	2,000	836	CONT.	CONT.
NAVSURFWARCEN Port Hueneme, CA	WR	11/94	TBD	TBD	1,953	2,385	1,535	1,130	CONT.	CONT.
All other contracts					2,474	1,060	0	0	CONT.	CONT.
All other field activities					200	329	50	50	CONT.	CONT.
Support and Management										
PEO Travel					20	24	60	10	CONT.	CONT.
All other contracts					232	319	340	335	CONT.	CONT.
Test and Evaluation										
NAVSURFWARCEN Dahlgren, Va	WR	TBD	TBD	TBD	0	500	0	0	CONT.	CONT.
NAVSURFWARCEN Port Hueneme, CA	WR	TBD	TBD	TBD	0	1,175	0	0	CONT.	CONT.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604755N
PROGRAM ELEMENT TITLE: Ship Self Defense

PROJECT NUMBER: U0665
PROJECT TITLE: I/R Search & Track

GOVERNMENT FURNISHED PROPERTY: Not applicable.

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development	12,134	13,986	13,121	3,535	CONT.	CONT.
Subtotal Support and Management	252	343	400	345	CONT.	CONT.
Subtotal Test and Evaluation	0	1,675	0	0	CONT.	CONT.
Total Project	12,386	16,004	13,521	3,880	CONT.	CONT.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604755N
PROGRAM ELEMENT TITLE: Ship Self Defense

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
U0954 Shipboard EW Improvements	23,823	14,611	9,094	18,631	29,942	30,117	32,723	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Shipboard Electronic Warfare (EW) Improvements Program major efforts are: Advanced Capability (ADCAP) Which improves Active Countermeasure capability; AN/SLQ-32(V) Phase E - Improves threat detection capability; OUTLAW BANDIT Ship Signature management includes development of Radar Cross Section (RCS) reduction treatments for FFG-7, DD 963, DDG 993, CG 47 class ships and also covers RCS measurement and control techniques. Advanced Integrated Electronic Warfare System (AIEWS) provides the EW capability to Aegis and Ship Self Defense (SSDS) combat systems. It replaces the AN/SLQ-32 and will provide the next generation EW technology, MMI, Combat Systems Integration, Improved Electronic Support, and Improved Electronic Attack.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($1,779) Completed ADCAP. Conducted ADCAP MS III 3Q/95.
- (U) ($16,335) Initiated AIEWS Phase I Development. (Includes Phase E)
- (U) ($5,709) Signature Measurement - Conducted DT-III on DD963 classes. OT-III cancelled in favor of OPTEVFOR DT III observation. DT-III expanded to include Multi-Ship. Fleet applications and additional threat representative systems. Conducted DT-III on USS WADSWORTH (FFG9) (R&D installation). Conducted hardkill/softkill integration effectiveness modeling and simulation. NOTE: $2,400 is being used to forward finance FY 1996.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROJECT NUMBER: U0954
PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT TITLE: Shipboard EW Improvements

2. (U) FY 1996 PLANS:
- (U) ($6,613) Continue AIEWS Phase I Development and initiate AIEWS Phase II/III Broad Agency Announcement (BAA).
- (U) ($3,746) Complete RCSR design package for DD993 class. Conduct DT III on CG 47 class. RAM improvement program, including maintenance and reduced installation cost initiatives. Continue measurement testing. Continue Hardkill/Softkill integration effectiveness modeling and simulation. NOTE: $2,400 is being used to forward finance FY 1997.
- (U) ($4,049) Testing of an advanced ES capability.
- (U) ($203) Portion of extramural program reserved for Small Business Innovation Research (SBIR) assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLANS:
- (U) ($4,713) AIEWS - Continue AIEWS Phase I and Phase II.
- (U) ($4,381) OUTLAW BANDIT - Continue OUTLAW/Measurements. Continue RAM improvement program. Continue Hardkill/Softkill integration effectiveness modeling and simulation.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	24,092	10,585	9,572
(U) Adjustments from PRESBUDG:	-269	+4,026	-478
(U) FY 1997 PRESBUDG Submit:	23,823	14,611	9,094

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The decrease in FY 1995 is due to program rebalancing. The increase in FY 1996 is due to Congressional appropriation increase ($4,500) and Congressional undistributed general and inflation reductions; and revised DOD inflation rates and other minor pricing adjustments (-$474). The decrease in FY 1997 is due to revised inflation estimates and other minor pricing adjustments.

(U) Schedule: AIEWS program restructured to include backfitting to AN/SLQ-32 ships.
(U) Technical: Not applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604755N
PROGRAM ELEMENT TITLE: Ship Self Defense

PROJECT NUMBER: U0954
PROJECT TITLE: Shipboard EW Improvements

C. (U) OTHER PROGRAM FUNDING SUMMARY:

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN Line 231200 (AN/SLQ-32-12TC)	56,235	17,992	6,358	16,895	43,838	18,891	15,512	CONT.	CONT.

(U) RELATED RDT&E: Not applicable.

D. (U) SCHEDULE PROFILE: See attached

FY96 PROGRAMS

OUTLAW BANDIT

ACAT LEVEL: III

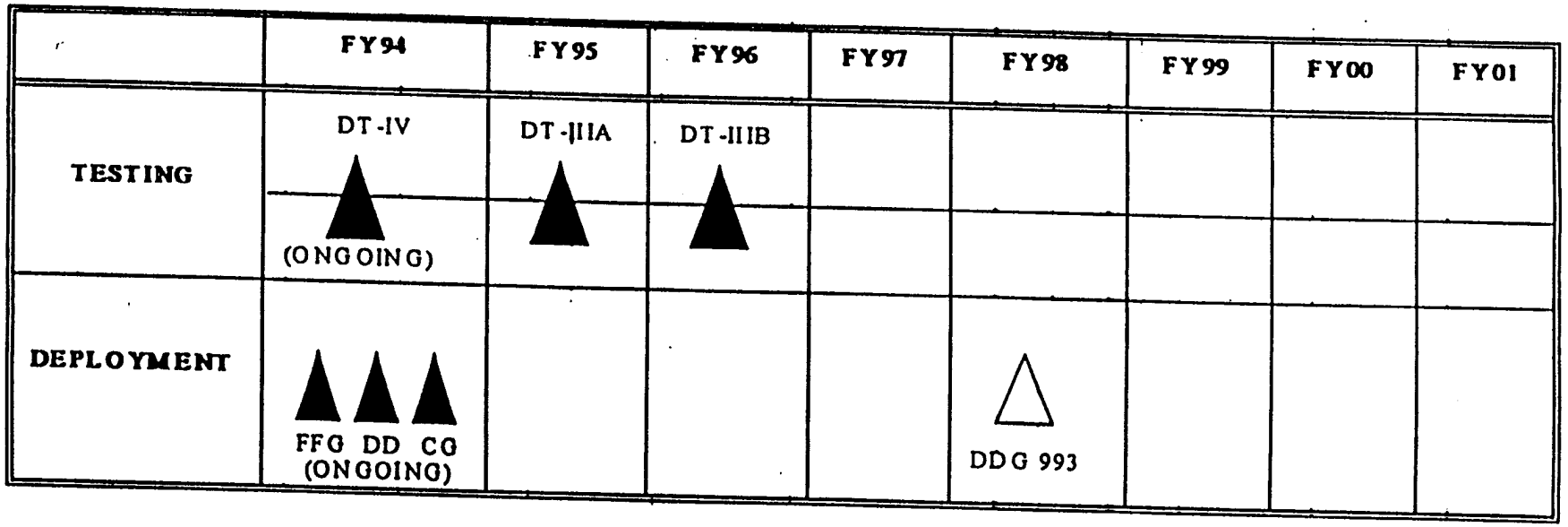
DESCRIPTION:

OUTLAW BANDIT is a ship signature reduction program, applying Radar Absorbent Material (RAM) to selected areas of a ship's superstructure, equipment, and weapons systems, reducing the ship's radar cross section (RCS). Enhances ship survivability when used in conjunction with AN/SLQ-32 and decoys.

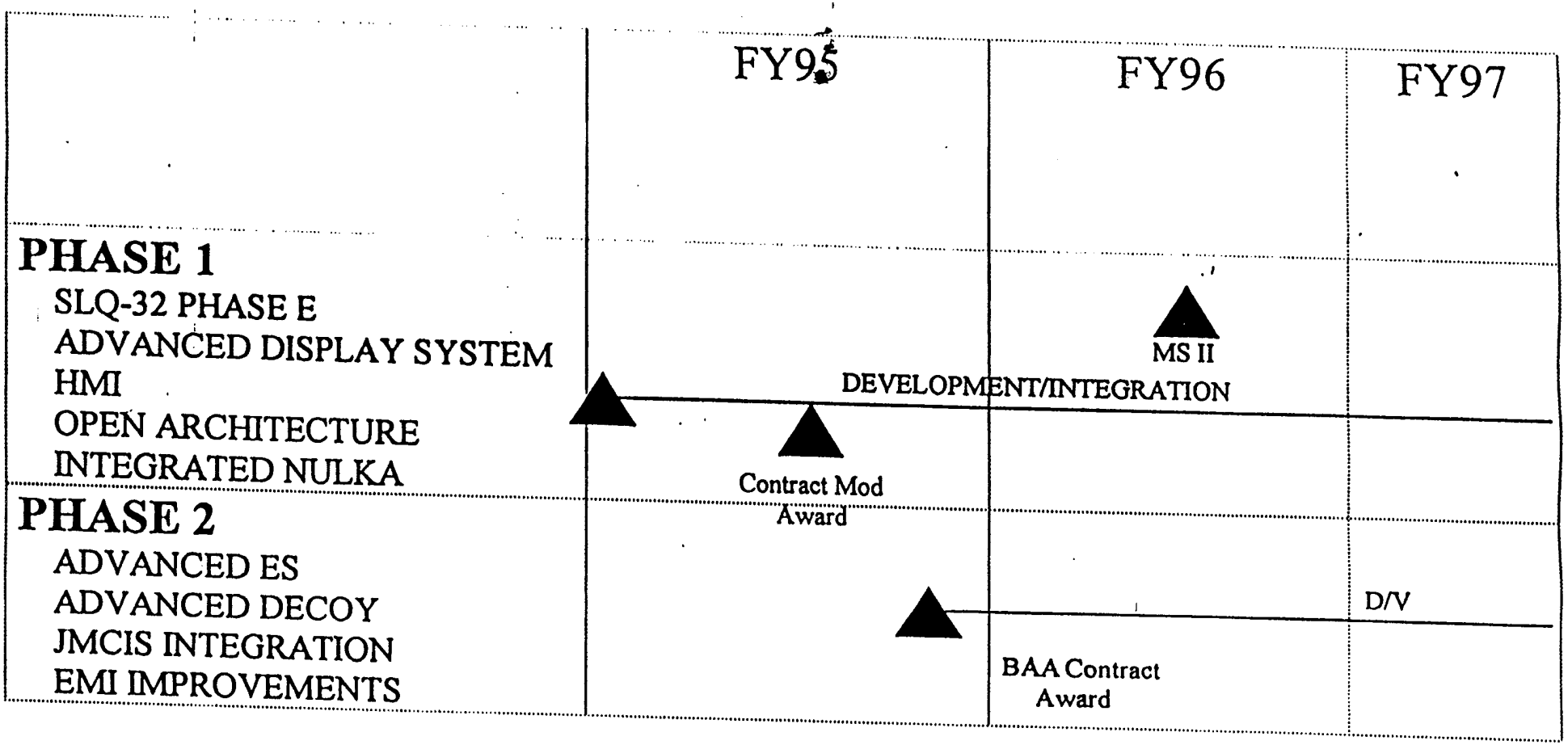
MAJOR PROGRAM INTERFACES: FFG, DD 963, & DDG 993 PARMS, AEGIS

SHIPS: DESIGNATED DD 963, DDG-993, CORT FFG, CG 47 CLASSES

SCHEDULE:



AIEWS DEVELOPMENT SCHEDULE



FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604755N
PROGRAM ELEMENT TITLE: Ship Self Defense

PROJECT NUMBER: U0954
PROJECT TITLE: Shipboard EW Improvements

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Major Contracts	12,937	2,581	681
b. System Engineering	2,189	2,633	1,952
c. Program Spt/Review/ Meetings-In/House Spt	5,425	2,939	2,783
d. Test & Evaluation	500	2,000	500
e. Contractor Eng. Spt	1,551	875	660
f Program Mgmt Spt	830	500	500
g. Logistic Spt	298	268	250
h. Software Development/ Documentation	0	2,720	1,673
i. Travel	93	95	95
TOTAL:	23,823	14,611	9,094

UNCLASSIFIED

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROJECT NUMBER: U0954
PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT TITLE: Shipboard EW Improvements

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
ADCAP										
NRCCB	SS/CPFF	12/86	18,916	18,916	18,916	0	0	0	0	18,916
PHASE E										
NRCCB	C/CPFF	5/92	13,329	13,329	13,329	0	0	0	0	13,329
AIEWS PHASE I										
NRCCB	TBD	4/95	CONT.	CONT.	0	11,000	2,581	681	CONT.	CONT.
AIEWS-BAA	TBD				0	1,498	0	0		
AIEWS/NAVSEA	C/CPFF	01/95	709	709	0	439	0	0	0	439
OUTLAW/NAVSEA		10/94	765	765	765	0	0	0	0	765
ADCAP/PHASE E/AIEWS										
NRL	WR/RCP	12/94	CONT.	CONT.	21,614	2,211	1,548	975	CONT.	CONT.
NSWC/DH;WHITE										
OAK;CRANE;NWAD	WR/RCP	01/95	CONT.	CONT.	27,072	1,807	1,525	1,174	CONT.	CONT.
OACM										
NRL	WR/RCP	12/94	930	930	930	0	0	0	0	930
NSWC/DH;WHITE										
OAK;CRANE	WR/RCP	01/95	3,838	3,838	3,838	0	0	0	0	3,838
OUTLAW BANDIT										
NRL	WR	10/94	CONT.	CONT.	13,935	1,911	600	1,000	CONT.	CONT.
NSWC/DH;CRANE;PHD;										
NCCOSC	WR/RCP	01/95	CONT.	CONT.	20,094	1,610	1,354	1,596	CONT.	CONT.
SPCC	WR	10/94	CONT.	CONT.	1,109	280	400	240	CONT.	CONT.
TRAVEL	WR	10/94	CONT.	CONT.	825	93	95	95	CONT.	CONT.

UNCLASSIFIED

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY 5

PROGRAM ELEMENT: 0604755N
PROGRAM ELEMENT TITLE: Ship Self Defense

PROJECT NUMBER: U0954
PROJECT TITLE: Shipboard EW Improvements

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
AIEWS PHASE 1										
SW DEVELOPMENT	C/CPFF	3/95	CONT.	CONT.	0	53	2,720	1,673	CONT.	CONT.
Support and Management										
ADCAP/PHASE E										
AIEWS/OUTLAW BANDIT										
NRCCB/NAVSEA/APL)	PD/PR	10/94	CONT.	CONT.	16,204	2,421	1,788	1,160	CONT.	CONT.
Test & Evaluation										
ADCAP/PHASE E/OUTLAW		01/95	CONT.	CONT.	7,463	500	2,000	500	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	122,427	20,902	10,823	7,434	CONT.	CONT.
Subtotal Support and Management	16,204	2,421	1,788	1,160	CONT.	CONT.
Subtotal Test and Evalutation	7,463	500	2,000	500	CONT.	CONT.
Total Project	146,094	23,823	14,611	9,094	CONT.	CONT.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604755N
PROGRAM ELEMENT TITLE: Ship Self Defense

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
U2178 Quick Reaction Combat Capability (QRCC)	38,806	52,924	29,480	30,076	28,521	13,597	13,688	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The QRCC project implements an evolutionary acquisition of improved ship self defense capabilities against anti-ship cruise missiles for selected non-AEGIS ships by integrating existing and programmed anti-air warfare stand-alone systems. It provides an automated quick reaction and multi-target engagement capability emphasizing performance in the littoral environment. Integration focuses on coordinating existing sensor information, providing threat identification and evaluation, assessing defensive readiness, and recommending an optimized defensive tactical response to counter single and multiple anti-ship cruise missile attacks. Subsequent modifications and upgrades will optimize the Ship Self Defense System and provide enhanced self defense capabilities while allowing for insertion of advanced technologies during Engineering and Manufacturing Development and Production and Deployment Phases. System design emphasizes use of nondevelopmental items, commercial standards, Next Generation Computer Resources, computer program reuse, and open architecture. QRCC replaces manual control of several different ship self defense systems with a single integrated capability under the computer aided control of ship operators. Improvements to current system performance for short range anti-air ship self defense will implement the Ship Self Defense System (SSDS), incorporate multi-sensor integration of existing sensors, improve ship defense local command and control functions by automation of the detect through engagement sequence under the control of flexible embedded doctrine, integrate and coordinate weapon systems, and provide hardkill/softkill integration. The current focus of this project is the development of the SSDS which leverages recent critical experiments, the Rapid Anti-Ship Missile Integrated Defense System (RAIDS) program efforts, and the SSDS demonstration on USS WHIDBEY ISLAND (LSD 41) in June 1993. System architecture centers on a distributed processing concept which uses a fiber optic local area network (LAN), LAN access units, Advanced Display System workstation, and software to integrate existing sensors and weapons. The initial effort will focus on the LSD 41 class of ships to integrate existing LSD 41 class sensors, the Rolling Airframe Missile (RAM), Phalanx Close-in Weapon System (CIWS), and Electronic Countermeasures System (AN/SLQ-32). Other ship systems such as ship support, navigation, and Identification

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROJECT NUMBER: U2178
PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT TITLE: Quick Reaction Combat Capability

Friend or Foe will also be integrated into the system via the LAN. The distributed architecture allows the incremental evolution and implementation of follow-on modification to the SSDS which will integrate other ship self defense elements, such as the NATO Seasparrow missile system, Target Acquisition system (TAS), and other sensors, as well as the RAM, CIWS, and AN/SLQ-32 installations on other ship classes. Ships with a Combat Direction System (CDS) or the Advanced Combat Direction System (ACDS) will also have those systems integrated with SSDS to optimize the use of offboard track data in ship self defense and transmit SSDS track data to other ships.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($9,100) Continued risk reduction efforts for SSDS MK 1 system for LSD 41 class ship.
- (U) ($10,500) Conducted MS II review and began Engineering and Manufacturing Development (E&MD) for SSDS MK 1 system for LSD 41 class ship.
- (U) ($10,000) Initiated Land Based Test Site (LBTS) development for SSDS MK 1.
- (U) ($5,206) Continued design and engineering efforts for SSDS MK 1 system onboard follow-on class ships.
- (U) ($4,000) Initiated NATO Sea Sparrow Missile System rearchitecture for follow-on class ships.

2 (U) FY 1996 PLAN:

- (U) ($17,000) Continue E&MD development of SSDS MK 1 for LSD 41 class.
- (U) ($10,550) Commence DT on LSD 41 class ship.
- (U) ($1,000) Complete programmatic documentation to support Milestone III deployment decision.
- (U) ($4,362) Complete logistics requirements to support DT/OT and MS III.
- (U) ($4,450) Complete milestone III and transition to production of SSDS MK 1 LSD 41 class ships.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROJECT NUMBER: U2178
PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT TITLE: Quick Reaction Combat Capability

- (U) ($2,021) Continue engineering development of SSDS MK 1 for follow-on class ships.
- (U) ($3,614) Develop a multi-sensor data fusion capability for Centralized Identification Friend or Foe (CIFF) and Non-Cooperative Target Recognition Capability for Self Defense (NCTRC-SD) to ensure proper identification.
- (U) ($2,205) Continue development and testing of Ship Self Defense System (SSDS) on future Non-Aegis ships as well as integration of new technologies.
- (U) ($6,962) Provide modifications to the Self Defense Test Ship (SDTS) for testing of remote operations, reduced radar cross section targets and infrared signature reductions.
- (U) ($760) Portion of extramural program reserved for the Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:
- (U) ($13,572) Continue E&MD development and commence DT of SSDS MK 1 for LHD class ship.
- (U) ($3,900) Continue E&MD of SSDS MK 1 for follow-on class ships.
- (U) ($750) Support programmatic documentation changes.
- (U) ($3,758) Support logistics requirements due to ship class adaptations.
- (U) (7,500) Complete DT and conduct OT on LSD 41 class ship.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	39,245	40,362	30,505
(U) Adjustments from PRESBUDG:	-439	+12,562	-1,025
(U) FY 1997 PRESBUDG Submit:	38,806	52,924	29,480

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT NUMBER: U2178 PROJECT TITLE: Quick Reaction Combat Capability

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: Changes in FY 1995 due to University Research and Small Business Innovative Research adjustments. Changes in FY 1996 due to Congressional appropriation increase ($14,500), Congressional undistributed general and inflation reductions; and revised DOD inflation rates and other minor pricing adjustments (-$1,938). FY 1997 decrease due to revised DOD inflation estimates and other minor pricing adjustments.

(U) Schedule: Not Applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN Line 523400 Pt Def. Sppt Eqmt (RAIDS)	573	0	0	0	0	0	0	0	12,677
(U) OPN Line 523900, 523905 (MK 1)	0	15,178	21,049	23,474	54,128	57,542	63,092	CONT.	CONT.
(U) O&MN 14D70 Wpn Maint. QRCC	0	0	0	0	2,000	0	0	CONT.	CONT.
(U) SCN 8210 SSDS MK1	16,430	8,868	0	19,888	0	16,300	16,800	56,000	134,286

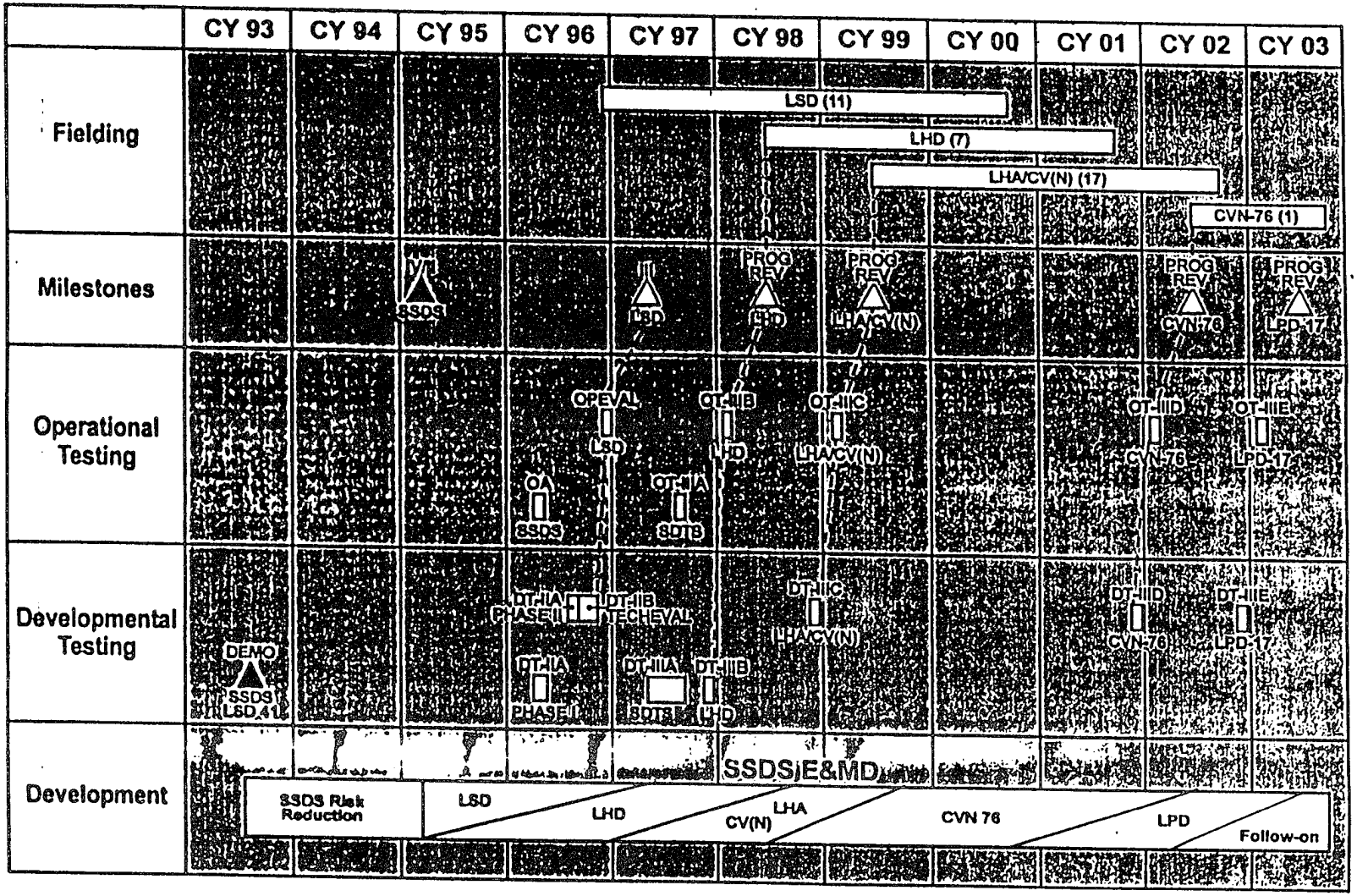
(U) RELATED RDT&E: PE 0603755N (Ship Self Defense)

D. (U) SCHEDULE PROFILE: See attached

THEATER AIR DEFENSE TAD PROGRAM EXECUTIVE OFFICE

SSDS PROGRAM STRUCTURE

THEATER AIR DEFENSE



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U2178

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROJECT NUMBER: U2178
PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT TITLE: Quick Reaction Combat
Capability

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Primary Hardware Development	1,223	715	0
b. Ancillary Hardware Development	100	790	0
c. Software Development	17,150	17,335	13,903
d. Systems Engineering	9,100	4,759	2,407
e. Training Development	800	800	2,200
f. Integrated Logistics Support	600	500	400
g. Configuration Management	300	204	198
h. Install	1,000	3,475	1,500
i. Test & Evaluation	4,300	19,717	3,978
j. Government Engineering Support	2,283	2,500	2,750
k. Program Management Support	1,200	1,379	1,394
l. Documentation	600	600	600
m. Travel	150	150	150
Total	38,806	52,924	29,480

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROJECT NUMBER: U2178
PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT TITLE: Quick Reaction Combat Capability

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Hughes San Diego, CA	SS/CPAF	10/95	CONT.	CONT.	0	0	25,588	15,364	CONT.	CONT.
Hughes Tucson, AZ	SS/FP	10/94	CONT.	CONT.	0	16,861	0	0	CONT.	CONT.
NAVSURFWARCENDIV Port Hueneme, CA	WR	Various	CONT.	CONT.	0	1,950	6,406	3,792	CONT.	CONT.
NAVSURFWARCENDIV Dahlgren, VA	WR	Various	CONT.	CONT.	0	1,925	2,858	2,948	CONT.	CONT.
JHU/APL Laurel, MD	SS/FP	10/93	CONT.	CONT.	1,501	5,326	4,810	2,300	CONT.	CONT.
Raytheon Maynard MA	SS/FP	6/95	4,000	4,000	0	4,000	0	0	0	4,000
NRL Washington DC	WR	various	400	400	0	200	200	0	0	400
NRL Washington DC	SS/FP	1/95	102	102	0	102	0	0	0	102
NWAD Corona CA	WR	Various	CONT.	CONT.	0	200	385	200	CONT.	CONT.

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604755N
PROGRAM ELEMENT TITLE: Ship Self Defense

PROJECT NUMBER: U2178
PROJECT TITLE: Quick Reaction Combat Capability

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
NWAD-AD										
St. Inigoes,MD	WR	Various	3,293	3,293	0	1,036	2,257	0	0	3,293
NAWC										
Patuxent MD	SS/FP	1/95	100	100	0	100	0	0	0	100
Support and Management										
Techmatics										
Arlington, VA	SS/FP	12/94	CONT.	CONT.	0	579	150	150	CONT.	CONT.
Comptek										
Arlington, VA	SS/FP	12/94	CONT.	CONT.	100	475	200	200	CONT.	CONT.
SIR	SS/FP	12/95	CONT.	CONT.	0	0	200	200	CONT.	CONT.
Arlington,VA										
NAVSURFWARCENDIV										
Dahlgren, VA	WR	various	CONT.	CONT.	0	259	179	198	CONT.	CONT.
TRAVEL			CONT.	CONT.	50	150	150	150	CONT.	CONT.
NAWC										
Patuxent MD	SS/FP	1/95	20	20	0	20	0	0	0	20
Test and Evaluation										
NAVSURFWARCENDIV										
Port Hueneme, CA	WR	various	CONT.	CONT.	0	650	6,962	2,000	CONT.	CONT.
NAVSURFWARCENDIV										
Dahlgren, VA	WR	various	CONT.	CONT.	0	3,650	2,205	1,978	CONT.	CONT.

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROJECT NUMBER: U2178
PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT TITLE: Quick Reaction Combat

Capability

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development									
Hardware - ADS Equip., LAUs, Fiber Optic Cables									
Unisys									
St Paul, MN	SS/FP	1/94	4/95	2,640	1,223	0	0	3,355	7,218
HARDWARE - Command Table									
NRaD									
San Diego CA	WR	various	CONT.	0	100	374	0	0	474
Support and Management	Not Applicable.								
Test and Evaluation	Not Applicable.								

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	4,141	33,023	42,878	24,604	CONT.	CONT.
Subtotal Support and Management	150	1,483	879	898	CONT.	CONT.
Subtotal Test and Evaluation	0	4,300	9,167	3,978	CONT.	CONT.
Total Project	4,291	38,806	52,924	29,480	CONT.	CONT.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604755N
PROGRAM ELEMENT TITLE: Ship Self Defense

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
U2190 NULKA Decoy	12,729	7,751	4,377	1,906	1,937	948	942	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Offboard Active Decoy (NULKA) is a joint cooperative program between the United States and Australia to develop an active offboard decoy which utilizes a broadband radio frequency repeater mounted atop a hovering rocket. The Decoy is designed to counter a wide variety of present and future radar guided Anti-Ship Missile (ASM) threats by radiating a large radar cross section signal while flying a shiplike trajectory. The United States developed the Electronic Payload and Fire Control System. Currently the United States is modifying the payload to incorporate cost savings improvements and improve reliability. The Fire Control System components are being consolidated and modified. The MK 36 Decoy Launching System (DLS) is being modified to support NULKA Launches. Australia developed the hovering rocket, launcher, and launcher interface unit.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:
   - (U) ($12,729) Continued NULKA development. Commenced launch system integration testing, continued rocket motor qualification program, and commenced fabrication and delivery of test rounds.
2. (U) FY 1996 PLAN:
   - (U) ($7,576) Complete NULKA development and conduct land based test. Complete integration of the stand-alone NULKA system with SLQ-32. Commence research and development of payload improvements required to counter the next generation threat and to improve EMC capability. Commence integration of NULKA with SSDS.
   - (U) ($175) Portion of program reserved for Small Business Innovative Research assessment in accordance with 15 USC 638.
3. (U) FY 1997 PLAN:
   - (U) ($4,377) Conduct DT/OT testing required to achieve a milestone III decision for the stand-alone NULKA system. Continue research and development of payload improvements required to counter the next generation threat and to improve EMC capability. Continue integration of NULKA with SSDS.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROJECT NUMBER: U2190
PROGRAM ELEMENT TITLE: Ship Self Defense PROJECT TITLE: NULKA Decoy

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	12,873	0	995
(U) Adjustments from PRESBUDG:	-144	+7,751	+3,382
(U) FY 1997 PRESBUDG Submit:	12,729	7,751	4,377

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 1995 decrease results from program rebalancing. The FY 1996 increase is due to Congressional appropriation increase ($8,000), and Congressional undistributed general and inflation reductions; and revised DOD inflation rates and other minor pricing adjustments (-$249). The FY 1997 increase is due to revised inflation estimates and other minor pricing adjustments.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN Line 553000	0	0	12,943	16,017	16,479	15,620	15,594	CONT	CONT
(U) OPN Line 553005	1,262	2,415	2,166	955	1,652	1,862	1,608	CONT	CONT

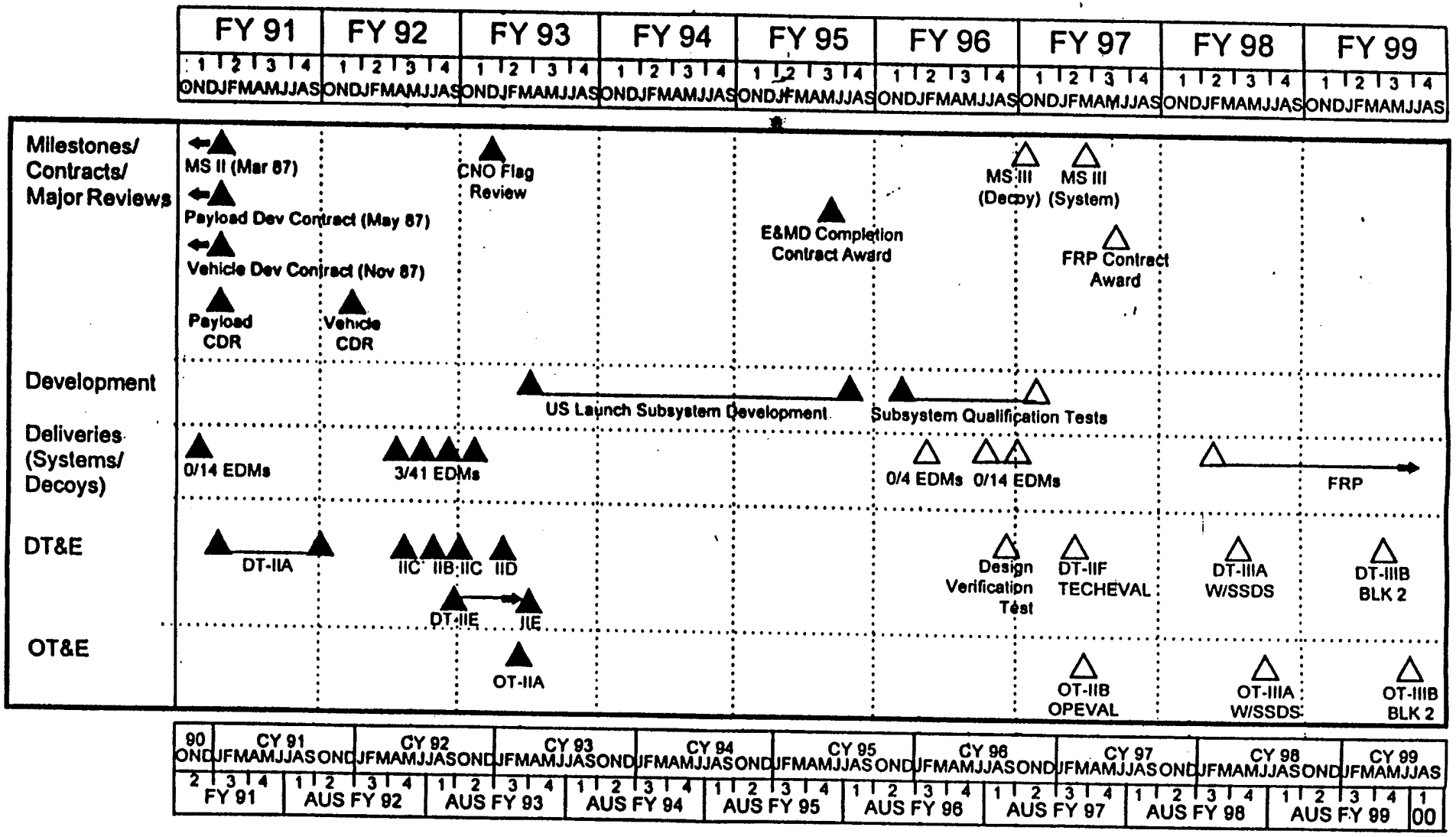
(U) RELATED RDT&E: Not applicable.

D. (U) SCHEDULE PROFILE: See attached.

FIGURE 1

MK 53 DECOY LAUNCHING SYSTEM

INTEGRATED PROGRAM SCHEDULE



U2190

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604755N
PROGRAM ELEMENT TITLE: Ship Self Defense

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
U2256 SEMI-ACTIVE FUZE IMPROVEMENT	0	4,433	5,446	4,588	1,049	0	0	CONT.	CONT.*

* Funding Requirements for FY98 and out are being reviewed in Navy POM Prices.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) Selected Semi-Active Fuze technology development efforts have become available for transition into an engineering and manufacturing development program; this emergent technology can provide improved capabilities for one or more Ship Self Defense programs.

(U) While development of the Evolved SeaSparrow Missile (ESSM) under project U0173 will provide enhanced ship survivability against current threats, additional capability is required to meet current and future threat prediction requirements. Maneuverable, anti-ship missiles can be countered by near term fuzing system improvements.

(U) This near term fuze improvement will provide improved data processing to accurately discriminate targets in high clutter/ECM environments and provide increased capability in high angle of attack/high closing rate engagements. The fuze design is based on an upgrade of existing AIM/RIM-7 DSU-34B Fuze; accordingly, the improved fuze will be form and fit compatible with ESSM and existing AIM/RIM-7P missiles.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS: Not Applicable.

2. (U) FY 1996 PLAN:
   - (U) (101) Portion of extramural program reserved for Small Business Innovation Research (SBIR) assessment in accordance with 15 U.S.C. 638.
   - (U) (4,332) Commence development of a fuze modification for the ESSM Missile to Counter the Advanced Low Altitude highly maneuverable threats.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604755N PROGRAM ELEMENT TITLE: SHIP SELF DEFENSE PROJECT NUMBER: U2256 PROJECT TITLE: SEMI-ACTIVE FUZE IMPROVEMENT

3. (U) FY 1997 PLAN:
   - (U) (5,446) Continue effort associated with the fuze modification for the ESSM.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	0	4,576	7,618
(U) Adjustments from PRESBUDG:	0	-143	-2,172
(U) FY 1997 PRESBUDG Submit:	0	4,433	5,446

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: Change in FY 1996 due to Congressional undistributed general and inflation reductions; and revised DOD inflation rates and other minor pricing adjustments. FY 1997 decrease due to revised inflation estimates and other minor pricing adjustments.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

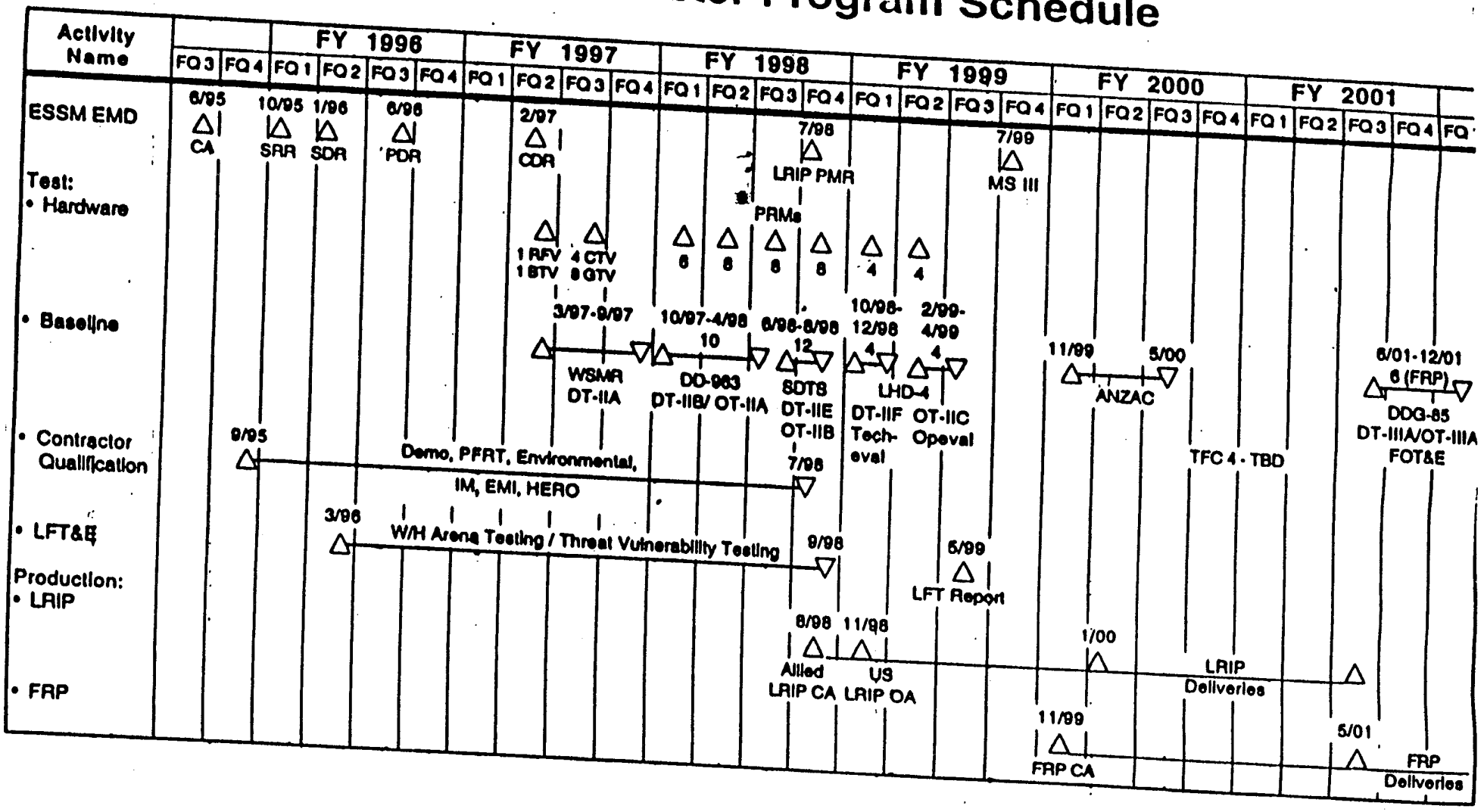
C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands) Not Applicable.

FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM

(U) RELATED RDT&E:
- (U) PE 0604755N (U2176 - SSD Engagement Improvement)
- (U) PE 0603609N (Conventional Munitions)
- (U) PE 0604755N (U0173 - Evolved SeaSparrow Missile (ESSM))

D. (U) SCHEDULE PROFILE: See attached.

ESSM EMD Master Program Schedule



U2256

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: Mar 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604771N
PROGRAM ELEMENT TITLE: Medical Engineering Development

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROG
M0933 Medical/Dental Equipment Development	1,681	3,297	3,148	3,517	4,265	4,261	4,357	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The purpose is to develop biomedical equipment to reduce morbidity, to enhance the logistic feasibility of modern medical care for combat casualties, to speed return to duty, and to ensure that personnel are medically qualified for military duty. Each work unit undertaken in this project has a documented, authenticated military requirement. Efforts are justified based upon military payoff and cost benefit. There is a strong potential for dual use, technology transfer and industrial participation in the project.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($400) HEARING PROTECTION: Field test of new sound attenuating material in standard "ear muffs" and new design including vacuum barrier to sound.
- (U) ($577) LIPOSOME ENCAPSULATED HEMOGLOBIN (LEH): Large animal test of LEH and lyophilized LEH (LyoLEH) to obtain data for FDA approval.
- (U) ($110) FARNSWORTH LANTERN: Completion of manufacturing standards for Farnsworth Lantern color vision test, and validation of the test as a predictor of operational color vision performance.
- (U) ($594) RED CELL WASHER: Contract for development of device to wash cryoprotectant from frozen banked blood. An additional $565 deferred to FY 1995 was applied to this task.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: Mar 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604771N
PROGRAM ELEMENT TITLE: Medical Engineering Development

2. (U) FY 1996 PLAN:

- (U) ($249) HEARING PROTECTION: Continue development of low-cost, high efficiency hearing protection. Potential benefit is $48M/yr Navy Dept VA claims, $8M/yr Navy civilian claims.
- (U) ($806) LIPOSOME ENCAPSULATED HEMOGLOBIN (LEH): Continue development of Good Manufacturing Practices for LEH blood substitute, including safety and efficacy tests.
- (U) ($413) SPATIAL DISORIENTATION: Development of clinical tests to screen aviators most susceptible to spatial disorientation. Potential benefit is 30 aircraft and 40 lives/year in Navy, $300M/year in DOD aircraft costs.
- (U) ($814) RED CELL WASHER: Continue development of washer to clear cryoprotectant from thawed frozen banked blood. Gulf War lesson learned: need for greater throughput. Joint Army/Navy.
- (U) ($532) BLOOD AND BLOOD PRODUCTS: ATD transition. Continue advancement of freeze-dried technology with clinical trials and transition to industry.
- (U) ($483) TELEMEDICINE: Initiate development and integration of the Medical Information Management System (MIMS) to be deployed on tactical ships with medical responsibilities.

3. (U) FY 1997 PLAN:

- (U) ($300) HEARING PROTECTION: Continue development of hearing protection.
- (U) ($659) LIPOSOME ENCAPSULATED HEMOGLOBIN (LEH): Continue efficacy/safety testing of LEH and lyophilized LEH.
- (U) ($845) RED CELL WASHER: Continue development of washer to clear cryoprotectant from thawed blood.
- (U) ($244) SPATIAL DISORIENTATION: Complete development of clinical test of aviator spatial orientation.

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: Mar 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604771N
PROGRAM ELEMENT TITLE: Medical Engineering Development

- (U) ($650) BLOOD AND BLOOD PRODUCTS: Improve freeze-drying procedures formalized for FDA approvals.
- (U) ($450) TELEMEDICINE: Integrate medical interior/exterior communication and controls into LPD-17 contract.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	1,681	3,402	3,236
(U) Adjustments from PRESBUDG:	0	-105	-88
(U) FY 1997 OSD/OMB Budget Submit:	1,681	3,297	3,148

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY96 funding is reduced due to Congresional undestributed general and inflation reductions (-64); and revised DoD inflation estimates and other minor pricing adjustments (-41). FY97 funding reduction is due to revised DoD inflation estimates and other minor pricing adjustments (-88).

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands) N/A

(U) RELATED RDT&E: PE 0603706N Medical Development

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604784N
PROGRAM ELEMENT TITLE:Distributed Surveillance System

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
Fixed Distributed System									
X1312	85,338	71,457	0	0	0	0	0	0	1,228,810
Advanced Deployable System									
X1300	16,566	28,957	35,194	34,314	39,067	41,024	41,985	CONT	CONT
TOTAL	101,904	100,119	35,194	34,314	39,067	41,024	41,985	CONT	CONT

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Distributed Systems are part of the Integrated Undersea Surveillance System (IUSS). IUSS provides the majority of the U.S. Navy's open ocean detection capability against quiet submarines, including third world diesels. The Distributed Systems program element (PE) 0604784N consists of two projects, X1312 Fixed Distributed System (FDS) and X1300 Advanced Deployable Systems (ADS), designed to improve the effectiveness and flexibility of Undersea Surveillance.

(U) The Advanced Deployable System (ADS) RDT&E funds provide for the concept study, Demonstration and Validation(Dem/Val) of an ADS prototype and development for production. ADS will provide a rapid and covertly deployable undersea surveillance capability to operational forces involved in Regional Conflicts. ADS will provide timely response to tactical requirements and uses proven technology to detect very quiet submarines in the most difficult shallow water environments with very high target position accuracy. The system will include sensors, processing and an interface to the Surveillance Direction System (SDS) for reporting of submarine activity and other undersea activity to Joint Task Force Commanders (JTFC) and tactical assets. The program uses and expands on technology developed under the Fixed Distributed System (FDS) program, the Advanced Deployable Array (AdDA) Program, the Port Area Surveillance (PAS) Program, Navy Sonobuoy Programs, Office of Naval Research (ONR) Programs, and the ARIADNE Program.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604784N
PROGRAM ELEMENT TITLE:, Distributed Surveillance System

(U) FDS is low frequency passive acoustic surveillance system using hydrophones densely distributed on the sea floor. FDS will provide cuing information vital to fleet and national command authorities. FDS technology is the only hardware available for new bottom mounted undersea surveillance systems.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT(EM&D) because FDS project X1312 encompasses engineering and manufacturing development of a new end item prior to production approval. FDS passed MS II in FY 89. MS III has been deleted. Concept study funds for ADS were broken out in FY 92 and NAVCOMPT established project X1300 in FY 93 for ADS. ADS entered the demonstration and validation phase in 1ST QTR FY95.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604784N
PROGRAM ELEMENT TITLE: Distributed Surveillance System

PROJECT NUMBER:X1300
PROJECT TITLE: Advanced Deployable System

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1995 ACTUAL	FY 1996 ACTUAL	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
Advanced Deployable System									
X1300	16,566	28,957	35,194	34,314	39,067	41,024	41,985	CONT	CONT

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Distributed systems are part of the Integrated Undersea Surveillance System (IUSS). IUSS provides the majority of the US Navy's open ocean detection capability against quiet submarines, including third world diesels. These submarines pose a significant threat to US forces as documented in the Mission Needs Statement for Undersea Surveillance in Littoral Waters dated 13 Mar 93 and the Operational Requirements Document (ORD) dated 28 Oct 94.

(U) ADS will be a deployable undersea surveillance system composed of distributed fields of sensors that can be rapidly and unobtrusively deployed in regional contingency areas for use against enemy submarines. It will be deployed prior to or during regional conflicts. ADS will build on the FDS-D test experience with distributed fields in shallow noisy water and use collected data for processing verification. It will use FDS developed processing technologies and will also incorporate advanced sensors and technology from other related programs. ADS is a system designed to detect and track modern diesel electric and nuclear submarines, and provide the capability for tracking surface ships.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604784N PROJECT NUMBER:X1300
PROGRAM ELEMENT TITLE: Distributed Surveillance System PROJECT TITLE: Advanced Deployable System

PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($2,278) Awarded the Dem/Val Phase contracts. Responded to protest action by AT&T and GAO. Incorporated risk management plans. Defined the ADS prototype requirements to meet the Operational Requirements Document (ORD) thresholds. Initiated survivability testing of cabled system.

- (U) ($2,587) Executed sea tests and analyzed test data from data collection exercises using sensors similar to those envisioned for ADS. Incorporated results into prototype development. Revised the TEMP and initiated the development of the Fleet Exercise Test (FET) Plan. Calibrated source used in past At-sea Testing. Participated in ACT III sea test and performed Persian Gulf One/September Research Operation (PGI/SRO) data processing and analysis.

- (U) ($2,770) Designed and began prototype development of the All Optical Deployable System (AODS). Contracted, built and integrated the AODS two-node configuration. Awarded contract for the AODS eight-node configuration subsystem.

- (U) ($5,287) Supported ADS system design effort through continued system engineering support. Planned and initiated Integrated Product Development (IPD) process. Integrated ADS into PD80 Computer Aided Acquisition and Logistics Support (CALS) effort. Performed NDI cable survivability risk reduction studies. Continued acoustic array design efforts and beam forming analysis. Initiated software development effort in conjunction with Shore Signal and Information Processing Segment (SSIPS) reuse.

- (U) ($3,644) Continued to manage ADS program development and initiated contract monitoring efforts and started the Integrated Baseline Review (IBR) process.

2. (U) FY 1996 PLAN:

- (U) ($15,400) Continue design, development, integration and begin testing of the ADS three-node system. Initiate options to study the feasibilty of and to reduce risks to cabled systems and an alternate platform deployment capability to meet ORD goals.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604784N PROJECT NUMBER:X1300
PROGRAM ELEMENT TITLE: Distributed Surveillance System PROJECT TITLE: Advanced Deployable System

- (U) ($2,039) Plan and perform testing of the ADS three-node test system. Continue to analyze collected test data and incorporate findings into the prototype development process. Perform additional sea tests as necessary to validate prototype development and environmental performance. Initiate EOA (OT-1A).
- (U) ($1,950) Test at sea and analyze data collected for the AODS two-node system test. Develop, assemble, integrate and test the AODS eight-node system configuration.
- (U) ($7,146) Support the Dem/Val contractor design effort through IPD system engineering process and testing support. Continue algorithm development, parallel software development process and NDI cable survivability effort. Conduct System Readiness Review (SRR).
- (U) ($1,827) Continue to manage ADS program development and monitor contractor efforts. Conduct IBR.
- (U) ($595) Portion of extramural program reserved for Small Business Innovative Research assessment in accordance with 15 U.S.C 638.

3. (U) FY 1997 PLAN:

- (U) ($21,718) Assemble the Multi-Node Test (MNT) system and continue prototype system integration efforts Continue risk reduction efforts for the alternative platforms deployment capability.
- (U) ($2,075) Complete analysis of data collected at sea and plan the MNT. Continue EOA (OT-1A). Prepare for MNT.
- (U) ($3,396) Continue to test prototype AODS to demonstrate system performance. Modify AODS as result of testing. Conduct AODS eight-node deployment and test.
- (U) ($4,493) Support the contractor design effort through continued IPD system engineering and testing support.
- (U) ($3,512) Manage ADS program development and monitor contractor efforts.

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604784N PROJECT NUMBER:X1300
PROGRAM ELEMENT TITLE: Distributed Surveillance System PROJECT TITLE: Advanced Deployable System

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	21,592	29,982	38,441
(U) Adjustments from PRESBUDG:	(5,026)	(1,025)	(3,247)
(U) FY 1997 President's Budget:	16,566	28,957	35,194

(U) CHANGE SUMMARY EXPLANATION:
(U) Funding:
FY 95 was reduced $5,026K; -$4,999K Navy reprogramming due to Dem/Val contract protest. -$27K Navy reprogramming to fund technology transfer efforts at ONR.

FY 96 was reduced $1,025K; $24K DoD execution adjustments. -$697K to cover Undistributed Congressional Adjustments, -$352K for revised Economic Assumptions for reprogrammings sent to Congress.

FY 97 was reduced $3,247K; -$2,216K Navy execution adjustments (forward financing) in FY 95, -1,031K for DoD Inflation Adjustments and other minor pricing adjustments.

(U) Schedule: Dem/Val contract was awarded on 10 April 1995 to Loral and immediately protested by AT&T, to GAO on 19 April 1995. Acqusition Program Baseline Agreement (APBA) Change-1 was submitted and approved by DASN on December 1995 which reflects the schedule slip of approximately 1 year because of the contract award and subsequent protest.

(U) Technical: Not Applicable

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not Applicable.

(U) RELATED RDT&E: Not applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604784N
PROGRAM ELEMENT TITLE: Distributed Surveillance System

PROJECT NUMBER:X1300
PROJECT TITLE: Advanced Deployable System

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	MSI 1st Qtr			MSII FY99 MSIII FY03
Engineering Milestones		SRR 2nd Qtr Risk Reduction 4th Qtr	ISR 2nd Qtr Complete 3 Node Test	SDR FY99 CDR FY00 FCA FY03
T&E Milestones		EOA Commence 2nd Qtr		Complete EOA FY98 TRR FY98 MNT FY98 FET FY99 OT-1B FY99
Contract Milestones	Dem/Val Contract Award 3rd Qtr	PAC 1st Qtr IBR 2nd Qtr		EMD RFP FY99 EMD contract award FY00 Production contract award FY03

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604784N PROJECT NUMBER:X1300
PROGRAM ELEMENT TITLE: Distributed Surveillance System PROJECT TITLE: Advanced Deployable System

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Prime Mission Product	3,253	14,516	17,351
b. Processing & Analysis Segment (PAS)	0	800	4,367
c. Program Management	2,199	1,717	3,512
d. System Engineering	5,227	6,883	3,959
e. Test & Evaluation	2,587	2,039	2,075
f. Integrated Logistics Spt	60	156	291
g. Technical Data	0	166	0
h. Special Purpose Support & Test Equip	470	669	0
i. Operational Site Activation	0	61	243
j. Special Projects	2,770	1,950	3,396
Total	16,566	28,957	35,194

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604784N
PROGRAM ELEMENT TITLE: Distributed Surveillance System

PROJECT NUMBER:X1300
PROJECT TITLE: Advanced Deployable System

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
ADS Prototype (Dem/Val)	C/CPAF	9/95	119,448	119,448	0	1,808	13,931	17,351	CONT	CONT
LORAL (SSIPS) Manassas,VA.	C/CPIF	7/95	41,300	41,300	0	0	725	1,820	CONT	CONT
OTHER CONTRACTS					2,502	600	206	242	CONT	CONT
NRL AODS Washington,D.C.	WR	10/95	11,253	11,253	1,000	2,360	1,600	3,396	CONT	CONT
NCCOSC San Diego, CA	WR	10/95	17,924	17,924	7,023	3,144	2,450	1,163	CONT	CONT
OTHER ACTIVITIES					1,106	853	1,636	785	CONT	CONT
Support and Management										
TRW Arlington, VA	C/CPAF	4/93	4,483	4,483	3,714	769	0	0	0	4,483
TRW Arlington, VA	C/CPAF	12/95	5,031	5,031	0	0	1,337	1,458	CONT	CONT
AMRON Arlington, VA	C/CPFF	2/94	6,984	6,984	1,358	878	1,148	859	CONT	CONT

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 1996

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604784N PROJECT NUMBER:X1300
PROGRAM ELEMENT TITLE: Distributed Surveillance System PROJECT TITLE: Advanced Deployable System

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
ARL/UT	SS/CPFF	11/95	2,715	2,715	0	800	1,300	200	CONT	CONT
Other Contracts					2,974	1,794	2,263	1,889	CONT	CONT
Other Activities					1,615	969	492	1,045	CONT	CONT
Test and Evaluation										
ARL/UT Austin, TX	SS/CPFF	11/95	8,740	8,740	3,750	625	1,010	679	CONT	CONT
Other Contracts					396	450	261	246	CONT	CONT
NCCOSC San Diego, CA	WX	10/95	19,332	19,332	5,831	700	493	1,077	CONT	CONT
Other Activities					2,068	816	225	73	CONT	CONT
Government Furnished Property										
LORAL (SSIPS) Manassas, VA	C/FFP	10/96		0	0	0	0	2,911	CONT	CONT

Product Development - Not Applicable

Support and Management - Not Applicable

Test and Evaluation - Not Applicable

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604784N
PROGRAM ELEMENT TITLE: Distributed Surveillance System

PROJECT NUMBER: X1300
PROJECT TITLE: Advanced Deployable System

Total	FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	11,631	8,765	20,428	24,757	CONT	CONT
Subtotal Support and Management	9,661	5,210	6,540	5,451	CONT	CONT
Subtotal Test and Evaluation	12,045	2,591	1,989	2,075	CONT	CONT
Subtotal Government Furnished Property	0	0	0	2,911	CONT	CONT
Total Project	33,337	16,566	28,957	35,194	CONT	CONT