DEPARTMENT OF THE NAVY
FY 1997 BUDGET ESTIMATES

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JUSTIFICATION OF ESTIMATES
MARCH 1996

RESEARCH, DEVELOPMENT, TEST & EVALUATION
BUDGET ACTIVITY 7: OPERATIONAL SYSTEMS DEVELOPMENT

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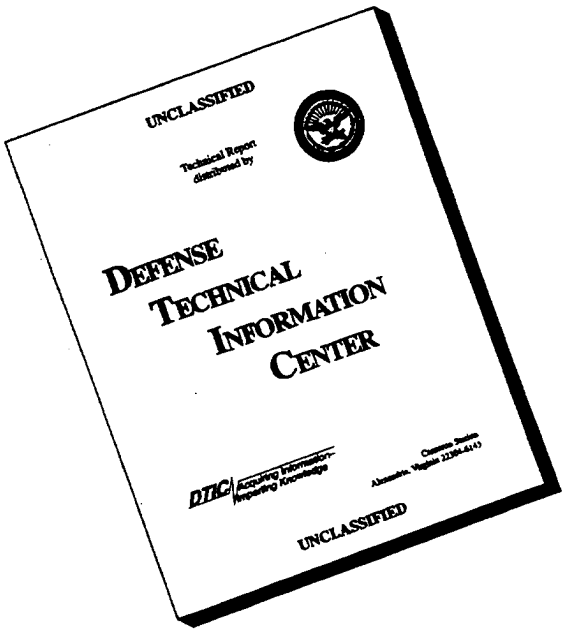

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LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	BA	Thousands of Dollars FY 1995	FY 1996	FY 1997	SEC
147	0101221N	Strategic Sub & Weapons System Support	07	28,506	35,445	41,790	U
148	0101224N	SSBN Security/Survivability Program	07	33,508	29,107	21,340	U
149	0101226N	Sub Acoustic Warfare Dev	07	525	7,690	7,917	U
150	0101402N	Navy Strategic Communications	07	72,763	19,357	-	U
151	0102427N	Navy Space Surv	07	805	729	-	U
152	0204136N	F/A-18 Squadrons	07	1,306,742	887,429	425,333	U
153	0204152N	E-2 Squadrons	07	47,707	60,961	65,025	U
154	0204163N	Fleet Communications	07	37,233	21,746	20,013	U
155	0204229N	Tomahawk & TMPC	07	82,976	164,665	136,364	U
156	0204311N	Integrated Surveillance System	07	41,194	31,448	14,033	U
157	0204413N	Amphib Tactical Support Units	07	4,592	4,229	1,548	U
158	0204571N	Consolidated Training Systems Development	07	58,017	59,214	34,906	U
159	0204575N	EW Readiness Support	07	-	-	1,651	U
160	0205601N	HARM Improvement	07	-	3,247	3,348	U
161	0205604N	Tactical Data Links	07	29,441	47,430	37,302	U
162	0205620N	Surface ASW Combat Sys Integration	07	15,286	9,623	4,901	U
163	0205632N	MK 48 ADCAP	07	26,703	21,516	12,772	U
164	0205633N	Aviation Improvements	07	63,265	64,773	53,512	U
165	0205658N	Navy Science Assistance Program	07	7,071	5,848	5,067	U
166	0205667N	F-14 Upgrade	07	34,072	17,739	9,879	U
167	0205675N	Operational Nuclear Power Systems	07	58,668	56,236	55,876	U
168	0206313M	Marine Corps Communications	07	7,485	6,421	56,687	U

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	BA	Thousands of Dollars FY 1995	FY 1996	FY 1997	SEC
169	0206623M	MC Ground Combat/Spt Arms Sys	07	17,324	14,789	7,280	U
170	0206624M	MC Combat Services Support	07	2,998	7,249	5,211	U
171	0206625M	MC Intell/Elect Warfare System	07	10,164	6,448	-	U
172	0206626M	MC Command/Control/Communic Sys	07	19,149	17,241	-	U
173	0207161N	Tactical Air Intercept	07	-	28,787	58,415	U
174	0207163N	AMRAAM	07	15,703	4,330	2,274	U
175	0301303N	Maritime Intelligence	07				
176	0301327N	Tech Reconn & Surv	07				
177	0303109N	Satellite Communications (Space)	07	43,303	36,341	38,257	U
178	0303140N	Information Systems Security Plan	07	18,065	24,036	26,936	U
179	0304111N	Special Activities	07				
180	0305154N	Joint Military Intelligence Programs	07				
181	0305160N	Def Meteorological Satellite Prog (Space)	07	15,697	17,778	1,195	U
182	0305927N	Navy Space Surv	07	-	-	706	U
183	0708011N	Manufacturing Technology Development	07	-	85,228	35,526	U
TOTAL	Operational Systems Development			2,642,982	2,370,812	1,686,662	
	Research, Development, Test and Evaluation, Navy			8,606,317	8,419,734	7,334,734	

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
157	204413	Amphib Tactical Support Units	7	4,592	4,229	1,548	U
174	207163	AMRAAM	7	15,703	4,330	2,274	U
164	205633	Aviation Improvements	7	63,265	64,773	53,512	U
158	204571	Consolidated Training Systems Development	7	58,017	59,214	34,906	U
181	305160	Def Meteorological Satellite Prog (Space)	7	15,697	17,778	1,195	U
153	204152	E-2 Squadrons	7	47,707	60,961	65,025	U
159	204575	EW Readiness Support	7			1,651	U
152	204136	F/A-18 Squadrons	7	1,306,742	887,429	425,333	U
154	204163	Fleet Communications	7	37,233	21,746	20,013	U
166	205667	F-14 Upgrade	7	34,072	17,739	9,879	U
160	205601	HARM Improvement	7		3,247	3,348	U
183	708011	Industrial Preparedness/ Manufacturing Technology Development	7		85,228	35,526	U
178	303140	Information Systems Security Plan	7	18,065	24,036	26,936	U
156	204311	Integrated Surveillance System	7	41,194	31,448	14,033	U
168	206313	Marine Corps Communications	7	7,485	6,421	56,687	U
170	206624	MC Combat Services Support	7	2,998	7,249	5,211	U
172	206626	MC Command/Control/Communications Systems	7	19,149	17,241		U
169	206623	MC Ground Combat/Support Arms Systems	7	17,324	14,789	7,280	U
171	206625	MC Intelligence/Electronic Warfare System	7	10,164	6,448		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	
163	205632	MK 48 ADCAP	7	26,703	21,516	12,772	U	
165	205658	Navy Science Assistance Program	7	7,071	5,848	5,067	U	
151	102427	Navy Space Surveillance	7	805	729		U	
182	305927	Navy Space Surveillance	7			706	U	
150	101402	Navy Strategic Communications	7	72,763	19,357		U	
167	205675	Operational Nuclear Power Systems	7	58,668	56,236	55,876	U	*
177	303109	Satellite Communications (Space)	7	43,303	36,341	38,257	U	
148	101224	SSBN Security/Survivability Program	7	33,508	29,107	21,340	U	*
147	101221	Strategic Sub & Weapons System Support	7	28,506	35,445	41,790	U	
149	101226	Sub Acoustic Warfare Dev	7	525	7,690	7,917	U	
162	205620	Surface ASW Combat Sys Integration	7	15,286	9,623	4,901	U	
173	207161	Tactical Air Intercept	7		28,787	58,415	U	
161	205604	Tactical Data Links	7	29,441	47,430	37,302	U	
155	204229	Tomahawk & TMPC	7	82,976	164,665	136,364	U	

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

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

Object Classification (in Thousands of dollars)

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)			Obligations		
	1995 actual	1996 est.	1997 est.	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: 7

PROGRAM ELEMENT: 0101221N
PROGRAM ELEMENT TITLE: Strategic Submarine & Weapons System Support

(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
J0951 TRIDENT II	21,954	17,353	12,333	11,896	9,891	8,944	10,297	CONT.	CONT.
S0004 TRIDENT Submarine System Improvement	6,552	949	1,660	7,981	9,356	3,246	3,227	CONT.	CONT.
J2228 Technology Applications Program	0	17,143	27,797	40,479	49,251	49,264	50,524	CONT.	CONT.
TOTAL	28,506	35,445	41,790	60,356	68,498	61,454	64,048	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The TRIDENT II (D5) Submarine Launched Ballistic Missile (SLBM) provides the U.S. a weapon system with greater accuracy and payload capability as compared to the TRIDENT I (C4) system. TRIDENT II enhances U.S. strategic deterrence providing a survivable sea-based system capable of engaging the full spectrum of potential targets with fewer submarines. This PE supports continued evaluation of the system's long range performance and capabilities as well as investigations into new technologies which would help mitigate the program impact due to component obsolescence and a rapidly decreasing manufacturing support base. Efforts also include Reentry System and Guidance Applications efforts. Additionally, effort continues for investigation, identification and resolution of systems design and material problems associated with the Weapon System interface to the TRIDENT submarine baseline. The TRIDENT Submarine System Improvement Program develops and integrates command and control improvements needed to maintain TRIDENT submarine operational capability through the life cycle of this vital strategic asset. The program conducts efforts needed to maintain strategic connectivity, ensure platform invulnerability, and reduce life cycle costs through Obsolete Equipment Replacement (OER) and commonality.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

Exhibit R-2

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101221N
PROGRAM ELEMENT TITLE: Strategic Submarine & Weapon Systems Support

(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
J0951 TRIDENT II	21,954	17,353	12,333	11,896	9,891	8,944	10,297	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The TRIDENT II (D5) Submarine Launched Ballistic Missile (SLBM) provides the U.S. a weapon system with greater accuracy and payload capability as compared to the TRIDENT I (C4) system. TRIDENT II enhances U.S. strategic deterrence by providing a survivable sea-based system capable of engaging the full spectrum of potential targets with fewer submarines. This project supports continued evaluation of the system's long range performance and capabilities as well as investigations into new technologies which would help mitigate the program impact due to component obsolescence and a rapidly decreasing manufacturing support base. Additionally, effort continues for investigation, identification and resolution of systems design and material problems associated with the Weapon System interface to the TRIDENT submarine baseline.

Exhibit R-2

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0101221N PROGRAM ELEMENT TITLE: Strategic Submarine & Weapon Systems Support PROJECT NUMBER: J0951 PROJECT TITLE: TRIDENT II

(U) PROGRAM ACCOMPLISHMENTS AND PLANS

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($8,800) Effort began in support of phase three development of the SLBM Retargeting System (SRS).
- (U) ($5,000) The Congressionally mandated propellant characterization study was completed. This year's effort performed analytical modeling and supported preparation of the final report.
- (U) ($4,700) Completed full scale engineering development of portable flight test instrumentation vans.
- (U) ($711) Continued efforts to investigate, identify and resolve system design and material problems associated with the weapon system interface with the TRIDENT submarine baseline.
- (U) ($2,743) Completed FARR development.

2. (U) FY 1996 PLAN:

- (U) ($8,900) SRS: Effort continues in support of phase three development of the SLBM Retargeting System.
- (U) ($7,054) TRIDENT COST OF OWNERSHIP REDUCTION INITIATIVE: This task is required to identify and assess concepts and technologies which will significantly reduce life cycle costs. Areas to be investigated are:

  (U) Integrated Design and Manufacturing Project - The IDAM Project will provide a powerful troubleshooting and redesign capability by linking existing and new design and manufacturing software tools and data bases in a distributed processing environment. This capability will result in significant cost reductions in fault isolation and correction and in design and development of replacement system elements caused by the continued erosion of the industrial base for the TRIDENT Weapon Systems. Virtual prototyping and simulation, or elements thereof, has been referred to as Integrated Product Development (IDP), concurrent engineering, or paperless design. This adaptation of commercial software will reduce manpower requirements to meet budgetary downsizing requirements without protracting the problem resolution cycle for these post-production missile systems.

  (U) Advanced Non-Destructive Test (NDT) - In the face of a reduced number of flight tests, to meet fiscal restraints, this task will seek to develop and demonstrate advanced NDT techniques which have greater perceptiveness than current available NDT approaches. Advanced techniques offer the potential for better assessments of current reliability, earlier warning of age or environmentally-induced degradation, and reduced costs of ownership by reducing the level of other, more expensive, destructive tests.

Exhibit R-2

- (U) Reduced Cost/Improved Manufacturing Concepts - The Reduced Cost/Improved Manufacturing Concepts project will develop and demonstrate advanced methods of manufacturing and materials applications which can sharply reduce the cost of manufacturing missile components. This effort will investigate methods to reduce manufacturing costs for replacement components by minimizing the number of piece parts, reducing fabrication complexity of individual parts, and simplifying assembly. These approaches will be applicable for long term support of current missile systems as well as for any potential future missile development. Some of the major areas of pursuit include alternative Post Boost Control System (PBCS) technologies, low cost boost propulsion components and reduced cost electronics manufacturing technology. Based on budget execution performance $2.1M of the FY 1997 TRIDENT Cost of Ownership effort is forward funded with FY 1996 funds.

- (U) ($593) Portion of extramural program reserved for Small Business Innovation Research assessment IOW with 15 U.S.C.638

- (U) ($806) SHIPBOARD SYSTEMS: Continue to investigate, identify and resolve system design and material problems associated with the weapon system interface with the TRIDENT submarine baseline.

3. (U) FY 1997 PLAN:

- (U) ($8,800) SRS: Effort continues in support of phase three development of the SLBM Retargeting System.

- (U) ($2,655) TRIDENT COST OF OWNERSHIP REDUCTION INITIATIVES: Continue the solid missile models for the Virtual Prototype System (VPS) and continue development of distributed computing methodologies and design tool linkages. Continue the advanced Non Destructive Test (NDT) development efforts with the acquisition of prototype NTD equipments and perform initial studies on full scale test articles. Continue the reduced costs manufacturing concepts project for Post Boost Control System (PBCS) replacement components, electronic and other missile components with small scale component design, manufacture and test.

- (U) ($878) SHIPBOARD SYSTEMS: Continue to investigate, identify and resolve system design and material problems associated with the weapon system interface with the TRIDENT submarine baseline.

Exhibit R-2

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101221N
PROGRAM ELEMENT TITLE: Strategic Submarine & Weapon Systems Support

PROJECT NUMBER: J0951
PROJECT TITLE: TRIDENT II

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	22,193	19,706	19,229
(U) Adjustments from Appropriated/PRESBUDG:	-239	- 2,353	-6,896
(U) FY 1997 PRESBUDG Submit:	21,954	17,353	12,333

(U) CHANGE SUMMARY EXPLANATION:

(U) In FY 1995 $239K was transferred into the 1% Set Aside account in order to pay prior year funding requirements (bills). In FY 1996, funding ($1,790) relative to the two Technology Applications programs (temporarily housed in this Project) was deleted as a result of Congressional action. Various Program Budget Decisions (PBD) accounted for the remainder ($563K). In FY 1997 funding ($4,000) was transferred to Project J2228 in support of both the Reentry Vehicle Technology Applications and Strategic Guidance Technology efforts in order to bring the funding in line with coordinated Navy/Air Force objectives. $2,100K was deferred from FY 1997 to FY 1998 to reflect the current program execution plan. A reduction of the remaining $796K resulted from various PBD adjustments.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

Exhibit R-2

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0101221N
PROGRAM ELEMENT TITLE: Strategic Submarine and Weapon System Support
PROJECT NUMBER: J0951
PROJECT TITLE: TRIDENT II

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
666,082	503,293	321,025	297,515	281,038	522,304	524,340	2,596,503	5,712,100

WPN LI 2+3

(U) RELATED RDT&E: N/A

D. (U) SCHEDULE PROFILE: Not applicable.

Exhibit R-2

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101221N
PROGRAM ELEMENT TITLE: Strategic Submarine and Weapon System Support

PROJECT NUMBER: J0951
PROJECT TITLE: TRIDENT II

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Shipboard System	711	806	878
b. Strategic Retargeting System	8,800	8,900	8,800
c. Propellant Study	5,000	0	0
d. Portable Vans	4,700	0	0
e. TRIDENT Cost of Ownership Initiative	0	7,054	2,655
f. FARR Initiative	2,743	0	0
g. SBIR		593	
Total	21,954	17,353	12,333

Exhibit R-3

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0101221N PROGRAM ELEMENT TITLE: Strategic Submarine and Weapon System Support

PROJECT NUMBER: J0951 PROJECT TITLE: TRIDENT II

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										
MMDS	SS/CPFF	10/94	1,743	1,743		1,743			0	1,743
MMDS	SS/CPFF	10/93	3,100	3,100	3,100				0	3,100
MMDS	SS/CPFF	10/94	3,500	3,500		3,400			0	3,400
MMDS	SS/CPFF	10/95	3,400	3,400			3,400		0	3,400
MMDS	SS/CPFF	10/96	3,400	3,400				3,400	0	3,400
IEC	SS/CPFF	4/95	4,400	4,400		4,400			0	4,400
LMSC	SS/CPFF	10/95	7,054	7,054			7,054		0	7,054
LMSC	SS/CPFF	10/96	2,655	2,655				2,655	0	2,655
LMSC	SS/CPFF	10/93	8,100	8,100	8,100				0	8,100
LMSC	SS/CPFF	1/95	4,400	4,400		4,400			0	4,400
GDEB	SS/CPFF	3/90	3,934	3,934	3,934				0	3,934
GDEB	SS/CPFF	3/95	3,782	3,782		711	806	878	1,387	3,782
VARIOUS					800		593		0	1,393

Support and Management
Test and Evaluation

Exhibit R-3

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101221N
PROGRAM ELEMENT TITLE: Strategic Submarine and Weapon System Support

PROJECT NUMBER: J0951
PROJECT TITLE: TRIDENT II

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									
NSWC	WR	10/94	10/94		1,000			0	1,000
NSWC	WR	10/93	10/93	5,300				0	5,300
NSWC	WR	10/94	10/94		5,400			0	5,400
NSWC	WR	10/95	10/95			5,500		0	5,500
NSWC	WR	10/96	10/96				5,400	0	5,400
NSWC	WR	10/93	10/93	6,900				0	6,900
VARIOUS					900			0	900
Support and Management									
Test and Evaluation									
Total									

Exhibit R-3

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101221N
PROGRAM ELEMENT TITLE: Strategic Submarine and Weapon System Support

PROJECT NUMBER: J0951
PROJECT TITLE: TRIDENT II

	FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	91,848*	21,954	17,353	12,333	CONT.	CONT.
Subtotal Support and Management						
Subtotal Test and Evaluation						
Total Project	91,848*	21,954	17,353	12,333	CONT.	CONT.

* This represents all prior year funding for efforts that are currently still active, i.e., Shipboard Systems, SRS, and Portable Vans

Exhibit R-3

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101221N

PROJECT NUMBER: J2228

PROGRAM ELEMENT TITLE: Strategic Submarine and Weapon Systems Support

PROJECT TITLE: Technology Applications

( ) 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
J2228 Technology Applications Program	0	17,143	27,797	40,479	49,251	49,264	50,524	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This supports implementation of a coordinated Air Force/Navy Reentry System Applications Program as well as the implementation of a Strategic Guidance Applications Program. Reentry Vehicle and Guidance Technology is rapidly eroding beyond the point of being capable to respond to increasing aging phenomenon and future requirements. The Nuclear Posture Review examined the infrastructure which supports the nuclear force structure. It concluded that special actions were required to correct the rapidly eroding capability to maintain confidence in the existing weapon systems, and recommended that the reentry vehicle and guidance technology bases should be preserved. That recommendation resulted in the Presidential Decision Directive-30, which directed that programs be established for the reentry vehicle and guidance technology application. Funding levels for both projects are in accordance with USD (A&T) guidance.

- Through sustainment of the Reentry Vehicle Technology Base, confidence in the dependability and reliability of Strategic SLBM and ICBM weapon systems will be maintained over the long term when no new systems will be in development. Critical and unique attributes necessary for the design, development and in-service support of current and modernized SLBM Reentry Systems will be defined and maintained to insure a functioning readiness application technical capability in reentry is preserved. Working closely with the Air Force, Navy requirements will be integrated with the Air Force requirements into a comprehensive program. The Program will maintain close coordination with the DOD Science and Technology (S&T) Community through the Reliance process in order to: leverage S&T programs, ensure system driven technology base requirements are considered in contract awards, eliminate duplication of effort and provide an opportunity to demonstrate appropriate emerging technologies through a reentry flight test evaluation process.

- This Program provides a minimum Strategic Guidance core technology development capability consistent with the Strategic Advisory Group (SAG) recommendations to CINCSTRAT. In the SAG recommendations SSP is to establish a program which preserves this critical design and development core. It is a basic bridge program which develops critical guidance technology applicable to any of the existing Air Force/Navy Strategic Missiles. The objective is to transition from current capability to a long term readiness status required to support deployed systems. Air Force and Navy guidance technology requirements shall be integrated and needs prioritized. Efforts shall be focused on alternatives to currently utilized technologies identified as system "weak links". Current system accuracy and functionality depends upon key technologies which provide radiation hardened velocity, attitude and stellar sensing capabilities. As the underlying technologies that currently provide these capabilities age and are no longer technically supportable modern alternatives must be made available in order to allow for orderly replacement. There is no commercial market for these technologies and their viability depends on the Strategic community. This technology development activity provides the necessary technical challenges which insures the availability of a proficient team of technical experts. The availability and maintenance of these skills and experience of these experts are crucial to the support of the nations Strategic Guidance Systems.

Exhibit R-2

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101221N
PROGRAM ELEMENT TITLE: Strategic Submarine and Weapon Systems Support

PROJECT NUMBER: J2228
PROJECT TITLE: Technology Applications

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS: -0-

Note: FY 1994 Project J0091, FBM Systems ($2,105K) includes the resources to initiate the Reentry System Applications Program efforts.

2. (U) FY 1996 PLAN:

- (U) ($8,909) Continue Reentry System Applications Program. FY 1996 efforts include:
- (U) Concept definition and evaluation of nosetip instrumentation for in flight measurement of nosetip recession.
- (U) Ground testing of reentry nosetip and heatshield candidate materials including those available from Science & Technology (S&T) and contractor independent research and development (IR&D) activities.
- (U) Initiate tasks to sustain capabilities in critical areas as identified by the readiness application assessment completed in FY 1995. Potential task areas include manufacturing technology, deployment systems, fuze and RF systems, antenna window materials, reentry physics codes and system models, hardening and ground testing.
- Design formulation and requirements definition to evaluate instrumentation and test concepts for reentry vehicle service life extension and accuracy maintenance assessments.
- Initiate planning, design formulation, and requirements definition to evaluate material concepts for reentry vehicle design applications and instrumentation concepts for on-board flight measurements. Maintain the technical program plan.

Exhibit R-2

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101221N
PROGRAM ELEMENT TITLE: Strategic Submarine and Weapon Systems Support

PROJECT NUMBER: J2228
PROJECT TITLE: Technology Applications

- (U) ($8,234) Initiate the Strategic Guidance Applications Program. FY 1996 efforts include:
- (U) Design and begin development of an Integrated Engineering Environment (IEE) using a computer based simulation applicable to strategic guidance systems. The IEE framework will be built using commercial off the shelf computer aided engineering tools with integrated engineering models describing electrical, mechanical, control or software details. Development and use of the IEE will enable evaluation of aging or problematical guidance hardware and the application of alternative technologies. This effort will form the basis for development of the guidance modular testbed which is planned to be initiated in FY 1997.
- (U) Evaluation of alternative technologies for inertial components to ensure projected life requirements which will help preserve core expertise. Develop roadmap for inertial components technology sustainment.

3. (U) FY 1997 PLAN:

- (U) ($15,444) Continue Reentry System Applications Program. FY 1997 efforts include:
- (U) Select and prepare flight test on-board instrumentation for measurement of nosetip recession.
- (U) Manufacture ground test and full test candidate nosetip and heatshield replacement materials. Compare performance with existing data base and identify attributes requiring further development.
- (U) Update the readiness application assessment and state-of-the art technology survey completed in FY 1995. Results will be used to modify the technical program plan as appropriate.
- (U) Define and test instrumentation to support reentry vehicle service life extension and accuracy maintenance assessments.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101221N

PROGRAM ELEMENT TITLE: Strategic Submarine and Weapon Systems Support

PROJECT NUMBER: J2228

PROJECT TITLE: Technology Applications

- (U) Initiate an assessment of reentry vehicle concept options in SLBM down loaded configurations as limited by START Treaty.
- (U) Continue ground testing of reentry nosetip and heatshield candidate materials including those available from S&T and contractor IR&D activities.
- (U) Continue tasks initiated in FY 1996 in response to the results of the readiness application assessment.
- (U) Continue concept formulation, trade studies, and requirements definition to evaluate material concepts for reentry vehicle design applications and instrumentation concepts for on-board flight measurements. Maintain the technical program plan.
- (U) ($12,353) Continue Strategic Guidance Applications Program. FY 1997 efforts include:
- (U) Adapt and enhance current Guidance/Vehicle Modeling & Simulation as well as test & evaluation capabilities in order to provide flight test alternatives to support reduced flight testing. Develop a similar strategy for underground radiation tests. Capture present design knowledge and challenge the expert core team by utilizing state of the art design and simulation tools for the adaption of replacement technologies to the deployed systems.
- (U) Start testbed development utilizing a flexible modular open architecture. The testbed, which would be supported by a significant simulation/modeling capability, would be used for testing and evaluating modified or alternative technologies critical to support of deployed systems.

  - Evaluate velocity, attitude and stellar subsystem candidates and the interaction of these subsystems on integrated systems environment.

  - Develop a complementary test strategy to supplement reliance on Demonstration and Shakedown Test (DASO) and Commander-in-Chief Evaluation Test (CET) flight testing to ensure long term reliability and maintainability of deployed systems.
- Continue the design and development and evaluation of inertial instrument replacement candidates.

Exhibit R-2

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- (U) Continue to keep guidance technology and the technology experts current.

B. (U) PROGRAM CHANGE SUMMARY:

(U) CHANGE SUMMARY EXPLANATION:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	0	18,810	24,863
(U) Adjustment from Appropriated/PRESBUDG:	0	-1,667	+2,934
(U) FY 1997 PRESBUDG Submit:	0	17,143	27,797

(U) CHANGE SUMMARY EXPLANATION:

(U) The FY 1996 decrease represents a Congressional adjustment of (-) $1112K as well as various PBD adjustments totaling (-) $555K. The FY 1997 increase represents a transfer out from Project J0951 in order to fully fund the coordinated Navy/Air Force Technology Application Programs at USD (A&T) recommended levels (+ $4,000K), this partially offset by various PBD adjustments (-) $1,066K (primarily inflation.)

(U) Schedule: N/A

(U) Technical: N/A

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
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

(U) RELATED RDT&E: FY 1994 Program Element J0091, FBM Systems ($2,105K), and Program Element 0603308F, Strategic Missile Modernization. This program element includes the resources which will support the Air Force/Reentry System Applications program.

D. (U) SCHEDULE PROFILE: N/A

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101221N
PROGRAM ELEMENT TITLE: Strategic Submarine and Weapon Systems Support

PROJECT NUMBER: J2228
PROJECT TITLE: Technology Applications

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Reentry System Applications	0	8,909	15,444
b. Strategic Guidance Applications	0	8,234	12,353
Total	0	17,143	27,797

Exhibit R-3

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101221N
PROGRAM ELEMENT TITLE: Strategic Submarine and Weapon Systems Support

PROJECT NUMBER: J2228
PROJECT TITLE: Technology Applications

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										
LMSC	SS/CPFF	1/96	6,558	6,558			6,558		0	6,558
LMSC	SS/CPFF	1/97	11,436	11,436				11,436	0	11,436
CSDL	SS/CPFF	02/96	8,234	8,234			8,234		0	8,234
CSDL	SS/CPFF	10/96	12,784	12,353				12,353	0	12,353

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development									
NSWC	WR	10/95				2,351		0	2,351
NSWC	WR	10/96					4,008	0	4,008

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101221N
PROGRAM ELEMENT TITLE: Strategic Submarine & Weapons System Support

PROJECT NUMBER: S0004
PROJECT TITLE: Trident Submarine System Improvements

(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
S0004 TRIDENT Submarine System Improvements	6,552	949	1,660	7,981	9,356	3,246	3,227	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The TRIDENT Submarine System Improvement Program develops and integrates command and control improvements needed to maintain TRIDENT submarine operational capability through the life cycle of this vital strategic asset. The program conducts efforts needed to maintain strategic connectivity, ensure platform invulnerability, and reduce life cycle costs through OER and commonality.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($2,650) Initiated Software Requirement Review (SRR) and analysis for NAVSSI.
- (U) ($2,000) Continued Extremely High Frequency Satellite Communication (EHF SATCOM) development and integration. ($995 was available to forward finance FY 1996 efforts.)
- (U) ($1,902) Continued planned subsystem(s) level sustaining and OER development efforts.

2. (U) FY 1996 PLAN:

- (U) ($928) Complete EHF SATCOM development and integration. (These funds are available to forward finance FY 1997 efforts due to poor FY 1995 execution.)
- (U) ($21) 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: 7

PROGRAM ELEMENT: 0101221N
PROGRAM ELEMENT TITLE: Strategic Submarine & Weapons System Support

PROJECT NUMBER: S0004
PROJECT TITLE: Trident Submarine System Improvements

3. (U) FY 1997 PLAN:

- (U) ($550) Continue planned subsystem(s) level sustaining and OER development efforts.
- (U) ($1,110) Initiate development of Sonar and Defensive Weapons System/Combat System (DWS/CS) OER/Hybrid/Common-ality equipment.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	6,618	995	2,984
(U) Adjustments from PRESBUDG:	-66	-46	-1,324
(U) FY 1997 PRESBUDG Submit:	6,552	949	1,660

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995 reduction covers contract close-out. 1996 reduction is a result of undistributed Congressional reductions. 1997 reduction of $1,324 includes a TRIDENT SSBN/SLBM issue (-279K), poor obligation and expenditure rates in FY 1995 (-995K) and (-50K) undistributed Congressional reductions.

(U) Schedule: Not applicable.

(U) Technical: The RDT&E program is restructured to align with procurement and installation of OER and SSN/SSBN commonality efforts to sustain TRIDENT's current operational capabilities throughout the 30 year service life. These decrements will cause a slight reduction in technical scope and a minor adjustment to outyear technical requirements.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101221N
PROGRAM ELEMENT TITLE: Strategic Submarine & Weapons System Support

PROJECT NUMBER: S0004
PROJECT TITLE: Trident Submarine 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) OPN Line 26760 (BA-2)	14,244	9,695	4,054	8,583	29,659	34,393	24,985	CONT.	CONT.
• (U) OPN Line 53550 (BA-4)	4,683	0	2,104	3,927	4,242	2,777	4,597	CONT.	CONT.

(U) RELATED RDT&E: These PEs develop submarine software and hardware that are directly related to efforts conducted by the program element.

(U) PE 0101224N (SSBN Security & Survivability Program)
(U) PE 0101402N (Navy Strategic Communications)
(U) PE 0604562N (Submarine Tactical Warfare System)
(U) PE 0604503N (Submarine System Equipment Development)

D. (U) SCHEDULE PROFILE: Not applicable.

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101221N
PROGRAM ELEMENT TITLE: Strategic Submarine & Weapons System Support

PROJECT NUMBER: S0004
PROJECT TITLE: TRIDENT Submarine System Improvements

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Software Development	5,617	0	0
b. Test and Certification	835	849	0
c. Design/Development Engineering	0	0	1,560
d. Travel	100	100	100
Total	6,552	949	1,660

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

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0101221N
PROGRAM ELEMENT TITLE: Strategic Submarine & Weapons System Support
PROJECT NUMBER: S0004
PROJECT TITLE: TRIDENT Submarine 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										
Various (OER)	Various	Various	CONT.	CONT.	100	1,802	0	407	CONT.	CONT.
COMSPAWARSYSCOM Washington, DC (NAVSSI)	PD	12/94	1,900	1,900	0	1,900	0	0	0	1,900
General Electric, Camden, NJ (EHF)	SS-CPFF	9/92	11,612	11,612	8,720	2,000	849	43	0	11,612
Various (SONAR/DWS)	TBD	TBD	CONT.	CONT.	0	0	0	1,110	CONT.	CONT.
Miscellaneous	TBD	TBD	CONT.	CONT.	126	700	100	100	CONT.	CONT.
Support and Management					0	0	0	0	0	0
Test and Evaluation										
E&TS - Electric Boat, Groton, CT										
90-C-2109	C-CPAF	10/89	21,687	21,687	21,687	0	0	0	0	21,687
95-C-2101	C-CPFF	10/94	683	683	533	150	0	0	0	683

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101221N
PROGRAM ELEMENT TITLE: Strategic Submarine & Weapons System Support

PROJECT NUMBER: S0004
PROJECT TITLE: TRIDENT Submarine 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	8,946	6,402	949	1,660	CONT.	CONT.
Subtotal Support and Management	0	0	0	0	0	0
Subtotal Test and Evaluation	22,220	150	0	0	0	22,370
Total Project	31,166	6,552	949	1,660	CONT.	CONT.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

UDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101226N
PROGRAM ELEMENT TITLE: Submarine Acoustic Warfare 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
1265 Submarine Defensive Warfare	525	7,690	7,917	9,754	13,729	16,619	16,034	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project develops a Submarine Defensive Warfare System (SDWS) to mprove the effectiveness and survivability of all classes of US submarines. Project efforts consist of countermeasure devices, aunchers, threat detection, and Command and Control systems. The specific device in development is an advanced Submarine Torpedo efense (SMTD) device capable of interception and neutralization of future torpedoes. Launcher development efforts are directed o external countermeasure launchers specifically configured to each submarine class for ready stowage and rapid launching of evices. Threat detection and command and control efforts consist of development of a new sonar intercept system designated N/WLY-1, which will have torpedo recognition capability for early threat detection, classification, tracking and a consolidated ommand and control subsystem for countermeasure inventory, status, tactical solutions, and launch management of all on-board ountermeasure devices and launcher systems.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under Operational Systems Development because it encompasses ngineering and manufacturing development for upgrade of existing, operational systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($435) Completed prototype testing and analysis for the AN/WLY-1 system. Obtained Milestone II Engineering and Manufacturing Development (EMD) approval. (Combined effort with FY 94 funding.)
- (U) ($90) Provided technology updates for the SMTD program.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0101226N
PROGRAM ELEMENT TITLE: Submarine Acoustic Warfare Development

2. (U) FY 1996 PLAN:

- (U) ($7,188) Exercise AN/WLY-1 EMD contract option to design and fabricate two (2) Engineering Development Model (EDM) units.
- (U) ($300) Provide technology updates for the SMTD program.
- (U) ($99) Librascope contract closeout.
- (U) ($103) 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) ($7,802) Conduct Critical Design Review (CDR-2), and fabrication and developmental testing for the AN/WLY-1.
- (U) ($115) Continue technology updates for the SMTD program.

3. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	535	7,937	10,883
(U) Adjustments from PRESBUDG:	-10	-247	-2,966
(U) FY 1997 PRESBUDG Submit:	525	7,690	7,917

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0101226N
PROGRAM ELEMENT TITLE: Submarine Acoustic Warfare Development

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 97 reduction of $2,527K is due to the cancellation of Acoustic Device Countermeasure (ADC) EX-11 development and delay of SMTD, while a reduction of $439K is due to DBOF and inflation adjustments. The Congressional undistributed reductions for FY 96 are $247K.
(U) Schedule: ADC EX-11 development has been cancelled. The development of SMTD will be delayed one year.
(U) Technical: Not applicable.

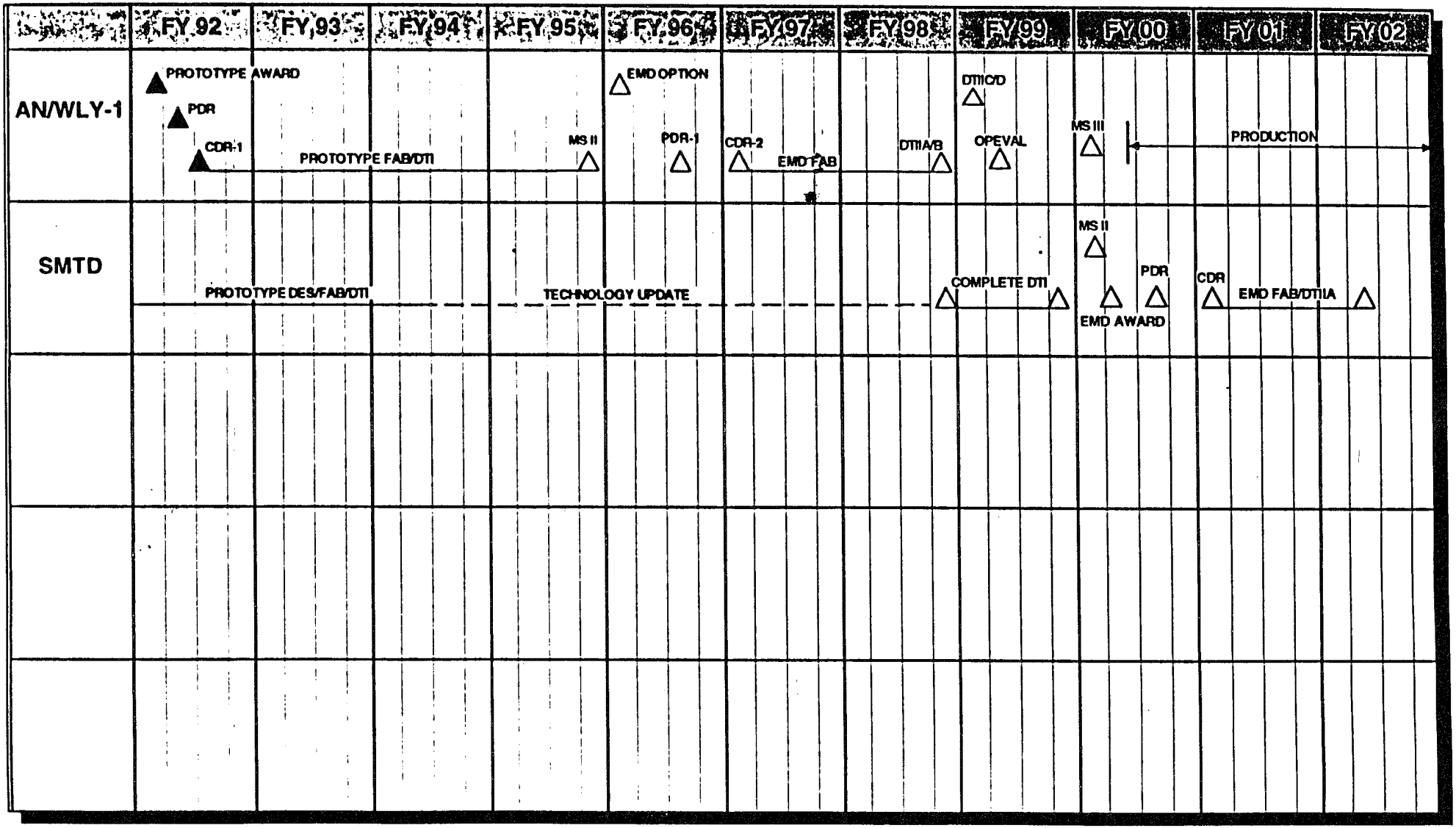
C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	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 Submarine Acoustic Warfare Systems									
BLI: 2210	22,487	7,733	7,840	7,869	7,698	8,549	11,004	CONT.	CONT.

(U) RELATED RDT&E: Not applicable.

D. (U) SCHEDULE PROFILE: See attached.

SDWS MILESTONE SCHEDULE



PROGRAM ELEMENT: 0101226N

PROGRAM ELEMENT TITLE:
SUBMARINE ACOUSTIC WARFARE DEVELOPMENT

March 1996

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101402N
PROGRAM ELEMENT TITLE:Navy Strategic Communications

(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
H0793 TACAMO	72,763	19,357	0	0	0	0	0	0	234,051

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) HIGH POWER TRANSMITTER SYSTEM: The Very Low Frequency/Low Frequency (VLF/LF) High Power Transmitter System (HPTS) and Dual Trailing Wire Antenna (DTWA) Systems for the E-6A TACAMO and the Air Force National Emergency Airborne command post (E-4B) are required to communicate with the strategic bomber, missile and submarine forces. The transmitter equipment (200KW) provides the E-6A TACAMO aircraft with a state-of-the-art system replacing tube-type equipment that is logistically unsupportable. The replacement DTWA will provide increased reliability and a third Utility Wire Antenna (UTWA) for redundant short or long wire capability.

(U) BLOCK UPGRADE: An additional upgrade of the E-6A TACAMO systems is required to ensure communications compatibility within the Strategic Connectivity System (SCS), the system that links TACAMO with other strategic communications platforms and systems. Extremely High Frequency Military Strategic Tactical and Relay (EHF MILSTAR), MILSTAR, Message Processor, Time/Frequency Standard Distribution System (T/FSDS), and Global Positioning System (GPS) upgrades will be installed aboard the E-6A TACAMO as a Block Upgrade Program. In addition to providing the required E-6A/SCS compatibility, the installation of these systems will provide a significant increase in reliability and maintainability, enhance system communications capability, and provide increased supportability. Production of both HPTS and Block are scheduled for concurrent installation as the E-6A Avionics Block Upgrade.

(U) ORBIT IMPROVEMENT SYSTEM: Provides the orbit control necessary to prevent Long Trailing Wire Antenna (LTWA) contact with the horizonal stabilizer during orbit maneuvers where bank angles greater than 40° are required. The Orbit Improvement program consists of the installation and integration of commercial/FAA certified autothrottles and modifications to the Flight Management Computer System software to precisely control the aircraft's air speed and bank angle, thereby stabilizing the aircraft during orbit and dampening LTWA oscillations and preventing LTWA contact with the tail. This modification corrects major E-6A OT-III deficiencies.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0101402N PROJECT NUMBER: H0793
PROGRAM ELEMENT TITLE:Navy Strategic Communications PROJECT TITLE: TACAMO

(U) AIRBORNE COMMAND POST (ABNCP): The E-6A ABNCP modification is an extension of application program that moves already proven equipment from the EC-135 aircraft to the E-6A aircraft resulting in a redesignation as E-6B. It also replaces the existing message processing computer with a commercial-off-the-shelf processor along with commercial message handling software. This program allows the consolidation of JCS strategic command and control mission. It utilizes already developed equipments to achieve significant operations and maintenance savings while effectively executing existing missions. The installation of ABNCP equipments into the E-6A enables CINCSTRAT to execute direct command and control of the strategic forces through the use of one vice two airborne platforms. This program incorporates the Intercommunication System (ICS) modifications reported separately in previous R-2/R-3 exhibits. The ABNCP modifications correct the E-6A OT-III ICS critical-to-mission operational deficiencies.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is budgeted under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development and non-recurring engineering for upgrade of existing, operational systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1 (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($5,300K) Completed E-6A Avionics Block Upgrade installation and integration.
- (U) ($3,621K) Completed E-6A Avionics Block Upgrade and HPTS OPEVAL Testing (OT-II) to support a Production Milestone III.
- (U) ($6,760K) Completed Orbit Improvement modification.
- (U) ($4,021K) Completed Developmental Testing (DT-II) on E-6A Orbit Improvement modification in support of Production Milestone III.
- (U) Obtained a Milestone III decision to initiate the Airborne Command Post modification.
- (U) ($53,061K) Awarded and monitoring the Airborne Command Post nonrecurring engineering, engineering change proposal definition, and installation contract.

2. (U) FY 1996 PLAN:

- (U) ($18,941) Complete Airborne Command Post nonrecurring engineering and engineering change proposal definition. Start Airborne Command Post validation/verification system installation.
- (U) ($416) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($0K) Complete Airborne Command Post validation/verification system installation and Contractor Testing. Start Follow-On Test and Evaluation.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	73,065	20,416	0
(U) Adjustments from PRESBUDG:	-302	-1,059	
(U) FY 1997 President's Submit:	72,763	19,357	0

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: In FY 1995, $300 thousand was reprogrammed to P.E. 0603208N Project H1142 T-45 Improvements Program and $2 thousand was used to fund a cancelled account contract liability. In FY 1996, the decrease of $1,059 thousand is due to various undistributed reductions.

(U) Schedule: Not applicable.

(U) Technical:Not applicable.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0101402N PROJECT NUMBER: H0793
PROGRAM ELEMENT TITLE:Navy Strategic Communications PROJECT TITLE: TACAMO

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	84,847	109,860	100,045	80,512	37,151	20,029	2,892	0	611,890

(U) RELATED RDT&E: Not Applicable.

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
PROGRAM MILESTONES	2Q ABNCP MS III 3Q HPTS MS III 3Q BLOCK MS III 4Q OIS MS III			1Q98 ABNCP FOT&E (DTIIIA/OTIIIA)
ENGINEERING MILESTONES	1Q OIS CDR			
T&E MILESTONES	2Q HPTS DTIIC 2Q BLOCK DTIIA 3Q HPTS OTIIC 3Q BLOCK OTIIA 3Q OIS DTIIA			
CONTRACT MILESTONES	2Q ABNCP AWARD 4Q OIS AWARD			

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101402N
PROGRAM ELEMENT TITLE:Navy Strategic Communications

PROJECT NUMBER: H0793
PROJECT TITLE: TACAMO

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. PRIMARY HARDWARE DEVELOPMENT	10,000	0	0
b. ANCILLARY HARDWARE DEVELOPMENT	400	0	0
c. TRAINING DEVELOPMENT	1,463	0	0
d. INTEGRATED LOGISTICS SUPPORT	4,127	0	0
e. TECHNICAL DATA	7,445	0	0
f. DEVELOPMENTAL TEST AND EVALUATION	1,400	0	0
g. OPERATIONAL TEST AND EVALUATION	1,600	0	0
h. CONTRACTOR ENGINEERING SUPPORT	1,627	1,504	0
i. GOVERNMENT ENGINEERING SUPPORT	9,043	4,921	0
j. TRAVEL	350	350	0
k. FUEL AND GFE SUPPORT	700	0	0
l. MISCELLANEOUS	2,384	840	0
m. NON-RECURRING ENGINEERING	32,224	11,326	0
n. SBIR ASSESSMENT	0	416	0
Total	72,763	19,357	0

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101402N
PROGRAM ELEMENT TITLE:Navy Strategic Communications

PROJECT NUMBER: H0793
PROJECT TITLE: TACAMO

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										
CTAS	C/CPIF	10/92	27,125	27,125	22,625	4,500	0	0	0	27,125
CTAS	SS/CPAF	1/95	55,350	55,350	0	44,796	10,554	0	0	55,350
BOEING	SS/CPAF	3/94	23,662	23,662	16,000	7,662	0	0	0	23,662
NAWC PAX	WX	1/96	6,225	6,225	1,175	3,250	1,800	0	0	6,225
NAWC WAR	WX	1/96	4,105	4,105	55	2,050	2,000	0	0	4,105
NCCOSC SD	WX	3/96	2,800	2,800	200	1,500	1,100	0	0	2,800
MITRE	MIPR	3/96	2,693	2,693	787	906	1,000	0	0	2,693
OTHER CONTRACTS	LESS THAN 1.0M		10,882	10,882	3,296	5,099	2,487	0	0	10,882
Support and Management										
Test and Evaluation										
NAWC PAX	WX				512	1,400	0	0	0	1,912
VX1	WX				0	1,600	0	0	0	1,600

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101402N
PROGRAM ELEMENT TITLE:Navy Strategic Communications

PROJECT NUMBER: H0793
PROJECT TITLE: TACAMO

GOVERNMENT FURNISHED PROPERTY: Not applicable

	FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	44,138	69,763	18,941	0	0	132,842
Subtotal Support and Management	0	0	0	0	0	0
Subtotal Test and Evaluation	512	3,000	0	0	0	3,512
SBIR Assessment	0	0	416	0	0	416
Other FY 94 & Prior Costs	97,281					97,281
Total Project	141,931	72,763	19,357	0	0	234,051

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204136N
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

(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
E1662 F/A-18 Improvements	29,471	45,117	43,105	43,248	28,151	2,046	18	0	2,743,892
E2065 F/A-18 RADAR Upgrade	28,593	21,901	21,766	2,539	0	0	0	0	294,372
E2130 F/A-18 Follow-On Variant	1,248,678	820,411	360,462	157,042	123,153	49,838	47,299	0	5,403,450
TOTAL	1,306,742	887,429	425,333	202,829	151,304	51,884	47,317	0	8,441,714

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The F/A-18 is capable of using external equipment to perform either fighter or attack missions. The capabilities of the F/A-18 weapon system can be upgraded to accommodate and incorporate new or enhanced weapons as well as advances in technology to respond effectively to emerging future threats. Continued development capability is required to successfully optimize new F/A-18 weapon system capabilities in the Fleet. Additionally, continued improvements in reliability and maintainability are necessary to ensure maximum benefit is achieved through reduced cost of ownership and to provide enhanced availability.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204136N
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION (Continued): The F/A-18 Naval Strike Fighter program transitioned from full-scale engineering development to operational systems development during FY 1983. As F/A-18 squadrons report discrepancies and new requirements, a continuing capability is needed to perform technical evaluations, investigative flight testing, software support, and incorporate pre-planned product improvements (P3I) (i.e., capability enhancements). The F/A-18 radar (APG-65) has been upgraded to the APG-73 to operate in the projected electronic warfare environment of the 1990's. The follow-on F/A-18 (E/F version) is an airframe upgrade incorporating increased capabilities, performance,and survivability necessary to satisfy the percent increase in range over the C/D in the high-low-low-high attack/interdiction mission carrying three tanks, four 1000 pound bombs, and two AIM-9 air-to-air missiles. The E/F version will have increased internal fuel capacity, increased weapons carriage capability, increased carrier recovery payload, enhanced survivability/vulnerability, increased growth capacity, and increased engine thrust. It will retain all of the P3I enhancements developed for the earlier night attack C/D version of the aircraft.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204136N
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

(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
E1662 F/A-18 Improvements	29,471	45,117	43,105	43,428	28,151	2,046	18	0	2,743,892

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The F/A-18 is a multi-mission strike fighter aircraft that is used in fighter and attack roles through selected use of external equipment (such as external fuel tanks, targeting and navigation Forward Looking Infrared (FLIR) pods). The capabilities of the F/A-18 weapon system are being upgraded to accommodate and incorporate new or enhanced weapons including the AMRAAM, I2R Maverick, Harpoon, and SLAM as well as other advances in technology such as night attack, reconnaissance, enhanced performance engine and radar upgrade to respond effectively to emerging future threats. Continued development capability in terms of software and hardware improvements is required to successfully optimize new F/A-18 weapons system capabilities in the fleet. Continued improvements in reliability and maintainability for the airframe, avionics, and engines are necessary to ensure maximum benefit is achieved through reduced cost of ownership and enhanced availability. As F/A-18 squadrons report system problems and requirements, a continuing capability is needed to perform technical evaluations, investigative flight testing, software support, and incorporate capability enhancements.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204136N PROJECT NUMBER: E1662

PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS PROJECT TITLE: F/A-18 IMPROVEMENTS

1. (U) FY 1995 ACCOMPLISHMENTS:

• (U) ($1,378) Continued development and integration of enhancements to the effectiveness, operability, and safety of the F/A-18 Weapon System (airframe, avionics, weapons, and subsystems). Continued to conduct engineering analysis and testing to verify these modifications. Investigated deficiencies and developed corrective actions. Continued structural assessments, instrumentation, and ALR-67(V)3; continued NACES P3I.

• (U) ($2,960) Continued to conduct engineering analyses and development/assessment of improvements to existing systems and sub-systems for deficiencies identified during the deployment of the aircraft. Continued to provide technical support for the integration of new weapons and systems. Continued variable flight control computer, GPWS integration, MSI, JSOW, JDAM, and ALR-67(V)3. Completed improved wind screen and GBU-24.

• (U) ($2,391) Continued to conduct flight testing to assess improvements in design/configuration of the F/A-18 Weapon System. Continued to evaluate the capabilities of new weapons/new systems and any other modifications that may potentially impact the overall performance, operability, and effectiveness of the F/A-18 Weapon System. Continued flight testing and evaluation of the above in-house efforts.

• (U) ($22,742) Began development of Positive Identification System (PIDS), for combat identification. Began the integration of the AN/APX-III MK XII Combined Interrogator/Transponder (CIT) into the F/A-18. Conducted flight test of the CIT with OFP 11C and developed software improvements for future PIDS efforts.

2. (U) FY 1996 PLAN:

• (U) ($7,803) Continue to develop and integrate enhancements to the effectiveness, operability, and safety of the F/A-18 Weapon System (airframe, avionics, weapons, and subsystems). Continue to investigate deficiencies and develop corrective action. Commence development for Automatic Target Handoff System (ATHS) and Helmet Mounted Cueing System (HMCS).

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204136N PROJECT NUMBER: E1662
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS PROJECT TITLE: F/A-18 IMPROVEMENTS

- (U) ($12,929) Continue to conduct engineering analysis and development improvements to existing systems and subsystems for deficiencies identified during deployment of the aircraft. Provide technical support for the integration of new weapons and systems.

- (U) ($19,071) Continue development of PIDS for combat identification.

- (U) ($4,500) (Planned execution FY 1997) Continue development of PIDs, Digital Communications, and Joint Helmet Mounted Cueing System.

- (U) ($814) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

(U) FY 1997 PLAN:

- (U) ($41,800) Continue development of PIDS for combat identification. Continue development of HMCS. Plan procurement and continue development of ATHS.

- (U) ($527) Provide technical support and engineering analysis for PIDS and HMCS. Plan procurement and continue development of ATHS.

- (U) ($778) Perform integration testing and engineering analysis for PIDS and HMCS. Plan procurement and continue development of ATHS.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204136N PROJECT NUMBER: E1662
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS PROJECT TITLE: F/A-18 IMPROVEMENTS

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	31,549	49,589	36,600
(U) Adjustments from PRESBUDG:	-2,078	-4,472	+6,505
(U) FY 1997 President's Budget Submit:	29,471	45,117	43,105

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The net reduction of -$2,078 thousand in FY 1995 includes -$2,000 thousand for the Major Range and Test Facility Base (MRTFB) and -$78 thousand for various program adjustments. The net reduction of -$4,472 thousand in FY 1996 includes a Congressional plus-up of +$4,500 thousand; -$2,000 thousand due to rephasing of requirements; -$3,500 thousand for MRTFB adjustment; -$2,000 thousand for data link for Tactical Reconnaissance; -$923 thousand for Congressional undistributed general and inflation reductions; and -$549 thousand for revised DoD inflation rate adjustments. The net increase of +$6,505 thousand in FY 1997 includes +$14,800 thousand to fund the Automatic Target Handoff System; +$2,000 thousand due to rephasing of program requirements; -$4,500 thousand reduction to offset the FY 1996 Congressional increase; -$4,386 thousand for Defense Business Operating Fund adjustments; -$1,303 thousand for revised DoD inflation rate adjustments; and -$106 thousand for 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: 7 PROGRAM ELEMENT: 0204136N PROJECT NUMBER: E1662
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS PROJECT TITLE: F/A-18 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
F/A-18 C/D QTY	24	18							
APN-1	1,008,401	796,869	0	48,707	0	0	0	0	3,469,542
APN-5	91,115	81,345	156,486	198,754	328,059	394,589	303,363	Cont.	Cont.
APN-6	59,405	14,254	0	0	0	0	0	0	132,408

(U) RELATED RDT&E:

(U) PE 0207163N (AMRAAM)
(U) PE 0604727N (Joint Stand-off Weapon System)
(U) PE 0604270N (EW Development)
(U) PE 0305141D (BQH) Communications
(U) PE 0604777N (Navigation ID System, project X0921,NAVSTAR GPS equipment)

D.(U) SCHEDULE PROFILE: Not Applicable

UNCLASSIFIED

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

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0204136N
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS
PROJECT NUMBER: E1662
PROJECT TITLE: F/A-18 IMPROVEMENTS

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Contracts	25,091	41,390	31,091
b. In-House	1,981	2,448	11,236
c. GFE Other (T&E)	2,399	465	778
d. SBIR Assessment		814	
Total	29,471	45,117	43,105

UNCLASSIFIED

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204136N

PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

PROJECT NUMBER: E1662

PROJECT TITLE: F/A-18 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										
McAir	SS/CPFF/FFP	3,7,9,/93	1,565	1,565	1,565					1,565
McAir St. Louis, MO	SS/CPFF/FFP	12/93	141,805	141,805	12,323	21,727	32,882	31,091	43,782	141,805
Other Contracts	Var	Var	37,936	37,936	355	3,364	8,508	7,150	18,559	37,936
NWC China Lake	WX	11/96	27,882	27,882	15,762	1,383	1,603	3,559	5,575	27,882
Support and Management										
Field Activities	Var	11/96	6,532	6,532	1,609	598	845	527	2,953	6,532
Test and Evaluation										
NATC Pax River	Var	11/96	16,054	16,054	9,818	2,399	465	778	2,594	16,054
SBIR Assessment	Var	Var	814	814			814			814

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204136N PROJECT NUMBER: E1662
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS PROJECT TITLE: F/A-18 IMPROVEMENTS

GOVERNMENT FURNISHED PROPERTY

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

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	30,005	26,474	42,993	41,800	67,916	209,188
Subtotal Support and Management	1,609	598	845	527	2,953	6,532
Subtotal Test and Evaluation	9,818	2,399	465	778	2,594	16,054
SBIR			814			814
FY92 & Prior 2,511,304						2,511,304
Total Project 2,511,304	41,432	29,471	45,117	43,105	73,463	2,743,892

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204136N

PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

(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 ESTIAMTE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
E2065 F/A-18 Radar Upgrade	28,593	21,901	21,766	2,539	0	0	0	0	294,372

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The F/A-18 radar (AN/APG-65), requires an upgrade to improve electronic counter-countermeasure (ECCM) performance against improved threat electronic countermeasures (ECM). This threat ECM improvement has partially resulted from compromises in the F/A-18 radar performance against various threat electronic warfare systems. The AN/APG-73 radar follows and capitalizes on AN/APG-70 and AN/APG-71 developmental and value engineering programs to maximize shop replaceable assembly (SRA) commonality. A Pre-planned Product Improvement (P3I) Phase II program will develop improved hardware and software for an all-weather Reconnaissance (RECCE) strip map and spotlight modes.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204136N PROJECT NUMBER: E2065
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS PROJECT TITLE: RADAR UPGRADE

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:
   - (U)($11,285) Product development: Continued Phase II hardware and software development program. Completed Physical Configuration Audit (PCA).
   - (U) ($5,100) Completed in-house engineering support for Phase I. Continued in-house software development for phase II.
   - (U) ($12,208) Test and Evaluation: Commenced and completed Phase I OT-IIC (Navy only OPEVAL). Commenced and completed TECHEVAL (DT-IID).

2. (U) FY 1996 PLAN:
   - (U) ($19,813) Continue Phase II development efforts. Complete Phase I IOC. Commence DT of Phase II. Complete Milestone III Phase I. Begin Full Rate Production (FRP).
   - (U) ($1,625) Continue in-house engineering support.
   - (U) ($463) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

3. (U) FY 1997 PLAN:
   - (U) ($409) Continue in-house engineering support.
   - (U) ($2,181) Perform integration testing and engineering analysis for the radar upgrade program.
   - (U) ($19,176) Complete Follow-on test and evaluation, and develop hardware and software through FRP approval.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204136N PROJECT NUMBER: E2065
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS PROJECT TITLE: RADAR UPGRADE

B. (U) PROGRAM CHANGE SUMMARY:

(U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	30,593	22,611	23,464
(U) Adjustments from PRESBUDG:	-2,000	-710	-1,698
(U) FY 1997 President's Budget Submit:	28,593	21,901	21,766

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 1995 reduction of -$2,000 thousand is an adjustment for the Major Range and Test Facility Bases. The net reduction of -$710 thousand in FY 1996 reflects Congressional undistributed general and inflation reductions of -$444 thousand; and revised DoD inflation rate adjustments of -$266 thousand. The FY 1997 net adjustment of -$1,698 thousand in comprised of -$993 thousand for Defense Business Operating Fund adjustments; -$657 thousand for revised DoD inflation rate adjustments; and -$48 thousand for minor pricing adjustments.

(U) Schedule: Due to successful Operational Assessment and OPEVAL, anticipate accelerating FRP by one quarter from 1Q/97 to 4Q/96.

(U) Technical: Not Applicable.

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

BUDGET ACTIVITY: 7 | PROGRAM ELEMENT: 0204136N | PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS | PROJECT NUMBER: E2065 | PROJECT TITLE: RADAR UPGRADE

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) PROCUREMENT:									
F/A-18 RADAR UPGRADE									
(U) APN-1									
C/D	67,200	44,937	0	0	0	0	0	0	454,033
E/F	0	0	40,928	78,443	114,201	133,600	152,628	3,198,800	3,718,600
(U) APN-5 (RADAR)	9,900	8,210	7,784	39,486	47,154	42,490	54,750	127,031	346,705

(U) RELATED RDT&E: N/A

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204136N

PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

PROJECT NUMBER: E2065

PROJECT TITLE: RADAR UPGRADE

D.(U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	2Q/PDR PH II	4Q/MS III PH I 4Q/IOC PH I		
Engineering Milestones				
T&E Milestones	2Q/DT-IID PH I 4Q/OT-IIC PH I	4Q/FRP PH I 1Q/LRIP-4	1Q/FOT&E PH II	
Contract Milestones	2Q/PH II Contract Award 2Q/LRIP-3 PH I			

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204136N
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

PROJECT NUMBER: E2065
PROJECT TITLE: RADAR UPGRADE

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Contracts	11,285	19,813	19,176
b. In-House	7,797	1,625	409
c. GFE Other (T&E)	9,511	0	2,181
d. SBIR Assessment		463	
Total	28,593	21,901	21,766

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204136N PROJECT NUMBER: E2065
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS PROJECT TITLE: RADAR 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										
MDA St. Louis, MO	SS/LTR (FPI)	4/90	170,903	170,903	170,903					170,903
MDA (RUG PH II) St. Louis, MO	CPADF	2/95	73,073	73,073	22,438	11,285	19,813	19,176	361	73,073
Support and Management										
In-House Support	Var	11/96	3,119	3,119	365	489	1,625	409	231	3,119
Test and Evaluation										
NWC China Lake	Var	11/96	31,948	31,948	20,641	7,270	0	2,090	1,947	31,948
Other Field Activities	Var	11/96	5,730	5,730	3,788	1,851	0	91	0	5,730
SBIR Assessment	Var	Var	463	463			463			463

UNCLASSIFIED

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204136N PROJECT NUMBER: E2065
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS PROJECT TITLE: RADAR UPGRADE

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									
GFP/Munitions	TBD	Var	Var	1,438	7,698	0	0	0	9,136
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	194,779	18,983	19,813	19,176	361	253,112
Subtotal Support and Management	365	489	1,625	409	231	3,119
Subtotal Test and Evaluation	24,429	9,121	0	2,181	1,947	37,678
SBIR Assessment			463			463
Total Project	219,573	28,593	21,901	21,766	2,539	294,372

UNCLASSIFIED

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204136N
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

(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
E2130 F/A-18 Follow-On Variant	1,248,678	820,411	360,462	157,042	123,153	49,838	47,299	0	5,403,450

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The F/A-18 is a twin-engine, mid-wing, multi-mission, tactical aircraft employed in Navy and Marine Corps strike fighter squadrons. The F/A-18, through selected use of external equipment is designed for flexibility in fighter, attack, fleet air defense, and close air support roles. The F/A-18 E/F variant is an upgrade to the night attack "C" and "D" models. The F/A-18 E/F will be the second major upgrade since the program's inception. The F/A-18 E/F incorporates modification to the air vehicle to increase mission radius, payload flexibility, improve survivability, increase carrier recovery payload and growth potential. This will allow the F/A-18 to continue to adapt its strike fighter role to evolving threats into the next century. The F/A-18 E/F E&MD program is under a Congressional mandated cost cap of $4.883B FY90 dollars. Pre-development effort of $45M in FY90 base year dollars, previously funded under the F/A-18 C/D program, is reflected in the RDT&E total, but is not included in the approved $4.883B development cap.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204136N PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS PROJECT NUMBER: E2130 PROJECT TITLE: FOLLOW-ON VARIANT

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

• (U) ($1,185,935) Continued engineering and manufacturing design activity leading to the development of the airframe and engine. Started final assembly aircraft #1. Aircraft #1 engines available for installation. Conducted Pre-flight Qualification (PFQ).

• (U) ($42,132) Continued to plan and develop ground test support for integration and test and evaluation. Conducted Program Readiness Review. Began engineering delivery acceptance.

• (U) ($20,611) Completed flight test readiness review. Completed static test article ground test. Completed symmetrical pullup. Continued to procure GFE items required for developmental effort.

2. (U) FY 1996 PLAN:

• (U) ($689,383) Continue engineering and manufacturing design activity leading to the development of the airframe and engine. Complete flight test.

• (U) ($62,551) Continue to plan and develop ground test support for integration and test and evaluation. Finalize phased pricing for LRIPs. Begin aircraft delivery acceptance.

• (U) ($0 - Funded within APN) Procure long lead materials for LRIP: Begin low rate initial production (LRIP).

• (U) ($51,880) Start drop test. Begin developmental flight test. Continue to procure GFE items required for developmental effort.

• (U) ($16,597) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204136N PROJECT NUMBER: E2130
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS PROJECT TITLE: FOLLOW-ON VARIANT

3. (U) FY 1997 PLAN:

• (U) ($306,680) Continue engineering and manufacturing design activity leading to the development of the airframe and engine. Complete limited production qualification (engine).

• (U) ($20,989) Continue to plan and develop ground test support for integration and test and evaluation. Complete Milestone IIIA. Continue aircraft delivery acceptance.

• (U) ($32,793) Continue developmental flight test. Start fatigue testing. Continue to procure GFE items required for developmental effort.

B. (U) PROGRAM CHANGE SUMMARY

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget	1,250,495	847,304	306,237
(U) Adjustments from PRESBUDG:	-1,817	-26,893	+54,225
(U) FY 1997 President's Budget Submit:	1,248,678	820,411	360,462

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The net reduction of -$1,817 thousand in FY 1995 is comprised of -$1,000 thousand for canceled account liabilities and -$817 thousand for various program adjustments. The net reduction of -$26,893 thousand in FY 1996 reflects Congressional undistributed general and inflation reductions of -$16,877 thousand; revised DoD inflation rate adjustments of -$10,201 thousand; and +$185 thousand for minor repricing adjustments. The net increase of +$54,225 thousand in FY 1997 is comprised of cost increases on the F/A-18 E/F airframe and engine contracts; reductions associated with Defense Business Operating Fund and for the Major Range and Test Facility Bases; cost increase at R&D centers; and revised inflation estimates and other minor pricing adjustment of -$964 thousand.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204136N PROJECT NUMBER: E2130
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS PROJECT TITLE: FOLLOW-ON VARIANT

(U) Schedule: PFQ moved from third quarter FY95 to fourth quarter FY95 due to engine test delays. OPEVAL reflected in the FY 1996 President's budget as 3Q/98 was a typographical error and is in fact 3Q/99. OT-IIA program deviation report was submitted in Dec 95 to request a Baseline change to Nov 97. This breach was the consequence of a FY 1993 -$190 million Congressional mark. This will not delay OPEVAL.

(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) PROCUREMENT:									
(U) A/C QTY	0	12	24	36	42	48	838	1000	
(U) APN-1	229,715	2,154,723	2,885,486	3,472,736	3,897,583	3,562,071	53,335,389	69,537,703	
(U) APN-6	0	94,361	61,785	100,251	98,221	90,313	5,572,686	6,017,617	

(U) RELATED RDT&E:
(U) PE 0207163N (AMRAAM)
(U) PE 0604727N (Joint Standoff Weapons System)
(U) PE 0604270N (EW Development)

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204136N PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS PROJECT NUMBER: E2130 PROJECT TITLE: FOLLOW-ON VARIANT

(U) PE 0604777N (Navigation/ID System)
(U) PE 0305141D (Joint UAV)
(U) PE 0603261N (Tactical Airborne Reconnaissance)
(U) PE 0204163N (Fleet Communications)

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones		2Q/NPR	2Q/MS IIIA	2Q/00 MS III
Engineering Milestones	4Q/PFQ 4Q/PRR	2Q/Op Complete Assessment		1Q/98 Eng PFQ
T&E Milestones		1Q/1ST FLT		1Q/98 OT-IIA 3Q/99 OPEVAL
Contract Milestones		2Q/LRIP & Long Lead	2Q/LRIP-1	2Q/00 FRP

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FY 1997 RDT&E,N Program Element/Project Cost Breakdown DATE: March 1996

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204136N PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS PROJECT NUMBER: E2130 PROJECT TITLE: FOLLOW-ON VARIANT

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Contract	1,174,542	684,578	303,801
b. Support Contract	4,260	3,256	2,148
c. In-House	44,265	64,028	21,720
d. GFE/Other (T&E)	25,611	51,952	32,793
e. SBIR Assessment		16,597	
Total	1,248,678	820,411	360,462

FY 1997 RDT&E,N Program Element/Project Cost Breakdown DATE: March 1996

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204136N PROJECT NUMBER: E2130
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS PROJECT TITLE: FOLLOW-ON VARIANT

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

PERFORMING ORGANIZATIONS

Contractor/ Government Peforming 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										
McAir	SS/CPFF	3/92	81,785	81,785	81,785					81,785
McAir	SS/CPIF/AF	7/92	3,943,892	3,943,892	1,773,134	1,015,000	591,695	280,656	283,407	3,943,892
St. Louis, MO										
GE	SS/CPFF	3/92	51,500	51,500	51,500					51,500
GE	SS/CPIF/AF	7/92	769,133	769,133	506,197	140,094	92,883	23,145	6,814	769,133
Lynn, MA										
Other Contracts	Var	11/96	30,403	30,403	9,538	7,282	4,273	731	8,579	30,403
NADC Warminster	Var	11/96	34,558	34,558	9,984	9,667	5,969	3,956	4,982	34,558
NWC China Lake	Var	11/96	42,305	42,305	6,872	11,338	13,162	2,809	8,124	42,305
NAEC Lakehurst	Var	11/96	28,795	28,795	6,970	11,824	5,274	2,709	2,018	28,795
NAPC Trenton	Var	11/96	38,134	38,134	18,390	6,655	7,123	3,286	2,680	38,134

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FY 1997 RDT&E,N Program Element/Project Cost Breakdown DATE: March 1996

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204136N PROJECT NUMBER: E2130
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS PROJECT TITLE: FOLLOW-ON VARIANT

PERFORMING ORGANIZATIONS Contractor/ Government Peforming 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
NADEP North Island	Var	11/96	27,889	27,889	2,378	4,508	4,008	1,818	15,177	27,889
NAC Indianapolis	Var	11/96	22,311	22,311	3,613	3,354	11,420	1,024	2,900	22,311
Other Field Activities	Var	11/96	20,400	20,400	3,080	2,931	5,167	1,771	7,451	20,400
Support and Management										
Contracts	Var	11/96	19,043	19,043	7,209	4,260	3,256	2,148	2,170	19,043
Field Activities	Var	11/96	29,557	29,557	10,550	6,154	7,632	3,616	1,605	29,557
Test and Evaluation										
NASA Langley	MIPR	11/96	4,111	4,111	2,619	0	982	510	0	4,111
NATC Pax River	Var	11/96	84,263	84,263	13,287	9,626	29,498	27,568	4,284	84,263
Arnold Engineering Development Center (AEDC)										
Tennessee	Var	N/A	17,392	17,392	12,392	5,000	0	0	0	17,392
Other Field Activities	Var	11/96	4,882	4,882	2,310	546	1,073	513	440	4,882
SBIR Assessment	Var	Var	16,597	16,597			16,597			16,597

FY 1997 RDT&E,N Program Element/Project Cost Breakdown DATE: March 1996

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204136N PROJECT NUMBER: E2130
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS PROJECT TITLE: FOLLOW-ON VARIANT

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
Production Development									
GFE/Other (T&E)	FFP	Var	Var	74,759	10,439	20,399	4,202	26,701	136,500
Support and Management				Not Applicable					
Test and Evaluation				Not Applicable					
Subtotal Product Development				2,548,200	1,223,092	761,373	326,107	368,833	5,227,605
Subtotal Support and Management				17,759	10,414	10,888	5,764	3,775	48,600
Subtotal Test and Evaluation				30,608	15,172	31,553	28,591	4,724	110,648
SBIR Assessment						16,597			16,597
Total Project				2,596,567	1,248,678	820,411	360,462	377,332	5,403,450

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204152N
PROGRAM ELEMENT TITLE: E-2 SQUADRONS

(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
E0463 E-2C IMPROVEMENTS									
	47,707	60,961	65,025	40,121	10,145	3,500	6,152	0	604,406
TOTAL	47,707	60,961	65,025	40,121	10,145	3,500	6,152	0	604,406

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project provides preplanned product improvements for the evolution of E-2C airborne weapon system capabilities in support of naval warfare command and control requirements. It funds development for the modification/replacement of selected weapon replaceable assemblies of current installed subsystems. Additionally, applying ongoing developments and non-developmental items (NDI) where available, it funds integration and testing of new subsystems for meeting naval and national tasking requirements during the remainder of the E-2C service life. Included in this Update Development Program (UDP) are two sub-projects, UDP Groups I and II to be followed by a mission computer upgrade (MCU). Group I improved electronic countermeasures in the radar subsystem and increased target track capacity. Group II extends radar detection range, and improves target identification capability and information processing to assist operator workload. MCU, applying ongoing developments in data processing and target detection, will relieve current bottlenecks in signal and data processing and will permit incorporation of additional functional capabilities to satisfy evolving operational requirements, e.g., Cooperative Engagement Capability (CEC) and Satellite Communications (SATCOM).

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204152N
PROGRAM ELEMENT TITLE: E-2 SQUADRONS

PROJECT NUMBER: E0463
PROJECT TITLE: E-2C IMPROVEMENTS

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($13,658) Initiated hardware design and fabrication for MCU EDM.
- (U) ($11,967) Initiated development of tactical software for MCU EDMs.
- (U) ($3,559) Initiated aircraft integration design for MCU EDMs. Initiated CEC aircraft hardware interface.
- (U) ($0) Awarded MCU contract.
- (U) ($500) Conducted System Design Review.
- (U) ($500) Conducted system Preliminary Design Review.
- (U) ($3,500) Conducted two operational assessments in laboratory.
- (U) ($9,445) Continued tactical software development. Initiated CEC software interface.
- (U) ($4,578) Commenced fabrication of EDM hardware.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204152N PROJECT NUMBER: E0463
PROGRAM ELEMENT TITLE: E-2 SQUADRONS PROJECT TITLE: E-2C IMPROVEMENTS

2. (U) FY 1996 PLAN:

- (U) ($12,337) Continue aircraft MCU integration design. Initiate CEC aircraft hardware interface.
- (U) ($21,663) Continue tactical software development. Initiate CEC software interface.
- (U) ($10,000)(Planned execution FY 1997) Continue tactical software development. Continue CEC software interface.
- (U) ($12,632) Complete and deliver EDM hardware. Commence fabrication of preproduction hardware.
- (U) ($500) Conduct System Critical Design Review.
- (U) ($500) Conduct Design Review for Build 0/1 software configuration
- (U) ($2,060) Initiate Software Build 0 system test.
- (U) ($1,269) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($4,061) Conduct environmental, maintainability and reliability qualification testing.
- (U) ($4,138) Complete software system test for Build 0 and initiate test for Build 1.
- (U) ($6,500) Conduct DT/OT-IIA with airborne testing of hardware/software.
- (U) ($17,020) Complete preproduction hardware fabrication and begin deliveries.

- (U) ($29,636) Continue MCU software development. Update software configuration, as necessary, from DT/OT IIA.
- (U) ($3,670) Conduct MCU hardware integration and applicable aircraft modification.
- (U) ($0) Initiate Low Rate Initial Production (LRIP).

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	51,279	52,965	71,338
(U) Adjustments from PRESBUDG:	-3,572	+7,996	-6,313
(U) FY 1997 President's Budget Submit:	47,707	60,961	65,025

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 1995 net adjustment of -$3,572 thousands reflects rebalancing and Major Range and Test Facility Base adjustments. The FY96 net adjustment of +$7,996 thousands reflects a $10,000 thousands congressional plus up and adjustments for inflation, general R&D reductions, and revision of economic assumptions. The FY 1997 adjustment of -$6,313 thousands reflects an $8,000 thousands increase for E-2C MCU integration, a $10,000 thousands decrease in the Mission Computer Upgrade program taken as a result of the FY96 congressional plus up to the E-2, and various reductions for inflation and Defense Business Operating Fund support.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204152N PROJECT NUMBER: E0463
PROGRAM ELEMENT TITLE: E-2 SQUADRONS PROJECT TITLE: E-2C IMPROVEMENTS

(U) Schedule: Negotiation and execution of the MCU contract resulted in minor adjustments to the timing of some program schedule events and no change to major milestones.

(U) Technical: No Change

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
APN 1/E2-C LI #13&14	282,357	207,751	141,294	254,234	288,662	278,924	299,916	1,009,346	10,123,609
APN 5/E2-C LI #34	185,795	19,043	23,143	52,407	109,442	131,003	39,452	CONTINUED	CONTINUED
APN 6/E2-C LI #47	2,128	1,911	6,099	8,810	13,527	8,653	8,463	CONTINUED	CONTINUED

C.(U) RELATED RDT&E:

(U) PE 0602232N (Command, Control and Communications Technology)

(U) PE 0602111N (Surface/Aerospace Survivability and Weapons Technology)

(U) PE 0603755N (Ship Self Defense, Cooperative Engagement) will fund the R&D efforts to integrate CE hardware/software into the E-2C. CE will also fund equipment, software and installation costs.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204152N PROGRAM ELEMENT TITLE: E-2 SQUADRONS PROJECT NUMBER: E0463 PROJECT TITLE: E-2C IMPROVEMENTS

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				1Q/00 MCU MSIII
Engineering Milestones	3Q MCU SDR 4Q MCU PDR	2Q MCU CDR		
T&E Milestones	4Q UDP GPII OT-III		2Q MCU QUAL TESTS 3Q MCU DT/OT-IIA	2Q/98 MCU DT/OT-IIB 4Q/98 MCU DT/OT-IIC 2Q/99 MCU TECHEVAL 3Q/99 MCU OPEVAL
Contract Milestones	1Q MCU AWARD		3Q MCU LRIP	2Q/00 MCU FRP

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204152N PROJECT NUMBER: E0463
PROGRAM ELEMENT TITLE: E-2 SQUADRONS PROJECT TITLE: E-2C IMPROVEMENTS

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Hardware/Software Development	38,618	47,140	56,359
b. Contractor Engineering Support	1,702	5,763	5,763
c. Travel	53	55	55
d. Test and Evaluation	7,334	6,734	2,848
e. SBIR Assessment		1,269	
Total	47,707	60,961	65,025

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										
GAC (MCU only)	SS/CPIF	11/94	155,180	155,180	12,777	23,026	43,989	50,928	24,460	155,180
GAC (SATCOM)	SS/CPFF	12/95	10,535	10,535	N/A	671	0	1,500	8,364	10,535
GAC (CEC)	SS/CPFF	10/95	16,587	16,587	N/A	8,076	3,151	0	5,107	16,334
GAC (Other)	SS/CPFF	8/95	24,007	24,007	N/A	6,845	0	3,931	13,231	24,007
GAC (Prior Yr. efforts)	Var.	Var.	254,800	254,800	254,800					254,800

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204152N PROJECT NUMBER: E0463
PROGRAM ELEMENT TITLE: E-2 SQUADRONS PROJECT TITLE: E-2C 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
Support and Management										
NAWCAD, PAX (MCU only) RIVER, MD,	WX/RC	Var.	23,938	23,938	3,575	1,755	5,818	5,818	6,972	23,938
NAWCAD, PAX(Prior Yr. efforts) RIVER, MD,	WX/RC	Var.	58,800	58,800	58,800					58,800
SPAWAR	PD	Var.								
Test and Evaluation										
NAWCAD, PAX (MCU only) RIVER, MD	WX/RC	Var.	20,343	20,343	1,643	7,334	6,734	2,848	1,784	20,343
NAWCAD, PAX (Prior Yr. efforts) RIVER, MD	WX/RC	Var.	39,200	39,200	39,200					39,200

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

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0204152N
PROGRAM ELEMENT TITLE: E-2 SQUADRONS
PROJECT NUMBER: E0463
PROJECT TITLE: E-2C IMPROVEMENTS

GOVERNMENT FURNISHED PROPERTY: NOT APPLICABLE

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									

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				267,577	38,618	47,140	56,359	51,162	460,856
Subtotal Support and Management				62,375	1,755	5,818	5,818	6,972	82,738
Subtotal Test and Evaluation				40,843	7,334	6,734	2,848	1,784	59,543
SBIR Assessment						1,269			1,269
Total Project				370,795	47,707	60,961	65,025	59,918	604,406

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communications

(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
X0725 Communication Automation	565	846	1,784	1,812	3,181	3,190	3,266	CONT	CONT
X2074 Communications Support System	9,523	5,134	3,563	2,951	2,927	3,186	2,580	CONT	CONT
X2083 Shipboard SINCGARS/VHF Relay Pallet	2,298	0	0	0	0	0	0	0	19,845
X1083 Shore to Ship Communications System	22,040	15,064	13,963	14,096	12,979	8,567	8,106	CONT	CONT
X0792 ELF Communications	1,594	0	0	0	0	0	0	0	237,017
X0795 Support of MEECN	1,213	702	703	746	836	858	852	CONT	CONT
TOTAL	37,233	21,746	20,013	19,605	19,923	15,801	14,804	CONT	256,862

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The fleet communications program developed an anti-jam radio system incorporating shipboard interfaces, interference mitigation, radio frequency distribution (including antennas), high speed burst data transmission and relocatable Very High Frequency (VHF) relay. The Communication Support System (CSS) develops the architecture for an integrated Navy Communication system for Ship-to-Shore and Shore-to-Ship communications defined as

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communications

the Copernicus TADIXS and prototypes early operational capabilities and incremental implementation and fielding of CSS capabilities. The shore to ship communications system develops communications systems elements which provide positive command and control of deployed ballistic missile submarines (SSBNs). Minimum Essential Emergency Communications Network (MEECN) is the Tri-Service transmission system which ensures delivery of Emergency Action Messages (EAM) to our strategic platforms.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communications (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
X0725 Communication Automation	565	846	1,784	1,812	3,181	3,190	3,266	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Communication Automation. This project is a continuing program that provides for automating and communications upgrades for Fleet Tactical Communications. Two developments currently in process are: Navy Modular Automated Communications System (NAVMACS): automates the message receiving, distribution and preparation functions aboard ships; and High Speed Fleet Broadcast (HSFB): resolves long standing throughput and system flexibility shortcomings by replacing the existing Fleet Broadcast with a more efficient, volume responsive broadcast.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($565K) NAVMACS: Completed initial INFOSEC structure. Completed initial Personal Computer Local Area Network (LAN) interfacing. Continued evolution efforts into Integrated C4I System Architecture and began engineering for support of Defense Message System (DMS) accommodation. Continued development/integration of emerging shipboard LAN enhancements as well as other communications enhancement.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communications

PROJECT NUMBER: X0725
PROJECT TITLE: Communications Automation

2. (U) FY 1996 PLAN:

- (U) ($828K) NAVMACS: Continue integration of NAVMACS software into CSS. Continue integration efforts of NAVMACS into DMS Architecture. Continue accommodation of emergent required interfaces with other shipboard equipment including both LAN and Command, Control, and Communications (C3) systems.
- (U) ($18K) 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) ($871K) NAVMACS: Continue CSS & DMS Tactical Afloat efforts. Continue accommodation to emergent C3 technology.
- (U) ($913K) Develop connectionless protocols and time-shared link protocol to support DMS over various RF paths to include UHF LOS.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N PROGRAM ELEMENT TITLE: Fleet Communications PROJECT NUMBER: X0725 PROJECT TITLE: Communications Automation

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	505	872	871
(U) Adjustments from PRESBUDG:	+60	-26	+913
(U) FY 1997 President Budget Submit:	565	846	1,784

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY-95 increased $60K (i.e., +$52K for reprogramming to SINCGARS to cover unfunded requirements and +$8K to reflect actuals). FY 96: Congressional undistributed general and inflation reduction (-$16K); and revised DOD inflation rates and other minor pricing adjustments ($-10K). FY 1997 increased +$913K (i.e., +$1,000K for time-share link protocol to support DMS and revised inflation estimates and other minor pricing adjustments) (-$87K).

(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 3050 Ship Comm Automation (NAVMACS Project Unit)	10,799	0	4,275	4,584	32,727	25,955	29,797	CONT.	CONT.

(U) RELATED RDT&E: Not Applicable
(U) SCHEDULE PROFILE: Not Applicable

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communications

(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
X2074 Communications Support System (CSS)	9,523	5,134	3,563	2,951	2,927	3,186	2,580	CONT	CONT

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project is an initiative to develop the Copernicus Tactical Data Information Exchange Subsystem (TADIXS) concept, an integrated Navy communication system architecture based on shared use of links and multimedia networks. It will provide increased communication survivability, throughput and security. Communications Support System (CSS) will further integrate the approach to research, development, acquisition and deployment of a total Command, Control and Communications Intelligence (C3I) system supporting Navy missions. The work to be performed is a system engineering effort that generates engineering solutions and guidelines, prototyping and early operational capabilities, and transition plans for incremental fielding involving all current and planned Navy communication systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($1,478) Developed interface with Global Grid.
- (U) ($1,665) Completed planning for Joint Network Manager topology.
- (U) ($1,175) Finalized increment I Prototype, Multilevel Security Design IAW joint architecture.
- (U) ($1,260) Investigated in-lab, advanced commercial communications products.
- (U) ($3,945) Implemented and demonstrated Internet Protocol (IP) networking and platform integrated network managment via multiple media (SHF, VHF, EHF, and Line of Site (LOS)).

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N PROGRAM ELEMENT TITLE: Fleet Communications PROJECT NUMBER: X2074 PROJECT TITLE: Communications Support System (CSS)

2. (U) FY 1996 PLAN:

- (U) ($1,340) Incrementally design, implement, and test CSS Common Operating Environment (COE) interface to the Joint Maritime command Information System (JMCIS).
- (U) ($1,495) Support upgrade, prototype, test, and installation of CSS Increment One.
- (U) ($2,225) Build, prototype, test, and demonstrate further CSS (User Interface Segment (UIS), Platform Distribution Segment (PDS), Control and Management Segment (CMS), and Channel Access Protocols (CAPs), Increments including Military Internet with Multicast(MIM) and Inter Force Radio Frequency Network (IFRFN).
- (U) ($74) 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) ($1,639) Continue incremental design, implementation of CSS and JMCIS integration.
- (U) ($1,069) Support fielding of CSS Increments.
- (U) ($855) Build, test, and demonstrate CSS increments including implementation and testing of IF RF network.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N PROGRAM ELEMENT TITLE: Fleet Communication PROJECT NUMBER: X2074 PROJECT TITLE: Communication Support System (CSS)

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	8,211	6,369	3,721
(U) Adjustments from PRESBUDG:	+1312	-1,235	-158
(U) FY 1997 President Budget Submit:	9,523	5,134	3,563

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 95 increase $1,312K (i.e., a decrease of $1,000K reprogrammed to X1911, for Warfare Systems Architecture and Engineering; $1,900K increase from X2135, CHBDL, in order to implement and demonstrate IP networking and platform integrated network management via multiple media. +$412K reflect actual fact of life changes). FY 96 decrease $1,235K (i.e., -$1,000K was reprogrammed to CHBDL; Congressional undistributed general and inflation reductions (-$167K) and revised DOD inflation rates and other minor pricing adjustments)(-$68K). FY 97: Revised inflation estimates and other minor pricing adjustments (-$158K).

(U) Schedule: Not applicable

(U) Technical: Not applicable

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

(U) RELATED RDT&E: PE 0205604N (Tactical Data Links)
PE 0303109N (Satellite Communications)
PE 0303140N (Information Systems Security Plan)

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: 7 PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communication
PROJECT NUMBER: X2074
PROJECT TITLE: Communication Support System (CSS)

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Software Development	1,608	1,069	649
b. Research Support Equipment	760	526	269
c. System Engineering	4,431	1,669	1,453
d. Technical Data	2,635	1,805	1,152
e. Misc/travel	89	65	40
Total	9,523	5,134	3,563

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communications
PROJECT NUMBER: X2074
PROJECT TITLE: Communications Support System (CSS)

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										
Harris	CPFF	5/92	12,975	12,975	7,081	4,571	1,323	0	N/A	12,975
TBD	TBD	10/96	TBD	TBD				975	CONT	CONT
NRaD	WX	VAR	VAR	VAR	4,584	2,490	1,779	1,341	CONT	CONT
OTHER	VAR	VAR	VAR	VAR	6,184	2,462	2,032	1,247	CONT	CONT
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: 7 PROGRAM ELEMENT: 0204163N PROGRAM ELEMENT TITLE: Fleet Communications PROJECT NUMBER: X2074 PROJECT TITLE: Communications Support System (CSS)

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								
Subtotal Product Development				17,849	9,523	5,134	3,563	CONT	CONT
Subtotal Support and Management				0	0	0	0	0	0
Subtotal Test and Evaluation				0	0	0	0	0	0
Total Project				17,849	9,523	5,134	3,563	CONT	CONT

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communications

(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
X1083 Shore to Ship Communication Systems	22,040	15,064	13,963	14,096	12,979	8,567	8,106	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project develops communications systems elements which provide positive command and control of deployed ballistic missile submarines (SSBNs). This program provides enhancements to the shore-to-ship transmitting systems, shipboard receiver systems, and development of the Submarine Low Frequency (LF)/Very Low Frequency (VLF) Versa Module Eurocard (VME) Receiver (SLVR) System (formerly the Advanced VLF/LF VME (AVR/VME) receiver system). Continuing evaluation of this communications system is provided via the Strategic Communications Assessment Program (SCAP). Fixed VLF/LF develops an energy efficient, solid state, power amplifier for the VLF shore based transmitters of the Submarine Broadcast System, investigates improvement of the radio frequency high voltage insulators bushings and antenna components used in these stations through the High Voltage Insulator Program (HVIP) and measures and signal propagation through the Coverage Prediction Improvement Program (CPIP).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($1,250) Conducted Preliminary Design Review (PDR) of SSPAR Engineering and Manufacturing Design Model (E&MDM).
- (U) ($3,315) Conducted SSPAR E&MD design and development and started fabrication.
- (U) ($400) Continued CPIP atmospheric studies.
- (U) ($299) HVIP insulator/bushing development and test.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N PROGRAM ELEMENT TITLE: Fleet Communications PROJECT NUMBER: X1083 PROJECT TITLE: Shore to Ship Communication Systems

- (U) ($1,350) Conducted Critical Design Review (CDR) for SSPAR.
- (U) ($2,721) Continued development of software documentation and coding for SLVR.
- (U) ($5,180) Continued development of custom hardware for SLVR (E&MDM).
- (U) ($4,150) Began SLVR Communication Support System (CSS) Phase I integration.
- (U) ($2,100) Conducted Design Review Preliminary (DRP) and Design Review Final (DRF) for SLVR.
- (U) ($900) Continued SCAP efforts.
- (U) ($375) Continued VLF Test Bed Analysis.

2. (U) FY 1996 PLAN:

- (U) ($5,172) Complete SLVR Lab testing and perform OP assessment.
- (U) ($1,253) Continue SLVR CSS phase I integration.
- (U) ($404) Continue VLF Test bed analysis.
- (U) ($3,804) Continue SCAP and conduct continuing evaluation of strategic communications (CEP).
- (U) ($3,247) Complete SSPAR E&MDM hardware/software integration and factory test.
- (U) ($635) Install SSPAR E&MDM at Naval Radio Transmitting Facility (NRTF), Jim Creek.
- (U) ($262) HVIP insulator/bushing development and test.
- (U) ($287) 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: 7 PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communications
PROJECT NUMBER: X1083
PROJECT TITLE: Shore to Ship Communication Systems

3. (U) FY 1997 PLAN:

- (U) ($8,210) Complete SLVR TECHEVAL/OPEVAL and achieve MS III.
- (U) ($1,100) Complete SLVR CSS Phase I integration.
- (U) ($3,586) Continue SCAP and CEP.
- (U) ($750) Complete SSPAR E&MDM on site testing.
- (U) ($317) High Voltage and antenna component development and test.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/97 President's Budget:	22,050	16,065	15,442
(U) Adjustments from PRESBUDG:	-10	-1001	-1479
(U) FY 1997 President's Budget Submit:	22,040	15,064	13,963

(U) CHANGE SUMMARY EXPLANATION:
(U) Funding: FY 95 decreased $10K to reflect actuals. FY 96 decreased $1,001K; Congressional undistributed general and inflation reductions(-$801K); and revised DOD inflation rates and other minor pricing adjustments (-$200K). FY 97 decreased $1,479K; -$310K for a decision by Navy to not evaluate all SSBN strategic patrols for connectivity; Revised inflation estimates and other minor pricing adjustments (-$1,169K).

(U) Schedule: VLF Test Bed Analysis was cancelled as a result of FY-97 reduction.
(U) Technical: Not applicable.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communications

PROJECT NUMBER: X1083
PROJECT TITLE: Shore to Ship Communication Systems

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 3107 Shore LF	6,949	4,159	4,140	7,795	16,429	19,809	19,680	CONT.	CONT.
(U) OPN Line 3147 Advanced VLF Receiver	0	0	0	7,675	18,566	20,972	19,140	CONT.	CONT.
(U) O&M,N	15,160	15,517	14,838	15,635	15,401	10,779	9,577	CONT.	CONT.

(U) RELATED RDT&E: Not applicable
(U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones			4Q SLVR MS III	
Engineering Milestones	1Q SSPAR PDR 2Q SLVR PDR 3Q SSPAR CDR 4Q SLVR CDR			
T&E Milestones			2Q SLVR TECHEVAL 2-3Q SLVR OPEVAL	
Contract Milestones				

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

DATE: MARCH 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communication

PROJECT NUMBER: X1083
PROJECT TITLE: Shore to Ship Communication Systems

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Project Management	3,513	2,615	3,361
b. Systems Engineering	6,150	3,342	3,071
c. Software Development	1,748	1,700	2,000
d. Hardware Development	7,682	4,721	919
e. System Test & Evaluation	783	1,619	2,428
f. Integrated Logistic Support	724	647	1,524
g. Site/Platform Integration	1,440	420	660
Total	22,040	15,064	13,963

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH, 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communications

(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
X0795 MEECN	1,213	702	703	746	836	858	852	CONT	CONT

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Support of Minimum Essential Emergency Communications Network (MEECN). MEECN is the Tri-Service transmission system which ensures delivery of Emergency Action Messages (EAMs) to our strategic platforms. Because of substantial downsizing in the number of MEECN assets, such as the CINC Airborne Command Post (ABNCP) fleet, it is necessary to improve the range, timeliness and reliability of MEECN communications to maintain connectivity to the platforms. This project identifies, researches, and develops improvements to the MEECN primarily in the Very Low Frequency and Low Frequency (VLF/LF) ranges of MEECN. The MEECN Message Processing Mode (MMPM), which reduces transmission time while improving message delivery reliability at greater ranges, was developed under this project and is being implemented in the MEECN VLF/LF Systems. A new High Data Rate (HIDAR) mode, which greatly reduces message transmission time while providing the performance of low data rate modes, is being implemented. Potential improvements in mode design and signal processing are continually being investigated for MEECN application.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($431) Designed 3-Mode Automatic Mode Recognition (AMR) for EVS.
- (U) ($413) Supported HIDAR implementation in Mini-Receive Terminal (MRT) and SLVR.
- (U) ($115) Began HIDAR On-the-Air Familiarization and Simultaneous Operations (SIMOP) testing.
- (U) ($105) Completed frequency scanning/HIDAR compatibility study.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH, 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communications

PROJECT NUMBER: X0795
PROJECT TITLE: MEECN

- (U) ($ 80) Completed study of Buoy-Depth/Signal-Phase Correlation.
- (U) ($ 69) Supported KG-38 crypto replacement development.

2. (U) FY 1996 PLAN:

- (U) ($264) Prepare and issue HIDAR Mode Standard for Multi-Channel Receivers.
- (U) ($107) Support HIDAR implementation in SLVR and MRT.
- (U) ($ 95) Support KG-38 replacement development.
- (U) ($ 89) Support EVS HIDAR ECP preparation.
- (U) ($ 75) Optimize NONAP for HIDAR performance.
- (U) ($ 63) Issue initial wideband atmospheric noise data base.
- (U) ($ 9) 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) ($233) Develop integrated NONAP and signal separator AJ algorithm.
- (U) ($102) Investigate HIDAR/Block II compatibility.
- (U) ($100) Document HIDAR Signal Design.
- (U) ($110) Support EVS HIDAR upgrade software release.
- (U) ($ 88) Support KG-38 replacement development.
- (U) ($ 70) Support MMPM and HIDAR implementation certifications.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N PROGRAM ELEMENT TITLE: Fleet Communications PROJECT NUMBER: X0795 PROJECT TITLE: MEECN

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/97 President's Budget	1,213	726	781
(U) Adjustments from PRESBUDG:	0	-24	-78
(U) FY 1997 President's Budget Submit:	1,213	702	703

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY-96 decreased by $24K; Congressional undistributed general and inflation reductions(-$16K); and revised DOD inflation rates and other minor pricing adjustments(-$8K). FY-97 decreased by $78K; Revised inflation estimates and other minor pricing adjustments(-$78K).

(U) Schedule: Not applicable

(U) Technical: Not applicable

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

(U) RELATED RDT&E:

(U) PE0204163N (X1083 Shore to Ship) Contains VLF/LF systems into which improvements developed under the MEECN project will be incorporated.

D. (U) SCHEDULE PROFILE: Not applicable

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204229N
PROGRAM ELEMENT TITLE: TOMAHAWK AND THEATER MISSION PLANNING CENTER

(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
A0545 TOMAHAWK (TBIP)	79,174	157,202	130,465	116,312	82,785	69,459	47,302	CONT.	CONT.
A1784 THEATER MISSION PLANNING CENTER	3,802	7,463	5,899	3,220	2,670	2,009	1,996	CONT.	CONT.
TOTAL	82,976	164,665	136,364	119,532	85,455	71,468	49,298	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) The TOMAHAWK Weapons System (TWS) provides the Tomahawk cruise missile attack capability against targets on land (Tomahawk Land Attack Missile (TLAM)) and at sea (Tomahawk Anti-Ship Missile (TASM)). The TLAM can be fitted with either conventional unitary warhead (TLAM\C), nuclear warhead (TLAM\N) or submunition dispenser (TLAM\D) This program ensures that the TWS exploits state-of-the-art technology to preserve the efficacy of this proven weapon system.

(U) The Tomahawk project includes all missile development; mission planning system development, and submarine and surface ship weapons control development.

(U) The Tomahawk TLAM Block III system upgrade (IOC March 93) incorporated the Global Positioning System (GPS) capability; provided a smaller, lighter warhead, extended range, Time of Arrival, and improved accuracy for low contrast matching of Digital Scene Matching Area Correlator. The Advanced Tomahawk Weapons Control System (ATWCS) and Tomahawk Baseline Improvement Program (TBIP) will provide a quick reaction response capability, real time target and aimpoint selection, autonomous terminal prosecution of the target and improve strike planning, coordination, mission tasking and lethality .

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204229N
PROGRAM ELEMENT TITLE: Tomahawk and Theater Mission Planning Center

(U) The Theater Mission Planning project provides for the Tomahawk Theater Mission Planning Center (TMPC) and the Afloat Planning System (APS). TMPC and APS provide mission planning and command and control for the nuclear (TMPC only) and conventional TLAM. The TMPC software development decreases mission planning time and increases the quality and accuracy of each mission. APS rapidly plans and/or enhances conventional TLAM missions at sea for either TLAM only or TLAM/tactical air joint strikes. TOMAHAWK Strike Planning Tools are comprised of two elements. The Mission Distribution System (MDS) allows TOMAHAWK users the capability to transit and receive mission data updates in a tactical environment. The Electronic TOMAHAWK Employment Planning Package (ETEPP) provides the TOMAHAWK user with command and control information needed to employ TOMAHAWK missions.

(U) These efforts provide battle-group tactical flexibility and responsiveness while maximizing TWS wartime capability.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204229N
PROGRAM ELEMENT TITLE: TOMAHAWK AND THEATER MISSION PLANNING CENTER

(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
A0545 TOMAHAWK	79,174	157,202	130,465	116,312	82,785	69,459	47,302	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The TOMAHAWK Cruise Missile provides an attack capability against targets on land (TOMAHAWK Land-Attack Missile (TLAM)) and at sea (TOMAHAWK Anti-Ship Missile (TASM). The TLAM can be fitted with either Conventional unitary warhead (TLAM/C), Nuclear warhead (TLAM/N) or submunition Dispenser (TLAM/D).

(U) The Tomahawk Development encompasses TLAM C/D Block III (BLK III) upgrade, the Tomahawk Baseline Improvement Program (TBIP) and Advanced Tomahawk Weapons Control Systems (ATWCS) surface and submarine. The BLK III effort incorporates the Global Positioning System capability; provides a smaller, lighter warhead, extended range, Time of Arrival; and upgrades the Digital Scene Matching Area Correlators accuracy for low contrast matching. The Advanced Tomahawk Weapons Control System (ATWCS) allows for increased data throughput, resulting in significant reductions in the time required to execute missile preparation and launch sequences, and provides improved strike coordination capability, increased tactical flexibility and responsiveness. The ATWCS development is accomplished in three upgrades: the ATWCS Track Control Group (TCG); the ATWCS Launch Control Group (LCG); and the Submarine Block III Phase III which installs ATWCS on submarines. The Tomahawk Baseline Improvement Program (TBIP) development provides a comprehensive baseline upgrade to the Tomahawk Weapon System to improve system flexibility, responsiveness accuracy and lethality. Essential elements of the TBIP include upgrades to the guidance, navigation, control, and mission computer systems along with the associated command and control systems and weapons control systems. TBIP will provide a single variant missile, the Tomahawk Multi-Mission Missile that is capable of attacking sea- and land-based targets in near real time. TBIP will also enhance its hard target penetrating capability beyond current weapons systems thus increasing the target set. TBIP will provide UHF SATCOM and man-in-the-loop data link to enable missile to receive in-flight targeting updates, to transfer health and status messages and to broadcast Battle Damage Indication (BDI).

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204229N PROJECT NUMBER: A0545
PROGRAM ELEMENT TITLE: TOMAHAWK AND THEATER MISSION PLANNING CENTER PROJECT TITLE: TOMAHAWK

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:
   - (U) ($3,479) Completed ATWCS TCG final design review and initiated Low Rate initial Production (LRIP). Continued ATWCS TCG and LCG software development.
   - (U) ($4,731) Commenced Submarine ATWCS software and hardware development.
   - (U) ($70,964) Continued TBIP missile preliminary design activity including GPS, Inertial Navigation System (INS), datalink, mission computer, seeker and Hard Target Penetrator. Conducted System Requirements Review (SSR), Integrated Baseline Review (IBR), and Systems Design Review (SDR). Continued TBIP weapon control system upgrades. Started C2 prototyping and demonstrations, communications modeling and initiated TBIP Mission Distribution System (MDS) development.

2. (U) FY 1996 PLAN:
   - (U) ($3,500) Perform Ship Based System Integration Testing (SBSIT) Land Based Systems Integration Testing (LBSIT) and TECHEVAL for ATWCS TCG. Commence ATWCS TCG LRIP deliveries. Conduct ATWCS LCG Operational Assessment. Commence ATWCS LCG hardware design/development.
   - (U) ($9,251) Achieve Sub ATWCS Initial Operational Capability (IOC) software delivery. Deliver first Sub ATWCS hardware Engineering Production Prototype. Conduct Sub ATWCS Weapons Compatibility Testing (WCT). Support Combat Control System (CCS) MK2 Program. Do Block 1A/B Rapid Commercial Off The Shelf (COTS) insertion program.
   - (U) ($141,357) Continue TBIP Engineering Manufacturing Development (EMD) detailed design activity, including Preliminary Design Review (PDR) of system, mission planning and weapons control systems upgrades. Perform system Design Review for Mission Planning; continue Mission Planning development of build 1 for all C2 segments through PDR, coding, and contractor testing; development of build supports IOC for all segments through System Design Review (SDR); continue prototyping and fleet demonstrations; begin lab testing of communications capabilities. TBIP ATWCS plan for software contract award to Lockheed Martin for software development through 1998.
   - (U) ($3,094) Portion of program reserved for Small Business Innovation Research (SBIR) assessment in accordance with 15 U.S.C. 638.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204229N
PROGRAM ELEMENT TITLE: TOMAHAWK AND THEATER MISSION PLANNING CENTER

PROJECT NUMBER: A0545
PROJECT TITLE: TOMAHAWK

3. (U) FY 1997 PLAN:

- (U) ($3,400) Achieve ATWCS LCG LRIP. Conduct ATWCS LCG LBSIT and SBSIT. Receive ATWCS LCG IOC software delivery. Perform OPEVAL for ATWCS TCG. Achieve IOC and MS III for ATWCS TCG.

- (U) ($8,300) Conduct Sub ATWCS TECHEVAL/OPEVAL. Commence development of Combat Control System (CCS) MK2 Block 1c Upgrade and conduct Critical Design Review (CDR).

- (U) ($118,765) Continue TBIP EMD, mission planning, and weapons control systems upgrades. Initate missile component qualification and component level CDRs. Continue Mission Planning C2 segment through CDR Continue prototyping and fleet demonstrations. Continue lab test communications and begin live testing to/from representative sites. Continue TBIP ATWCS software development.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204229N PROJECT NUMBER: A0545
PROGRAM ELEMENT TITLE: TOMAHAWK AND THEATER MISSION PLANNING CENTER PROJECT TITLE: TOMAHAWK

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	80,118	133,734	176,197
(U) Adjustments from PRESBUDG:	-944	+23,468	-45,732
(U) FY 1997 President's Budget Submit:	79,174	157,202	130,465

(U) CHANGE SUMMARY EXPLANATION:
(U) Funding: The FY95 decrease of -$.944 million consists of -$.841 million for a program adjustment and -$.103 million for Major Range Test Facility Base (MRTFB). FY 96 net increase of +23.468 million consists of a +29.000 million Congressional plus up for new scope including work on the TBIP seeker and mission planning to compensate for the cancellation of TSSAM; -$.326 million MRTFB; Congressional undistributed general and inflation reductions of -$3.291 million; and revised inflation rates and other minor pricing adjustments of -$1.915 million. FY 1997 net decrease of -$45.732 million is for revised inflation estimates, other minor pricing adjustments, and to fund higher priority programs.

(U) Schedule: Submarine ATWCS program was changed in scope from a fleet release IOC for CCS MK2 to a proof of concept Rapid COTS Insertion (RCI) on one platform in FY96 with DT/OT in FY97. ATWCS TCG development and test schedules slipped due to software design integration delays along with test ship avalibility for testing. TBIP IOC slipped 15 months due to funding adjustments and the impact of TSSAM termination on the technology transfer.

(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) WPN Line 5	264,478	111,485	88,513	153,854	90,753	84,030	94,139	CONT.	CONT.
(U) OPN Line 154	60,200	59,385	72,393	66,230	97,013	83,263	56,105	CONT.	CONT.
(U) OPN Line 155	10,145	1,351	0	5,544	9,106	18,677	17,034	CONT.	CONT.

(U) RELATED RDT&E: Not applicable.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204229N PROJECT NUMBER: A0545

TOMAHAWK PROGRAM ELEMENT TITLE: TOMAHAWK AND THEATER MISSION PLANNING CENTER PROJECT TITLE:

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	To Complete
Program Milestones	1Q FOC BLK III SUB		1Q ATWCS LCG LRIP 2Q MSIII ATWCS TCG IOC	3Q 98 ATWCS LCG IOC 1Q 00 SUB ATWCS IOC 2Q 02 IOC TBIP
Engineering Milestones	2Q TBIP SRR 3Q TBIP SDR	2Q PRELIM DES REV TBIP	3Q TBIP CDR	
T&E Milestones		3Q LBSIT ATWCS TCG 3Q WCT SUB ATWCS 4Q TECHEVAL ATWCS TCG 4Q SBSIT ATWCS TCG	1Q OPEVAL ATWCS TCG LCG 1Q TECH/OPEVAL SUB ATWCS 3Q LBSIT/SBSIT ATWCS	TECH/OPEVAL ATWCS LCG DT/OT TBIP
Contract Milestones	TBIP ATWCS SUB ATWCS ISNSA	TBIP ATWCS SUB ATWCS	TBIP ATWCS SUB ATWCS	TBIP ATWCS SUB ATWCS

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204229N PROJECT NUMBER: A0545
PROGRAM ELEMENT TITLE: TOMAHAWK AND THEATER MISSION PLANNING CENTER PROJECT TITLE: TOMAHAWK

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Software Development	19,911	29,165	50,034
b. Hardware/Software Develop	44,000	100,734	49,566
c. Systems Engineering/Tech Spt	13,955	22,109	27,765
d. Integrated Logistics Support	720	1,100	1,500
e. Developmental Test & Eval	480	912	1,500
f. Travel	108	88	100
g. SBIR Assessment		3,094	
Total	79,174	157,202	130,465

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204229N PROJECT NUMBER: A0545
PROGRAM ELEMENT TITLE: TOMAHAWK AND THEATER MISSION PLANNING CENTER PROJECT TITLE: TOMAHAWK

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, Dahlgren VA	WX	Nov 96	90,890	90,890	22,488	3,408	12,954	16,700	CONT.	CONT.
APL, Laurel MD	SS/CPFF	Apr 94	45,738	45,738	6,521	3,462	2,600	4,000	CONT.	CONT.
Hughes, Tucson AZ	C/CP	Dec 96	314,300	314,300	10,568	44,000	99,785	50,001	CONT.	CONT.
NSWC, Port Huen CA	WX	Dec 95	4,292	4,292	3,883	409	0	0	0	4,292
MDA, St Louis MO	C/FP	Apr 94	75,944	75,944	13,449	5,047	4,500	11,550	CONT.	CONT.
GDE, San Diego CA	SS/CP	Apr 94	26,518	26,518	1,970	4,157	4,505	9,174	CONT.	CONT.
NAWC/AD, Indianapolis IN	WX	Nov 96	6,500	6,500	250	295	155	125	CONT.	CONT.
NUWC, Newport RI	WX	Oct 96	30,740	30,740	12,230	3,330	5,540	6,640	CONT.	CONT.
NSWC, Philadephia	WX	Oct 96	TBD	TBD	0	721	3,700	4,500	CONT.	CONT.
NAWC, China Lake	WX	Oct 96	30,130	30,130	20,230	2,350	2,350	3,200	CONT.	CONT.
Lockheed, Austin TX	SS/CPFF	Apr 94	26,461	26,461	21,461	0	0	5,000	CONT.	CONT.
Tiburon, San Jose CA	SS/CPFF	Mar 94	24,482	24,482	600	2,623	8,810	12,449	CONT.	CONT.
SAIC, Arlington VA	SS/CP	Mar 94	21,872	21,872	1,727	2,709	2,100	4,000	CONT.	CONT.
NAVSEA, Wash DC	PD	Apr 95	4,332	4,332	0	4,332	0	0	4,332	4,332
Miscellaneous	Various		TBD	TBD	1,599,887	1,476	5,897	1,326	CONT.	CONT.
Support and Management										
Miscellaneous					320	375	300	300	CONT.	CONT.
Test and Evaluation										
NAWC/WD, Pt Mugu CA	WX	Nov 96	8,090	8,090	450	200	704	1,200	CONT.	CONT.
Miscellaneous	Various		160	160	30	280	208	300	CONT.	CONT.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204229N PROJECT NUMBER: A0545
PROGRAM ELEMENT TITLE: TOMAHAWK AND THEATER MISSION PLANNING CENTER PROJECT TITLE: TOMAHAWK

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				1,715,264	78,319	152,896	128,665	CONT.	CONT.
Subtotal Support and Management				320	375	300	300	CONT.	CONT.
Subtotal Test and Evaluation				480	480	912	1,500	CONT.	CONT.
SBIR Assessment						3,094			
Total Project				1,716,064	79,174	157,202	130,465	CONT.	CONT.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204229N
PROGRAM ELEMENT TITLE: THEATER MISSION PLANNING CENTER

(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
A1784 THEATER MISSION PLANNING CENTER	3,802	7,463	5,899	3,220	2,670	2,009	1,996	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Tomahawk Theater Mission Planning Center (TMPC) ashore and Afloat Planning System (APS) provide data base generation and processing, flight mission data, command and control information preparation, and distribution for nuclear (TMPC only) and conventional Tomahawk Land Attack Missiles. The TMPC project designs and develops software to decrease mission planning time in response to contingency requirements, improves the production of missile data for distribution and provides automated command and control information for employment and strike planning. APS utilizes the TMPC software on down-sized and ruggedized computer hardware for use in support of Afloat Strike Warfare Commanders. This improves battle group tactical flexibility and responsiveness while maximizing Tomahawk Weapon Systems (TWS) wartime capability. The TMPC and APS systems will be compatible with the Navy Command and Control Systems and the Tomahawk Weapon System. TOMAHAWK Strike Planning Tools are comprised of two elements. The Mission Distribution System (MDS) allows TOMAHAWK users the capability to transmit and recieve mission data updates in a tactical environment. The Electronic TOMAHAWK Employment Planning Package (ETEPP) provides the TOMAHAWK user with command and control information needed to employ TOMAHAWK missions.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204229N PROJECT NUMBER: A1784
PROGRAM ELEMENT TITLE: THEATER MISSION PLANNING CENTER PROJECT TITLE: TMPC

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($347) Continued TMPC national imagery integration and architectural software enhancements.
- (U) ($3,455) Commenced correction of APS OPEVAL deficiencies; converted to Standard Navy Tactical Computer; completed TOMAHAWK Strike Coordination Module (TSCM) development for incorporation into the Tactical Aircraft Mission Planning (TAMPS) program. Continued testing of Special Compartmental Information (SCI) Isolation Segment (SIS) and operational employment/coordination functionality.

2. (U) FY 1996 PLAN:

- (U) ($1,606) Commence development of APS Strike Module/Operational Employment and APS operational deficiency corrections.
- (U) ($2,940) Provide TMPC and national sensor integration; and software architectural enhancements.
- (U) ($2,788) Supports correction of Operational Advisory Group (OAG) discrepancies found for the Mission Distribution System (MDS) of the TOMAHAWK Strike Planning Tools.
- (U) ($129) 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) ($479) Complete APS Strike Module Development/Operational Employment.
- (U) ($3,100) Continue TMPC integration of new national sensors and software architectural enhancements.
- (U) ($2,320) Supports development of enhancements to the MDS portion of the TOMAHAWK Strike Planning Tools.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204229N PROJECT NUMBER: A1784
PROGRAM ELEMENT TITLE: THEATER MISSION PLANNING CENTER PROJECT TITLE: TMPC

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	3,845	7,706	6,079
(U) Adjustments from PRESBUDG	-43	-243	-180
(U) FY 1997 President's Budget Submit:	3,802	7,463	5,899

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY95 decrease of -$.043 million reflects a program adjustment. FY 96 net decrease of -$.243 million reflects Congressional undistributed general and inflation reductions of -$.153 million; and revised inflation rates and other minor pricing adjustments of -$.090 million. FY 97 decrease of -$.180 million reflects revised inflation estimates and other minor pricing adjustments.

(U) Schedule: TSCM Phase II efforts were completed in FY 95. Commencing in FY 96 TCSM migrated to the TAMPS Program Office and will be hosted on TAMPS vice APS. Further upgrades to TSCM will be accomplished by the TAMPS Program Office.

(U) Technical: Not applicable.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204229N PROJECT NUMBER: A1784
PROGRAM ELEMENT TITLE: THEATER MISSION PLANNING CENTER PROJECT TITLE: TMPC

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
Appropriation/Line Number									
WPN LINES 5, 14									
*2 385	2,129	2,830	2,867	3,787	3,762	3,999	CONT.	CONT.	
OPN LINE 154									
*22,415	27,550	14,141	28,613	47,294	32,722	29,682	CONT.	CONT.	

***These funds reflect only the Navy TMPC portion of the total TOMAHAWK weapon system.**

(U) RELATED RDT&E: NOT APPLICABLE

D.(U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program		4Q RTF TMPC 2.4	4Q RTF TMPC 3.0	RTF TMPC 3.1, 4.0 4.1 & 4.2
Milestones				
Engineering Milestones				
	4Q DT/OTIIIB APS			
Milestones				
Contract Milestones	APS TMPC	TMPC APS	TMPC APS	TMPC APS

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204229N PROJECT NUMBER: A1784
PROGRAM ELEMENT TITLE: THEATER MISSION PLANNING CENTER PROJECT TITLE: TMPC

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Software Development	3,802	7,334	5,899
b. SBIR Assessment		129	
Total	3,802	7,463	5,899

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204229N PROJECT NUMBER: A1784
PROGRAM ELEMENT TITLE: THEATER MISSION PLANNING CENTER PROJECT TITLE: TMPC

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										
MDA St Louis Mo	C\FFPI	June 94	36,841	36,841	36,084	757	0	0	0	36,841
GDAE San Diego Ca	SS\CPFF	June 94	14,554	14,554	5,246	1,830	4,188	3,290	CONT.	CONT.
MISCELLANEOUS		Various			29,434	1,215	3,146	2,609	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

[illegible] ACTIVITY: 7

PROGRAM ELEMENT: 0204229N

PROJECT NUMBER: A1784

PROGRAM ELEMENT TITLE: THEATER MISSION PLANNING CENTER

PROJECT TITLE: TMPC

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
[illegible] Product Development	70,764	[illegible],802	7,334	5,899	CONT.	CONT.
[illegible] Support and Management						
[illegible] Test and Evaluation						
[illegible] ement			129			
[illegible] Project	70,764	3,802	7,463	5,899	CONT.	CONT.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N
PROGRAM ELEMENT TITLE: Integrated 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
X0766 IUSS Detect/Classif System	29,879	20,060	10,694	7,960	11,409	13,416	13,996	CONT.	CONT.
X0758 SURTASS	11,315	11,388	3,339	5,314	6,104	7,237	7,824	CONT.	CONT.
TOTAL	41,194	31,448	14,033	13,274	17,513	20,653	21,820	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This Program Element (P.E.) comprises two projects - X0766 and X0758. Project X0766 provides for Integrated Undersea Surveillance Systems (IUSS) Research and Development Projects. Project X0758 is for the Surveillance Towed Array Sensor (SURTASS) development efforts. IUSS provides the Navy with its primary means of submarine detection both nuclear and diesel. The program has undergone a major transition from emphasis on maintaining a large dispersed surveillance force keyed to detection and tracking of Soviet submarines to a much smaller force that is effective against modern diesel and nuclear submarines in regional/littoral or broad ocean areas of interest. This transition preserves our ability to continue open ocean surveillance.

(U) The IUSS Research and Development project (X0766) funds Fixed Surveillance Systems (FSS) which encompasses the Sound Surveillance System (SOSUS), the Surveillance Direction System (SDS), and SURTASS Low Frequency Active (LFA) developments. The number of FSS processing sites has been reduced and the display equipment used at the remaining sites will be converted to SDS/SSIPS (Shore Signal and Information Processing Segment) to significantly lower life cycle costs and enable system-wide consolidation. The SDS Command, Control and Communications system provides the means for Fixed Distributed System (FDS), SOSUS, and SURTASS to manage and report contacts with minimum time-late. The SDS equipment and software replace obsolescent components of IUSS which are increasingly expensive to support. SURTASS LFA will provide an active adjunct capability for IUSS passive and tactical sensors to assist in countering the quieter diesel and nuclear threats of the 1990s and beyond. The LFA tasks are directed at detection of slow quiet threats in harsh littoral waters.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: Budget Activity 7: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing operational systems.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N
PROGRAM ELEMENT TITLE: Integrated 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
X0766 IUSS Detect/Classif System	29,879	20,060	10,694	7,960	11,409	13,416	13,996	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: SDS will provide the Command, Control, Communications (C3) and data fusion functions to combine the capabilities of the FDS, SURTASS, and SOSUS, sensor systems in a manner that provides a comprehensive maritime surveillance picture. SDS will provide a reliable and mobile tactical communications system significantly reducing reporting times. SDS will be fully integrated into the Navy's Space and Electronic Warfare Architecture and is using conventional fleet circuits for direct reporting to the fleet. Joint Maritime Command Information System (JMCIS) will serve as the IUSS gateway to the fleet and is being upgraded to better report acoustic data. In addition, SDS is a specified requirement for FDS and Advanced Deployable System (ADS) sensor fusion and communications developments. LFA will provide an active adjunct capability for IUSS passive and tactical sensors to counter the quieter diesel and nuclear threats of the 1990s and beyond. The LFA tasks are directed at detection of slow quiet threats in harsh littoral waters. Functional improvements are delivered to the Fleet in software "Builds". SURTASS/LFA Build #1 (FY97) includes doppler sensitive waveforms and adaptive beamforming.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($11,055) Completed development, Factory Acceptance Test (FAT) and Formal Qualification Testing (FQT) of SDS Build 4 for 4500 and 7800. Installed SDS Build 4 at Site 7800.
- (U) ($8,964) Continued integration of LFA prototype improvements into system architecture.
- (U) ($3,585) Performed data analysis on FY 94 LFA sea test data and conducted one FY 95 LFA sea test.
- (U) ($6,275) Developed new algorithms and signal/data processing software for littoral/shallow water performance, including clutter reduction, doppler wave forms and Adaptive Beam Former (ABF).

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0766
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS Detect/Classif System

2. (U) FY 1996 PLAN:

- (U) ($1,485) Complete FAT for Build 5 at 7800. Install SDS Build 5 at 7800.
- (U) ($2,712) Perform data analysis on FY 95 LFA sea test data and conduct one FY 96 LFA sea test.
- (U) ($5,118) Continue development of algorithms and signal/data processing software for LFA littoral/shallow water performance.
- (U) ($10,316) Continue integration of active and passive improvements into SURTASS/LFA receive processing subsystem.
- (U) ($429) 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) ($1,416) Continue LFA development of data fusion algorithms and C4I interfaces for tactical reporting.
- (U) ($1,569) Perform data analysis on FY 96 LFA sea test data and conduct two FY 97 LFA sea tests.
- (U) ($3,794) Continue development of algorithms and signal/data processing software for littoral/shallow water performance.
- (U) ($3,915) Complete and install SDS Build 5 at 4400. Complete SDS TECHEVAL and OPEVAL. Assess FDS SSIPS real world performance and correct software to optimize processing. Incorporate ATD, ACTD and SBIR technology.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0766
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS Detect/Classif System

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	29,460	11,811	13,004
(U) Adjustments from PRESBUDG:	+419	+8,249	-2,310
(U) FY 1997 President's Budget:	29,879	20,060	10,694

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 95 adjustments from FY 1996 President's Budget include $419K for Navy reprogramming from X0758 for LFA. FY 96 was increased $8,249K; +$9.0M for Congressional Program Adjustment, -$129K for Congressinal inflation adjustment, -$364K for Congressional Undistributed Adjustment, and -$258K for revised DOD inflation rates. FY 97 was decreased by $2,310K; -$1,968K for Navy reprogramming for SURTASS, -$323K for DOD inflation adjustment, +$10K for DBOF rate adjustment, and -$29K for DOD execution adjustment.

(U) Schedule: LFA OPEVAL delayed due to TAGOS-23 delivery slip.

(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# 2225	20,314	19,113	34,635	16,588	12,254	7,855	10,979	CONT.	CONT.
OMN 1C3C	86,829	72,569	69,358	67,094	74,383	74,695	75,147	CONT.	CONT.
MILCON	0	0	0	0	0	0	0	CONT.	CONT.
OPN# 2237	8,557	17,938	10,590	9,490	14,540	13,250	8,202	CONT.	CONT.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0766
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS Detect/Classif System

(U) RELATED RDT&E:

(U) PE 0204311N(Integrated Surveillance System)
(U) PE 0603785N(Combat Systems Oceanographic Performance Assessment)
(U) PE 0604507N(Enhanced Modular Signal Processor)
(U) PE 0603747N(Undersea Warfare Advanced Technology)

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones			SDS MS II/III 3Q/97	
Engineering Milestones	SDS FQT 2Q/95	SDS I&T 3Q/96	BUILD #1 LITTORAL IMPROV 10/96	
T&E Milestones	LFA SEA TEST 2/95	LFA SEA TESTS 4/96 SDS FAT/FQT 3Q/96 SDS SAT 4Q/96 SDS TECHEVAL 2Q/96 SDS OPEVAL 3Q/96	LFA SEA TESTS 5/97	T-AGOS 23 DLVRY 12/98 OT LFA
Contract Milestones				

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER:X0766
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS Dect/Classif System

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Hardware	0	0	0
b. Software Development	9,248	1,230	3,700
c. SE&I	1,717	0	0
d. Misc.	598	255	215
e. Transmit Subsystem FSED	0	0	0
f. Receive Subsystem FSED	10,458	15,045	3,137
g. Littoral Active Development	6,069	1,732	1,810
h. Sea Tests	1,289	960	982
i. Data Analysis	500	838	850
Total	29,879	20,060	10,694

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0766
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS Dect/Classif 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										
LORAL Manassas, VA	C/CPFF	9/91 option	46,700	46,700	31,534	6,864	1,230	3,700	CONT.	CONT.
Misc, AT&T, NTSC, NFESC, NISE/East, NRaD, Mitre, ARL/UT	WX/PD/RC SS/CPFF/CPIF C/CPFF/CPAF		75,523	75,523	65,136	5,035	199	135	CONT.	CONT.
APL/JHU Baltimore, MD	SS/CPFF	10/94 option					4,288	1,200	CONT.	CONT.
HAC Fullerton, CA	SS/CPFF	8/90 option	95,800	95,800	55,300	10,303	11,879	3,371	CONT.	CONT.
SANDERS Manchester, NH	C/CPFF	10/90 option	12,542	12,542	12,542					
DSR Fairfax, VA	C/CPFF					2,000	850	983	CONT.	CONT.

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N

PROGRAM ELEMENT TITLE: Integrated Surveillance System

PROJECT NUMBER: X0766

PROJECT TITLE: IUSS Dect/Classif 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
Support and Management										
Misc, TRW	C/CPAF	5/94 option	5,795	5,795	3,193	1,717	250	330	CONT.	CONT.
Various	WR/WX				4,458	2,671	389	400	CONT.	CONT.
Test and Evaluation										
Various	WR/WX				4,680	1,289	975	575	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: 7

PROGRAM ELEMENT: 0204311N
PROGRAM ELEMENT TITLE: Integrated Surveillance System

PROJECT NUMBER: X0766
PROJECT TITLE: IUSS Dect/Classif System

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	164,512	24,202	18,446	9,389	CONT.	CONT.
Subtotal Support and Management	7,651	4,388	639	730	CONT.	CONT.
Subtotal Test and Evaluation	4,680	1,289	975	575	CONT.	CONT.
Total Project	176,843	29,879	20,060	10,694	CONT.	CONT.

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N
PROGRAM ELEMENT TITLE: Integrated 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
X0758 SURTASS	11,315	11,388	3,339	5,314	6,104	7,237	7,824	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The SURTASS project comprises the mobile, tactical arm of the Integrated Undersea Surveillance System, providing long range detection and cuing for tactical weapons platforms against both diesel and nuclear powered submarines. With the SOSUS Arrays being placed in a standby status (data available but not continuously monitored), SURTASS must provide the undersea surveillance necessary to support regional conflicts and sea lane protection. SURTASS has experienced recent passive and active success against diesel submarines operating in shallow water. SURTASS is greatly reducing costs by consolidating logistics support, using Non-Developmental Items and commercial hardware, and increasing operator efficiency through computer aided detection and classification processing. SURTASS development efforts include: twin-line array processing, improved detection and classification/passive automation to counter quieter threats; additional signal processing and bi-static active capability; integrated active and passive operations; improved Battle Group support; and improved information processing. Functional improvements are delivered to the Fleet in software "Builds". Build #1 (FY 95) includes source-set formulation and analysis tools, automated line trackers and nuclear source auto-detector. Build #2 (FY 96) includes wideband energy trackers, wideband/narrowband feature association, and diesel Full Spectrum Processing (FSP). Build #3 (FY 97) includes automated localization and tracking, diesel automated detection and twin-line integration.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($2,942) Continued software upgrades ORI, Bi-static, and Full Spectrum Processing.
- (U) ($905) Continued SEM B to SEM E conversion.
- (U) ($500) Continued twin-line development.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0758
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: SURTASS

- (U) ($1,172) Completed concept definition of computer aided detection and classification/passive automation.
- (U) ($315) Conducted OPEVAL on SURTASS Block Upgrade.
- (U) ($5,481) Continued fiber optic array (ADM) development.

2. (U) FY 1996 PLAN:

- (U) ($1,200) Continue software upgrades ORI, Bi-Static, and Full Spectrum Processing.
- (U) ($1,153) Continue SEM B to SEM E conversion.
- (U) ($4,397) Continue array improvements, including expanded frequency processing.
- (U) ($4,386) Continue software development for computer aided detection and classification/passive automation.
- (U) ($252) 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) ($1,089) Continue array improvements.
- (U) ($1,182) Continue software development for computer aided detection and classification/passive automation.
- (U) ($1,068) Continue SEM B to SEM E conversion.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0758
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: SURTASS

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	11,944	4,629	4,553
(U) Adjustments from PRESBUDG:	-629	+6,759	-1,214
(U) FY 1997 President's Budget:	11,315	11,388	3,339

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 95 adjustments from FY 1996 President's Budget include $629K reprogramming to X0766 for LFA. FY 96 increased $6,759K; +$7.2M for Congressional adjustment, -$318K for Congressional Undistributed Adjustments and inflation, and -$123K for revised DOD inflation rates. FY 97 was adjusted +$3,913K increase for SURTASS, -$5.0M due to Congressional FY1996 addition accelerating FY1997 efforts, -$127K for revised inflation estimates and other minor pricing adjustments.

(U) Schedule: Maintain software build schedule.

(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
SCN	0	0	0	0	84,086	0	0	CONT.	CONT.
OPN #2237	8,557	17,938	10,590	9,490	14,540	13,250	8,202	CONT.	CONT.
MILCON	0	0	0	0	0	0	0	CONT.	CONT.

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N
PROGRAM ELEMENT TITLE: Integrated Surveillance System

PROJECT NUMBER: X0758
PROJECT TITLE: SURTASS

U) RELATED RDT&E:

(U) PE 0204311N (Integrated Surveillance System)
(U) PE 0603785N (Combat Systems Oceanographic Performance Assessment)
(U) PE 0604507N (Enhanced Modular Signal Processor)
(U) PE 0603747N (Undersea Warfare Advanced Technology)

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				
Engineering Milestones		BUILD #2 COMPUTER AIDED DET/CLASS	BUILD #3 COMPUTER AIDED DET/CLASS	CONT.
T&E Milestones	FOT&E B/U DT-II BI-STATIC DT-II TWIN-LINE SURTASS B/U	DT TWIN-LINE DT/OT BI-STATIC	DT/OT TWIN-LINE	OT II BI-STATIC OPEVAL
Contract Milestones				

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N
PROGRAM ELEMENT TITLE: Integrated Surveillance System

PROJECT NUMBER: X0758
PROJECT TITLE: SURTASS

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Littoral Passive Processing Improvements	2,263	5,629	1,182
b. Block Upgrade Software	0	0	0
c. LFA Bi-Static	2,150	1,200	1,068
d. LFA B/U Integration	1,471	1,153	0
e. Fiber Optic Array	5,431	0	0
f. Twin-Line	0	0	0
g. Array Improvements	0	3,406	1,089
Total	11,315	11,388	3,339

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N
PROGRAM ELEMENT TITLE: Integrated Surveillance System

PROJECT NUMBER: X0758
PROJECT TITLE: SURTASS

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										
HAC Fullerton, CA	SS/CPFF	5/89 option	27,592	27,592	24,907	500	0	0	CONT.	CONT.
HAC Fullerton, CA	SS/CPFF	8/90 option	29,240	29,240	17,381	5,072	4,181	1,750	CONT.	CONT.
APL/JHU Baltimore, MD	SS/CPFF	10/94 option					4,925	750	CONT.	CONT.
Misc, NRaD, AHA, DSR	WX SS/C/CPFF					2,462	1,448	514	CONT.	CONT.
Support and Management										
Various	WR/WX				900	1,697	500	200	CONT.	CONT.
Test and Evaluation										
Various	WR/WX				5,000	1,584	334	125	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: 7

PROGRAM ELEMENT: 0204311N
PROGRAM ELEMENT TITLE: Integrated Surveillance System

PROJECT NUMBER: X0758
PROJECT TITLE: SURTASS

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	42,288	8,034	10,554	3,014	CONT.	CONT.
Subtotal Support and Management	900	1,697	500	200	CONT.	CONT.
Subtotal Test and Evaluation	5,000	1,584	334	125	CONT.	CONT.
Total Project	48,188	11,315	11,388	3,339	CONT.	CONT.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204413N DATE: March 1996
PROGRAM ELEMENT TITLE: Amphibious Tactical Support Units

(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
S1980	Amphib Other C2								
	1,148	0	602	349	3,497	5,512	2,544	0	27,710
S2231	MCAC Weapons Development								
	3,444	4,229	946	879	3,215	7,151	3,586	0	23,450
TOTAL	4,592	4,229	1,548	1,228	6,712	12,663	6,130	0	51,160

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Both projects support Landing Craft, Air Cushion (LCAC) during amphibious operations. Project S1980, (FY 95) AN/KSQ-1 Amphibious Assault Direction System integrates existing developments into a system which will support the command and control of surface amphibious assaults launched from extended, over-the-horizon, off shore ranges. The AN/KSQ-1 adapts the USMC's Position Location Reporting System for naval operations and integrates it with shipboard navigation and communication systems. The AN/KSQ-1 is required to identify, track, communicate with, and control landing craft from launch through transit, offload, and return. (FY 97 - FY 99) AN/KSQ-1 will be integrated with the Joint Maritime Command Information System (JMCIS). The feasibility of using alternate sources of position location information (PLI) instead of PLRS and integrating available sources of PLI into the AN/KSQ-1 system will be investigated. Project S2231, (FY 95) Multi-Mission Craft, Air Cushion (MCAC) vulnerability assessment will determine the mine threat to the MCAC while performing shallow water mine countermeasure operations and LCAC in amphibious transport role. The assessment will also assist in determining tactics and safe operating envelopes for the MCAC concept. (FY 96 - FY 01) LCAC Control Enhancements initiates studies that will provide a remote control capability for LCAC and will be integrated and scheduled with developing minesweeping and shallow water mine-counter-measures systems. LCAC Deep Skirt will provide an improved LCAC performance in Sea State 3 and higher and improved capability near and in the surf zone for explosive lane breaching missions in support of amphibious operations.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204413N

PROGRAM ELEMENT TITLE: Amphibious Tactical Support Units

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
S1980	Amphib Other C2								
	1,148	0	602	349	3,497	5,512	2,544	0	27,710

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Project S1980, (FY 95) AN/KSQ-1 Amphibious Assault Direction System integrates existing developments into a system which will support the command and control of surface amphibious assaults launched from extended, over-the-horizon, off shore ranges. The AN/KSQ-1 adapts the USMC's Position Location Reporting System (PLRS) for naval operations and integrates it with shipboard navigation and communication systems. The AN/KSQ-1 is required to identify, track, communicate with, and control landing craft from launch through transit, offload and return. (FY 97 - FY 99) AN/KSQ-1 will be integrated with the Joint Maritime Command Information System (JMCIS). The feasibility of using alternate sources of position location information (PLI) instead of PLRS and integrating available sources of PLI into the AN/KSQ-1 system will be investigated.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($ 280) Completed final revision and certification of AN/KSQ-1 software.
- (U) ($ 150) Completed system drawings.
- (U) ($ 408) Completed TECHEVAL and OPEVAL testing.
- (U) ($ 310) Completed Integrated Logistics Support efforts: drafted technical manuals, training, provisioning and maintenance plan.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204413N
PROGRAM ELEMENT TITLE: Amphibious Tactical Support Units

PROJECT NUMBER: S1980
PROJECT TITLE: Amphib Other C2

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

3. (U) FY 1997 PLAN:

- (U) ($372) Study and identify alternate position location information sources.
- (U) ($100) Study the requirements to interface the AN/KSQ-1 to the JMCIS/UB.
- (U) ($100) Evaluate interfaces with the Navigation Data Integrator System on the LCACs.
- (U) ($ 30) Complete FOT&E.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY1997
(U) FY 1996 President's Budget	828	0	0
(U) Adjustments from PRESBUDG:	+320	0	+602
(U) FY 1997 PRESBUDG Submit:	1,148	0	602

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 95 increase to complete AN/KSQ-1 system OPEVAL. FY 97 increase to interface the AN/KSQ-1 system with JMCIS and investigate the feasibility of using alternate sources of position location information (PLI) instead of PLRS.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204413N
PROGRAM ELEMENT TITLE: Amphibious Tactical Support Units

PROJECT NUMBER: S1980
PROJECT TITLE: Amphib Other C2

(U) Schedule: Not applicable.

(U) Technical: The increase in FY 97 provides real-time position tracks to other combat systems via JMCIS.

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

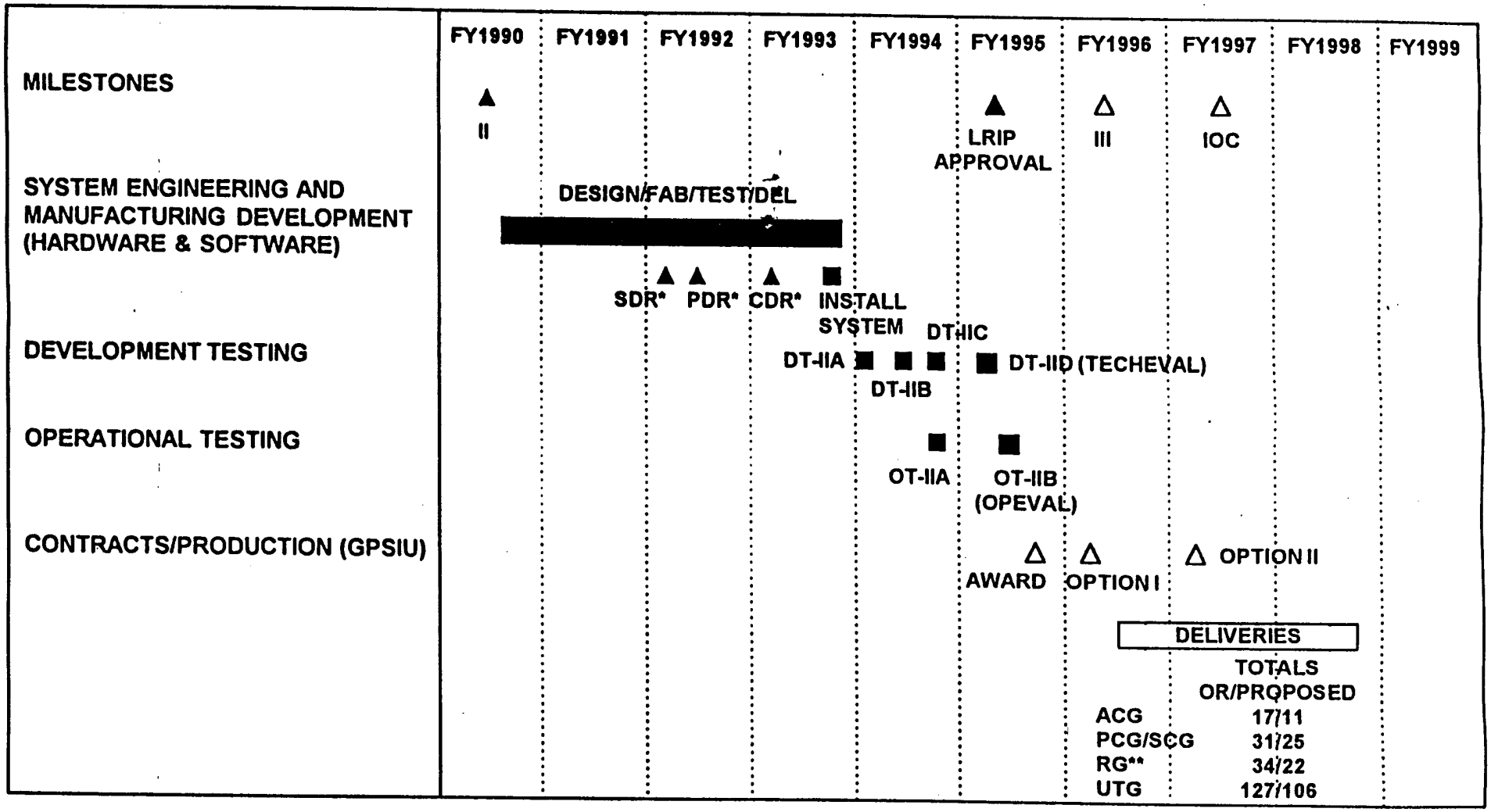
	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN Line 067000 494	2,398	- 0 -	- 0 -	2,889	4,058	- 0 -	- 0 -	9,839

(U) RELATED RDT&E: Not applicable.

D. (U) SCHEDULE PROFILE: See attached.

PROGRAM ELEMENT: 0204413N
PROJECT: S1980

AN/KSQ-1 SCHEDULE



* SDR - SYSTEM DESIGN REVIEW
PDR - PRELIMINARY DESIGN REVIEW
CDR - CRITICAL DESIGN REVIEW

** RG - RELAY GROUP; 2 DEPLOYED WITH EACH ACG

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204413N
PROGRAM ELEMENT TITLE: Amphibious Tactical Support Units

(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
S2231 MCAC Weapons Development	3,444	4,229	946	879	3,215	7,151	3,586	0	23,450

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Project S2231, (FY 95) Multi-Mission Craft, Air Cushion (MCAC) vulnerability assessment will determine the mine threat to the MCAC while performing shallow water mine countermeasure operations. The assessment will also assist in determining tactics and safe operating envelopes for the MCAC concept. (FY 96 - FY 01) LCAC Control Enhancements initiates studies that will provide a remote control capability for LCAC and will be integrated and scheduled with developing minesweeping and shallow water mine-counter-measures systems. LCAC Deep Skirt will provide an improved LCAC performance in Sea State 3 and higher and improved capability near and in the surf zone for explosive lane breaching missions in support of amphibious operations.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:
   - (U) ($2,530) Completed MCAC Vulnerability Field Tests.
   - (U) ($430) Completed Vulnerability Data Analysis/Report.
   - (U) ($484) Developed tactics, validation and Fleet exercise support.
2. (U) FY 1996 PLAN:
   - (U) ($305) Design of Deep Skirt system.
   - (U) ($749) Conduct model testing.
   - (U) ($1,140) Full scale drawings/template development.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204413N
PROGRAM ELEMENT TITLE: Amphibious Tactical Support Units

PROJECT NUMBER: S2231
PROJECT TITLE: MCAC Weapons Development

- (U) ($1,515) Full scale system procurement/craft modifications and installation.
- (U) ($440) Control system enhancement studies/Shallow Water Mine Countermeasures (SWMCM) interface specification preparation.
- (U) ($ 80) 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) ($871) Full scale testing of Deep Skirt.
- (U) ($75) Control system enhancement/SWMCM system integration.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget	3,444	4,364	2,022
(U) Adjustments from PRESBUDG:	0	-135	-1,076
(U) FY 1997 PRESBUDG Submit:	3,444	4,229	946

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The decrease in FY 1996 is due to Congressional Undistributed Reductions. The decrease in FY 1997 is due to revised inflation estimates, program restructuring and a reprioritization of LCAC initiatives.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204413N
PROGRAM ELEMENT TITLE: Amphibious Tactical Support Units

PROJECT NUMBER: S2231
PROJECT TITLE: MCAC Weapons Development

(U) Schedule: Remote Control initiative moved to FY 99 and out to support far term SWMCM program. LCAC Deep Skirt effort beginning in FY 96 supports near term SWMCM.

(U) Technical: Not applicable.

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

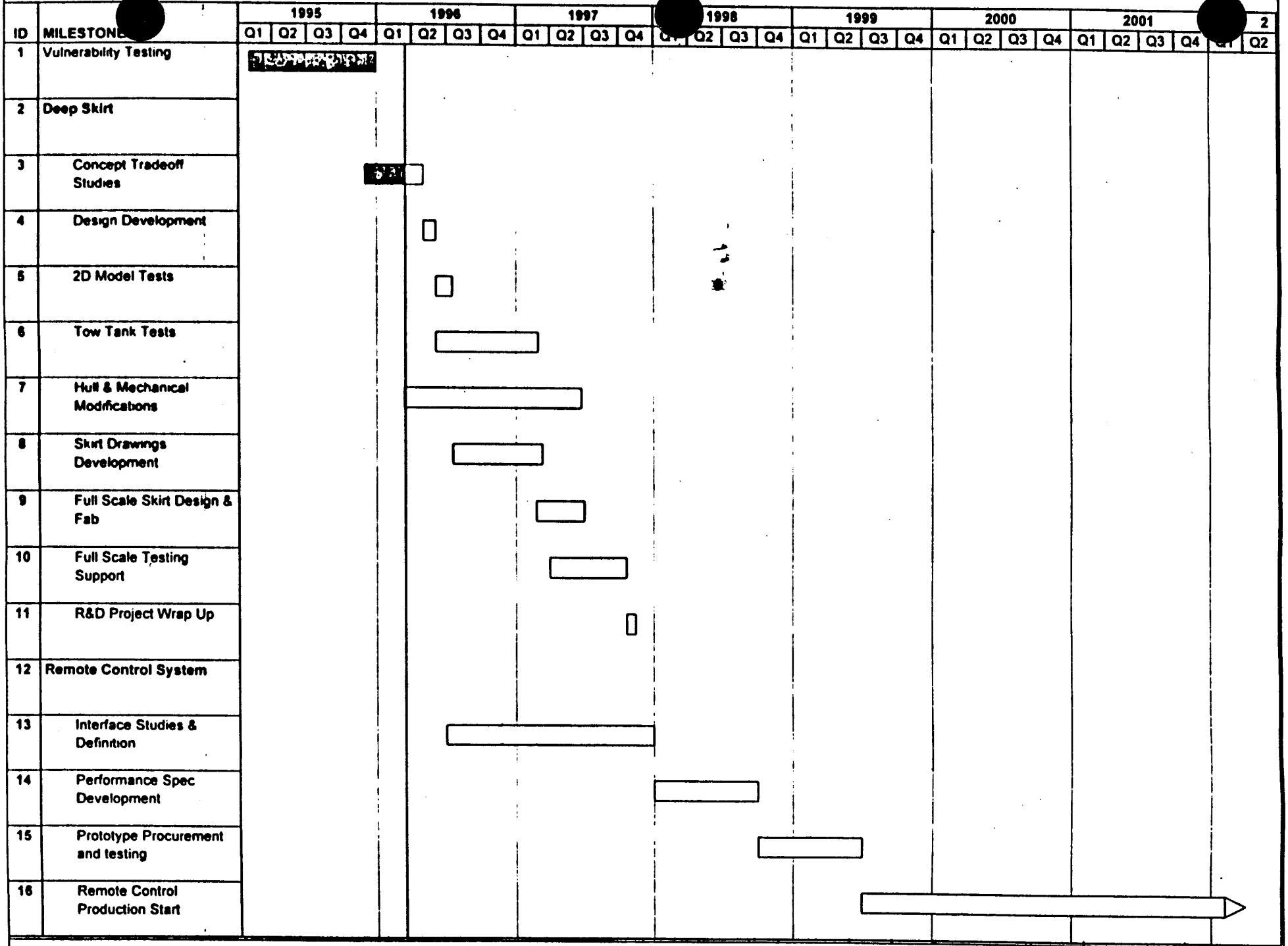
	FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN Line 098000	- 0 -	- 0 -	- 0 -	- 0 -	16,458	13,984	16,470	CONT.	CONT.

(U) RELATED RDT&E - Not applicable.

D. (U) SCHEDULE PROFILE: See attached.

PROJECT: S2231

(FISCAL YEARS)



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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training 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
S1427	Surface Tactical Team Trainer (STTT)								
	9,296	9,691	3,414	3,881	2,198	67	66	CONT.	CONT.
W0431	Tactical Aircrew Combat Training System (TACTS)								
	5,586	4,729	3,538	3,954	5,274	5,283	5,409	CONT.	CONT.
W0604	Training Range and Instrumentation Development (TRID)								
	17,423	22,090	4,115	4,421	5,521	5,534	5,682	CONT.	CONT.
W1998	Joint Tactical Combat Training System (JTCTS)								
	22,580	27,936	17,946	6,155	7,476	7,480	7,482	CONT.	CONT.
W2124	Air Warfare Training Development (AWTD)								
	746	0	1,666	2,174	2,140	2,371	2,063	CONT.	CONT.
X1823	Training and Training Devices Systems (TTDS)								
	2,386	1,394	5,988	6,683	6,988	5,436	7,654	CONT.	CONT.
TOTAL	58,017	65,840	36,667	27,268	29,597	26,171	28,356	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The STTT will develop the Battle Force Tactical Training System to provide realistic joint warfare training including a means to link these ships together for coordinated Combat System team training using Distributed Interactive Simulation (DIS) protocols. This system is the planned shipboard training systems interface of the JTCTS program. TACTS provides real-time monitoring and post-exercise debrief of aircrews flying on instrumented training ranges. This system is the primary training tool used by the Navy's advanced tactical training schools (Navy Fighter Weapons School, Naval Strike Warfare Center and Marine Aviation Weapons and Tactics Squadron). TRID program provides development of many range systems including range electronic warfare simulator, advanced weapons training systems, laser training systems, and shallow water range technology. JTCTS (formerly TCTS) became a joint USN/USAF program in March, 1994. JTCTS will develop U.S. Navy fleet deployable instrumentation for at sea surface, subsurface, and air training and tactics development and fixed/transportable air range instrumentation for U.S. Navy and U.S. Air Force air training and tactics development.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

JTCTS will incorporate the Defense Modeling and Simulation Office sponsored Distributed Interactive Simulation Protocol Data Unit for interoperability with Navy and other service live, virtual (simulators), and constructive (war games) simulations. This summary reflects only the USN funding component of the JTCTS. AWTD program provides development of many aviation training systems including Universal Threat System for Simulators (UTSS), mission rehearsal simulation technologies and the Aviation Training Technology Integration Facility (ATTIF) which was a former Advanced Research Projects Agency project known as What-If Simulation System for Advanced Research & Development (WISSARD). TTDS provides a geographically distributed wargaming system for littoral operations training which supports objectives of Fleet Commanders, Naval War College, Joint Warfare Center, and Tactical Training Groups in wargaming, tactical decision making training, and tactics development and evaluation.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training 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
S1427 Surface Tactical Team Trainer (STTT)	9,296	9,691	3,414	3,881	2,198	67	66	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Battle Force Tactical Training (BFTT) Program provides realistic joint warfare training across the spectrum of armed conflict; realistic unit level team training in all warfare areas; a means to link ships together which are in different homeports for coordinated training; external stimulation of shipboard training systems; and simulation of non-shipboard forces. BFTT uses a distributed architecture, integrating existing training systems, and uses Distributed Interactive Simulation (DIS) protocols. BFTT provides ships' Commanding Officers and Battle Group/Battle Force Commanders with the ability to conduct coordinated, realistic, high stress, combat system team training as an integral part of the Afloat Training Organization. BFTT Baseline 1A provides enhanced software capability based on fleet-driven requirements. Upgrade of the Standard Ocean Acoustics Model (SOAM) will provide a realistic, reusable software ocean model for use in Naval training systems. The Mine Warfare Model (MW MODEL) will provide integration of the Mine Warfare Trainer with BFTT. Stimulators/Simulators (STIM/SIM) provides standardized Radio Frequency (RF), Intermediate Frequency (IF), and/or Digital injection into surface ship radars and fire control systems for training of shipboard operators as part of the BFTT System.

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

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development
PROJECT NUMBER: S1427
PROJECT TITLE: Surface Tactical Team Trainer (STTT)

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($4,500) BFTT B/L 1- Conducted DT-IIA Demonstration. Developed for DT-IIB the DD 963 Class, CV/CVN Class, FCTCPAC, and LSD 41 Class to include integration of the following systems; HARPOON, TOMAHAWK, JMCIS, AN/USQ-93 RESS, CST Engineering Development Model (EDM) DD 963 Class Performance Monitoring (PM), CV/CVN Class PM, and Surface Ship Defense System Integration (EDM).
- (U) ($4,096) CST - Provided three additional Service Test Models. Continued development of Baseline O software.
- (U) ($200) AWTT - Developed software requirements to incorporate amphibious/littoral functionality into Baseline BFTT software.
- (U) ($500) MW Model - Initiated integration of the AN/SSQ-94 Combat System Integrated Training Equipment (CSITE) with BFTT.

2. (U) FY 1996 PLAN:

- (U) ($3,573) BFTT B/L 1- Conduct DT-IIB and develop for DT-IIIA the preliminary CG 47/DDG 51 Class, DDG 993/ CGN 36 Class, and MCM 1/MHC 51 Classes to include integration of the following systems: Scenario Generation & Control Human Machine Interface/Distributed Interactive Simulation (SG&C/HMI/DIS) upgrades, Performance Monitoring (PM) enhancement per class, and AN/SSQ-94 Phase I. Conduct Baseline I, Milestone III.
- (U) ($5,341) BFTT B/L 1A - Initiate software development of the modifications required to BFTT B/L 1 to incorporate amphibious/littoral functionality into BFTT B/L 1 software.
- (U) ($500) MW MODEL - Develop the software modification required to integrate the AN/SSQ-94 CSITE with BFTT.
- (U) ($158) SOAM - Develop an update to the SOAM for use in all surface trainer/expeditionary warfare programs.
- (U) ($119) SBIR - Portion of the 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: 7 PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development
PROJECT NUMBER: S1427
PROJECT TITLE: Surface Tactical Team Trainer (STTT)

3. (U) FY 1997 PLAN:

- (U) ($1,728) BFTT B/L 1- Conduct DT-III of the recompiled BFTT software to include: SG&C/HMI/DIS upgrades, the final AEGIS Combat Training System (ACTS) configuration, in CG 47/DDG 51 Class, the updated AN/SSQ-94/BFTT configuration, additional On-Board Trainer (OBT) interfaces, and PM enhancements (both ship and shore).
- (U) ($200) MW Model - Continue development of the software modifications required to integrate the AN/SSQ-94 CSITE with BFTT.
- (U) ($1,441) SIM/STIM - Develop generic Radio Frequency (RF) and Intermediate Frequency radar simulators. Initiate development of MK 91 NATO Sea Sparrow Missile System RF Stimulator.
- (U) ($45) SOAM - Complete the update to the SOAM to incorporate Shallow Water effects.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	9,401	7,005	6,371
(U) Adjustments from PRESBUDG:	- 105	+2,686	-2,957
(U) FY 1997 President's Budget Submit:	9,296	9,691	3,414

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: Decrease of $105 in FY 95 reflects a reduction in program requirements. The FY 96 adjustment is due to Congressional undistributed general and inflation (+$2,863); and revised DoD inflation rates and other minor pricing adjustments (-$177). FY 97 adjustment reflects an increase in program requirements (+$300); Congressional undistributed reduction (-$3,000); and revised DoD inflation estimates and other minor pricing adjustments (-$257).

(U) Schedule: Ship availability is pushing conduct of BFTT DT IIB to mid-March based on ship availbility, thereby causing incorporation of DT IIB results that need to be incorporated into Milestone III documentation out to 4Q/96.

(U) Technical: Not Applicable.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204571N PROGRAM ELEMENT TITLE: Consolidated Training Systems Development PROJECT NUMBER: S1427 PROJECT TITLE: Surface Tactical Team Trainer (STTT)

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 #2762	12,338	11,239	28,343	33,164	36,237	38,364	37,741	CONT.	CONT.
• (U) OPN #8089			125	125	1,125	1,128	631	CONT.	CONT.
• (U) OPN #384	2,858	4,600	5,040	5,194	7,191	6,901	7,941	CONT.	CONT.

(U) RELATED RDT&E: Not Applicable

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones		4Q BFTT B/L I M/S III	4Q BFTT B/L I IOC	CONT.
Engineering Milestones	1Q BFTT B/L DTIIA	2Q BFTT B/L I DTIIB	4Q BFTT B/L I DTIII	CONT.
T&E Milestones				
Contract Milestones				

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

DATE: MARCH 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

PROJECT NUMBER: S1427
PROJECT TITLE: Surface Tactical Team Trainer (STTT)

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Systems Engineering			
o BFTT B/L 1	300	200	102
o BFTT B/L 1A	0	1200	0
o CST	981	0	0
o AWTT	200	0	0
o MW Model	100	100	0
o STIM/SIM	0	0	1441
b. Technical Data			
o BFTT B/L 1	400	222	226
o BFTT B/L 1A	0	1260	0
o CST	970	0	0
o AWTT	0	0	0
o SOAM	0	158	45
o MW Model	100	0	0
o SBIR	0	119	0
c. Software Development			
o BFTT B/L 1	3800	3151	1400
o BFTT B/L 1A	0	2881	0
o CST	1895	0	0
o AWTT	0	0	0
o MW Model	200	400	200
d. Dev. Spt. Eqpt. Acquisition			
o CST	250	0	0
o MW Model	100	0	0
o AWTT	0	0	0
Total	9,296	9,691	3,414

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development
PROJECT NUMBER: S1427
PROJECT TITLE: Surface Tactical Team Trainer (STTT)

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 FY1994 & Prior	FY1995 Budget	FY1996 Budget	FY1997 Budget	Total Complete	Total Program
Product Development										
NSWC/PHD	WR/RC	1/97	CONT.	CONT.	6,152	4,500	7,550	1,993	CONT.	CONT.
NSWC/DD	WR/RC	3/95	6,378	6,378	3,963	2,415	0	0	0	6,378
NTSC	RC	N/A	6,850	6,850	6,700	0	150	0	0	6,850
MISCELLANEOUS		1/97	CONT.	CONT.	1,523	781	722	521	CONT.	CONT.
Support and Management										
MISC C/CPFF/REQN		1/97	CONT.	CONT.	279	350	150	150	CONT.	CONT.
Test and Evaluation										
NSWC/PHD	WR/RC	1/97	CONT.	CONT.	1,300	750	500	250	CONT	CONT

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY1994 & Prior	FY1995 Budget	FY1996 Budget	FY1997 Budget	To Complete	Total Program
Product Development			60 DAYS ARO						
MISC	RCP	1/97		500	500	500	500	CONT.	CONT.
Support and Management									
Test and Evaluation									

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

PROJECT NUMBER: S1427
PROJECT TITLE: Surface Tactical Team Trainer (STTT)

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	$18,838	$8,196	$8,922	$3,014	CONT.	CONT.
Subtotal Support and Management	$279	$350	$150	$150	CONT.	CONT.
Subtotal Test and Evaluation	$1,300	$750	$500	$250	CONT.	CONT.
SBIR Assessment			119			
Total Project	$20,417	$9,296	$9,691	$3,414	CONT.	CONT.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training 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
W0431 Tactical Aircrew Combat Training System (TACTS)	5,586	4,729	3,538	3,954	5,274	5,283	5,409	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project develops new TACTS capabilities primarily through the integration of additional types of aircraft and weapons. This requires development of new aircraft interfaces, weapons and countermeasures simulations, and modifications to displays. Software is also developed to produce computer generated Electronic Warfare (EW) threats to enhance the system's ability to provide training in a realistic EW environment. Various other system performance improvements are also developed to make the system more effective and reliable.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1 (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($1,048) Aircraft Integration - Continued the development of a No-Drop Weapons Scoring (NDWS) capability for the AV-8B (day attack) and F-14A/B, as well as software modifications to accommodate the F-14D tape D02 release. Completed the development of a Computer Generated Threat Simulations (CGTS) training capability for the AV-8B.
- (U) ($1,801) Weapons Integration - Continued development of training capabilities for Phoenix (Phase III), HARM (EA-6B and F/A-18), Advanced Medium Range Air to Air Missile (AMRAAM), and AIM-7M (H build). Initiated development of a training capability for Joint Stand-Off Weapon (JSOW). Continued development of simulations for the MICA and Super 530D/F adversary weapons.
- (U) ($162) Threat Integration - Continued the development of simulation capabilities for the 2S6 anti-aircraft artillery (AAA) and SA-11 surface to air missile (SAM). Continued development of barrage AAA. Corrected errors found in the Fallon Orange Command and Control (OCC) software during testing.
- U ($1,566) System Upgrades - Completed development of TACTS block 5.0 and A08/A04 software. Initiated development of TACTS 6.0/A09/A04.1 software. Initiated the development of the Advanced Message Oriented Data Security Module (AMODSM) and other system improvements. Rerouted the Fallon EW range data through the front end processor.

- (U) ($1,009) Studies/Analysis/T&E - Completed testing of block 5.0/A08/A04. Initiated development of a users manual for TACTS weapons simulations. Investigated how bomb count validity could be improved. Worked with the F/A-18E/F program to identify software modifications required to interface with the TACTS.

2 (U) FY 1996 PLAN:

- (U) ($541) Aircraft Integration - Complete development of a NDWS capability for the AV-8B (day attack) and F-14A/B, as well as software modifications to accomodate the F-14D tape D02 release. Develop software modifications to make TACTS compatible with the F/A-18E/F.
- (U) ($1,031) Weapons Integration - Complete the development of a training capability for the Phoenix missile. Continue development of an AMRAAM training capability.
- (U) ($25) Threat Integration - Complete the development of simulation capabilities for the 2S6 AAA and SA-11 SAM.
- (U) ($2,591) System Upgrades - Continue development of block 6.0/A09/A04.1 software. Complete integration of the Fallon EW range interface with the front end processor. Continue the development of AMODSM as well as other system improvements.
- (U) ($472) Studies/Analysis/T&E - Begin test planninng for block 6.0/A09/A04.1 software. Test the Fallon front end processor EW interface functionality. Continue development of a TACTS Simulation User's Manual.
- (U) ($69) Portion of program reserved for Small Business Innovation Research asssessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($142) Aircraft Integration - Complete development of training capabilities for the F/A-18E/F.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development
PROJECT NUMBER: W0431
PROJECT TITLE: Tactical Aircrew Combat Training System (TACTS)

- (U) ($733) Weapons Integration - Complete the development of the AMRAAM training capability for the F/A-18.
- (U) ($2,148) System Upgrades - Continue the development of block 6.0/A09/A04.1 software as well as other system improvements. Complete the development of the AMODSM.
- (U) ($515) Studies/Analysis/T&E - Complete test procdures for block 6.0/A09/A04.1 software and begin testing.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	5,603	4,880	5,273
(U) Adjustments from PRESBUDG:	-17	-151	-1,735
(U) FY 1997 President's Budget Submit:	5,586	4,729	3,538

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 95 reduction of $17 reflects a minor pricing adjustment. FY 96 net adjustment of -$151 reflects -$95 for Congressional undistributed general and inflation reductions and -$56 for revised DoD inflation rates. FY 97 net adjustment of -$1,735 reflects -$1,258 for minor pricing adjustments; -$371 for Defense Business Operating Funds adjustments and -$106 for revised DoD inflation rates.

(U) Schedule: For consistency, all milestone dates were changed to reflect commencement of the identified activity. Block 7.0 delayed due to lack of USAF participation in Block 6.0 which resulted in higher development costs to the Navy. In addition, delay in start of Block 6.0 effort and the requirement to rehost software to a faster computer pushed start of DT-II from 4Q/96 to 4Q/97. The AMODSM schedule slipped due to the need to resolicit after no acceptable proposals were received when competition was restricted to small businesses. The start of DT-II for the second phase of the front end processor (FEP) development (integrating the Fallon EW range interface) was added to the schedule profile.

(U) Technical: Not Applicable.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204571N PROGRAM ELEMENT TITLE: Consolidated Training Systems Development PROJECT NUMBER: WO431 PROJECT TITLE: Tactical Aircrew Combat Training System (TACTS)

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/P-1 #145	2,977	3,257	1,458	250	100	0	0	0	0
• (U) APN/P-1 #50	13,117	1,429	1,097	0	0	0	0	0	154,579

(U) RELATED RDT&E:
- U PE 0604735F (Range Improvement) - Includes funding for joint efforts with USAF.

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				
Engineering Milestones		2Q AMODSM PDR 3Q AMODSM CDR		
T&E Milestones		3Q FEP(FEWR) DT-IIB	4Q BLK 6.0 DT-II 1Q AMODSM DT-II	
Contract Milestones	3Q AMODSM E&MD			

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

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development
PROJECT NUMBER: W0431
PROJECT TITLE: Tactical Aircrew Combat Training Systems (TACTS)

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Systems/Software Development	3,491	3,595	2,593
b. T&E	294	45	105
c. Systems Engineering	1,761	970	800
d. Travel	40	50	40
e. SBIR Assessment		69	
Total	5,586	4,729	3,538

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

PROJECT NUMBER: W0431
PROJECT TITLE: Tactical Aircrew Combat Training Systems (TACTS)

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										
Lockhead Martin	CPFF	1Q/96	1,599	1,599	0	0	1,049	550	0	1,599
NAWC/Pax	WX	1Q/97	CONT.	CONT.	5,405	715	485	270	CONT.	CONT.
NAWC/War	WX	1Q/97	CONT.	CONT.	2,059	378	155	85	CONT.	CONT.
NAWC/CL	WX	1Q/97	CONT.	CONT.	7,615	850	1,118	285	CONT.	CONT.
Various	Various	1Q/97	CONT.	CONT.	2,719	1,425	838	1,443	CONT.	CONT.
Support and Management										
Various	Various	1Q/97	CONT.	CONT.	11,424	1,924	970	800	CONT.	CONT.
Test and Evaluation										
Various	Various	1Q/97	CONT.	CONT.	3,160	294	45	105	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY: Not Applicable

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									
Total Project									

* This includes only FY 90-94.

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

DATE: MARCH 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

PROJECT NUMBER: W0431
PROJECT TITLE: Tactical Aircrew Combat Training Systems (TACTS)

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	17,798	3,368	3,645	2,633	CONT.	CONT.
Subtotal Support and Management	11,424	1,924	970	800	CONT.	CONT.
Subtotal Test and Evaluation	3,160	294	45	105	CONT.	CONT.
SBIR Assessment			69			
Total Project	32,382	5,586	4,729	3,538	CONT.	CONT.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training 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
W0604 Training Range and Instrumentation Development (TRID)	17,423	22,090	4,115	4,421	5,521	5,534	5,682	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project develops specialized instrumentation systems for fleet readiness training while minimizing life cycle costs. Tasks include the following systems: Range Electronic Warfare Simulators (REWS) and associated subsystems, Target Control System, Large Area Tracking Range (LATR), Underwater Training System-Mobile (UTS-M), Shallow Water Undersea Warfare Training Range (SWUWTR) technology and assorted Advanced Weapons Training Systems (AWTS), such as Imaging Weapons Training Systems (IWTS), Weapons Impact Scoring Set (WISS), Hawaii Shallow Water Training Range (HI SWTR) and range requirements.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($2,035) Continued development of Computerized Threat Simulator (CTS). Coordinated CTS development with Ranges to demonstrate an on Range and at Sea Electronic Warfare capability. Completed CTS at-sea demonstration project and delivered remaining CTS assets to Southern California Offshore Range (SCORE) for limited CTS training capability. Continued development of Electronic Warfare Response Monitor (EWRM).
- (U) ($1,019) Continued development and completed DT-IB testing of IWTS and attained IWTS Milestone (MS)-II/III in 3Q/95.
- (U) ($100) Supported development of Next Generation Target Control System (NGTCS).
- (U) ($12,609) Accelerated technology development to support future CONUS Shallow Water Range (SWR). Reviewed Fleet training requirements to satisfy objectives outlined in approved Mission Needs Statement. Combined MS-I and MS-II for SWR and moved combined MS-I/II to 3Q/96. Began development of Phase I of Congressionally directed SWTR in Hawaiian Island area.

- (U) ($1,660) Continued systems definitions, development of specifications, analysis of concepts, and systems engineering for various projects. Continue systems engineering efforts for range integration using Distributed Interactive Simulation (DIS) technology. Commenced development of common range architecture.

2. (U) FY 1996 PLAN:

- (U) ($688) Conduct and complete IWTS DT-IIB and DT-IIC testing and evaluation. Initiate development of improved strafe scoring capability.
- (U) ($100) Continue to support development and testing of NGTCS.
- (U) ($2,156) Continue technology development for CONUS SWR procurements. Conduct DT I 2Q/96 and DT II 3Q/96. Conduct combined SWR MS-I/II in 3Q/96. Continue development of Phase I of Congresionally directed SWTR and conduct MS-II in 3Q/96. Continue technology development for UTS(M) to reflect identified requirements.
- (U) ($16,314) Begin development of Phase II of Congressionally directed SWTR in Hawaiian Island area. Complete Installation of Phase I of Congressionally directed SWTR in Hawaiian Island area.
- (U) ($753) Initiate and complete the Electronic Warfare Range Operation Center (EWROC) encryption effort at SCORE. Conduct EWRM DT-IIB in 3Q/96 and attain MS-III in 4Q/96.
- (U) ($1,662) Continue systems definitions, development of specifications, analysis of concepts, and systems engineering for various projects. Continue systems engineering efforts for range integration using DIS technology. Continue development of common range architecture.
- (U) ($417) 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: 7

PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

PROJECT NUMBER: W0604
PROJECT TITLE: Training Range and Instrumentation Development

3. (U) FY 1997 PLAN:

- (U) ($878) Initiate development of IWTS Pre-Planned Product Improvement. Continue development of improved strafe scoring capability.
- (U) ($146) Continue to support development and integration of NGTCS.
- (U) ($2,204) Complete technology development for CONUS SWR and reach MS-III in 1Q/97. Complete development of Phase II of Congresionally directed SWTR and reach MS-II in 1Q/97. Continue technology development for UTS(M) to reflect identified requirements.
- (U) ($887) Continue systems definitions, development of specifications, analysis of concepts, and systems engineering for various projects. Continue systems engineering efforts for range integration using DIS technology. Continue development of common range architecture.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	17,423	5,835	6,341
(U) Adjustments from PRESBUDG:	0	+16,255	-2,226
(U) FY 1997 President's Budget Submit:	17,423	22,090	4,115

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

PROJECT NUMBER: W0604
PROJECT TITLE: Training Range and Instrumentation Development

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 96 net adjustment of +$16,255 reflects a $17,000 increase for HI SWTR; -$478 for other Congressional undistributed general and inflation reductions and -$267 for revised DoD inflation rate adjustments. FY 97 net adjustment of -$2,226 reflects -$1,764 minor pricing adjustments; -$337 Defense Business Operating Funds adjustments and -$125 for revised DoD inflation rates.

(U) Schedule: The following milestones have changed since the FY96 President's budget:

From	To
2Q/95 IWTS MS-II/III	3Q/95 IWTS MS-II/III
4Q/95 SWR MS-II	3Q/96 SWR MS-I/II
2Q/96 EWRM MS-III	4Q/96 EWRM MS-III
4Q/96 SWR MS-III	1Q/97 SWR MS-III
2Q/96 EWRM DT-IIB	3Q/96 EWRM DT-IIB

Milestones changed due to program restructure.

The following milestones have been added:

IWTS DT-IB 3Q/95
SWR DT-I 2Q/96
SWR DT-II 3Q/96
Phase I SWTR MS-II 3Q/96
Phase II SWTR MS-II 1Q/97

SWR milestones and DT changed due to the additional $17,000 in FY 96.

(U) Technical: Not Applicable.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204571N PROGRAM ELEMENT TITLE: Consolidated Training Systems Development PROJECT NUMBER: W0604 PROJECT TITLE: Training Range and Instrumentation 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) OPN/P-1 #145	11,819	9,502	23,067	21,574	23,934	18,660	18,494	CONT.	CONT.

(U) RELATED RDT&E: Not Applicable.

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	3Q IWTS MS-II/III	3Q Phase I SWTR MS-II 3Q SWR MS-I/II 4Q EWRM MS-III	1Q Phase II SWTR MS-II 1Q SWR MS-III	
Engineering Milestones				
T&E Milestones	3Q IWTS DT-IB	2Q SWR DT-I 3Q SWR DT-II 1Q IWTS DT-IIB 4Q IWTS DT-IIC 3Q EWRM DT-IIB		
Contract Milestones				

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

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development
PROJECT NUMBER: W0604
PROJECT TITLE: Training Range and Instrumentation Development

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Systems Engineering and Software Development			
• REWS	2,035	753	0
• AWTS	1,019	688	878
• UTR and SWR Development	12,609	18,470	2,204
• Drone Control Integration	100	100	146
• Range Integration Requirements	0	200	200
b. Range Requirements & Engineering Technical Services and Support	1,605	1,402	633
d. Travel	55	60	54
e. SBIR Assessment		417	
Total	17,423	22,090	4,115

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

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development
PROJECT NUMBER: W0604
PROJECT TITLE: Training Range and Instrumentation 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										
NAWC/CL	WX	N/A	CONT.	CONT.	32,434	2,035			CONT.	CONT.
NAWC/PT MUGU	WX	N/A	CONT.	CONT.	696	1,019			CONT.	CONT.
NUWC/NEWPORT,RI	WX	1Q/97	CONT.	CONT.	1,762	7,409	18,470	2,204	CONT.	CONT.
Miscellaneous	WX	1Q/97	CONT.	CONT.	583	82	1,233	811	CONT.	CONT.
Contractor (TBD)	CPAF	3Q/96	5,200	5,200	N/A	5,200			0	5,200
Support and Management										
Miscellaneous	RC/WX	1Q/97	CONT.	CONT.	7,291	1,678	1,970	1,100	CONT.	CONT.

Test and Evaluation: None

GOVERNMENT FURNISHED PROPERTY: Not Applicable.

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									

*-This includes FY90-FY94.

FY1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: MARCH 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

PROJECT NUMBER: W0604
PROJECT TITLE: Training Range and Instrumentation Development

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	35,475	15,745	19,703	3,015	CONT.	CONT.
Subtotal Support and Management	7,291	1,678	1,970	1,100	CONT.	CONT.
SBIR Assessment			417			
Total Project	42,766	17,423	22,090	4,115	CONT.	CONT.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training 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
W1998 Joint Tactical Combat Training System (JTCTS)	22,580	27,936	17,946	6,155	7,476	7,480	7,482	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Joint Tactical Combat Training System (JTCTS) will develop and procure fixed, transportable, and mobile range instrumentation equipment for the USN and USAF for both shore-based (aircrew training) and deployable (ship/sub/aircrew training) applications. To accommodate requirements of the joint program, additional funding is being reprogrammed into W1998 for FY-96 and FY-97. This will allow for the development of two Engineering Development Models (EDMs) for the Navy. The fixed application will provide shore-based tactical aircrew training while the mobile application will provide deployable at-sea single platform to multi-platform (surface ship, submarine and aircraft) and Naval Expeditionary Force multi-warfare training. To accomplish this, JTCTS instrumentation will be designed to develop and transmit exercise scenarios; simulate/stimulate all exercise participants sensors/weapons with the exercise scenario; track all exercise participants and events, e.g., weapons engagements; and, provide accurate, realistic, and timely exercise feedback. JTCTS will build on technology developed for existing tactical training range systems including the Tactical Aircrew Combat Training System, Mobile Sea Range, Large Area Tracking Range, and the capabilities developed for the in-port Battle Force Tactical Trainer program. JTCTS will incorporate the Defense Modeling and Simulation Office sponsored Distributed Interactive Simulation protocol data unit for interoperability with Navy and other service live, virtual (simulators), and constructive (war games) simulations.

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

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training System Development
PROJECT NUMBER: W1998
PROJECT TITLE: Joint Tactical Combat Training System (JTCTS)

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:
   - (U) ($496) Achieved Milestone II.
   - (U) ($500) Concluded source selection and selected one contractor.
   - (U) ($17,500) Awarded Engineering and Manufacturing Development (E&MD) contract for two Engineering Development Models (EDMs).
   - (U) ($4,084) Monitored contractor progress, coordinated subsystem engineering development/integration.
2. (U) FY 1996 PLAN:
   - (U) ($23,120) Continue contract for Engineering Development Model (EDM) development.
   - (U) ($3,929) Monitor contractor progress, coordinate subsystem engineering development/integration.
   - (U) ($302) Conduct Preliminary and Critical Design Reviews.
   - (U) ($585) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.
3. (U) FY 1997 PLAN:
   - (U) ($11,800) Continue contract for EDM Development/Testing.
   - (U) ($4,983) Monitor contractor progress.
   - (U) ($1,163) Commence government Developmment/Operational Testing.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development
PROJECT NUMBER: W1998
PROJECT TITLE: Joint Tactical Combat Training System (JTCTS)

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	22,580	28,901	19,115
(U) Adjustments from PRESBUDG:	0	-965	-1,169
(U) FY 1997 President's Budget Submit:	22,580	27,936	17,946

(U) CHANGE SUMMARY EXPLANATION:

(U Funding: FY 96 net adjustment of -$965 reflects -$602 for Congressional undistributed general and inflation reductions and -$363 for revised DoD inflation rates. FY 97 net adjustment of -$1,169 reflects -$588 for Defense Business Operating Funds adjustments; -$542 for revised DoD inflation rates and -$39 for minor pricing adjustments.

(U) Schedule: All changes in PDR, CDR, initial production decision, DT-IIA, OT-IIA,DT-IIB and Milestone III slipped due to delay in contract award to accommodate joint program.

(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/P-1 #145	0	0	0	11,500	22,400	28,100	18,966	CONT.	CONT.
• (U) APN/P-1 # 50	0	0	0	24,769	25,361	24,962	24,554	CONT.	CONT.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

PROJECT NUMBER: W1998
PROJECT TITLE: Joint Tactical Combat Training System (JTCTS)

(U) RELATED RDT&E: Joint program with USAF (P.E.: TBD)

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE	
Program Milestones		MS II 2Q			Initial Production Decision 3Q/98 MS III 3Q/99
Engineering Milestones		SDR 3Q	Complete PDR 3Q Complete CDR 4Q		Various engineering change proposals accepted and implemented under Evolutionary Acq. Prg.
T&E Milestones				Complete Contractor/ Testing Commence Govt Testing 4Q	DT-IIB 1Q/98 OT-IIA 2Q/98 TECHEVAL 1Q/99 OPEVAL 2Q/99 FOT&E for incorporated into sys.
Contract Milestones		E&MD CA 2Q			

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

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development
PROJECT NUMBER: W1998
PROJECT TITLE: Joint Tactical Combat Training System (JTCTS)

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. EDM #1/#2 Development	17,500	23,120	11,800
b. Government Engineering & Technical Support	3,317	3,058	4,929
c. Engineering & Technical Services	1,691	1,100	1,139
d. Travel	72	73	78
e. SBIR Assessment		585	
Total	22,580	27,936	17,946

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204571N PROGRAM ELEMENT TITLE: Consolidated Training Systems Development PROJECT NUMBER: W1998 PROJECT TITLE: Joint Tactical Combat Training System (JTCTS)

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 Division, Providence RI/Loral Space & Range Systems, Sunnyvale, CA										
TRW,FFX,VA	C/CPAF	1Q/93	3,900	3,900	3,900	0	0	0	0	3,900
Raytheon	C/CPAF	2Q/95	52,420	52,420	0	17,500	23,120	11,800	0	52,420
NAWC AD PAX	WX	1Q/97	CONT.	CONT.	682	1,150	2,029	2,563	CONT.	CONT.
Miscellaneous	WX	1Q/97	CONT.	CONT.	1,727	2,159	357	520	CONT.	CONT.
Support and Management										
Miscellaneous RCP		1Q/97	CONT.	CONT.	2,336	1,771	1,845	1,900	CONT.	CONT.
Test & Evaluation:										
NAWC AD PAX	WX	1Q/97	CONT.	CONT.	0	0	0	1,163	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY Not Applicable.

Product Development

Support and Management

Test and Evaluation

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

PROJECT NUMBER: W1998
PROJECT TITLE: Joint Tactical Combat Training System (JTCTS)

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	6,309	20,809	25,506	14,883	CONT.	CONT.
Subtotal Support and Management	2,336	1,771	1,845	1,900	CONT.	CONT.
Subtotal Test and Evaluation	0	0	0	1,163	CONT.	CONT.
SBIR Assessment			585			
Total Project	8,645	22,580	27,936	17,946	CONT.	CONT.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training 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
W2124 Air Warfare Training Development (AWTD)	746	0	1,666	2,174	2,140	2,371	2,063	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project develops new training system technologies for use in naval aviation training. Tasks include: 1) Universal Threat System for Simulators (UTSS). Will provide current and validated threat data to aircrew simulators in three services, using a common threat module and standard threat database. Historically, each different simulator has required development and maintenance of a separate threat generation system. Development of the standardized UTSS will be incorporated on existing and future aviation flight trainers, tactics trainers, and weapons system trainers. UTSS is a Navy-led, joint service program through the Joint Technical Coordination Group - Training System Development; 2) Mission rehearsal technologies. Develop new and emerging aviation training technologies to provide a transportable, modular, high fidelity mission rehearsal capability. Mission rehearsal is defined as the practice of planned tasks and functions critical to mission success using a true-to-life, interactive representation of the expected operating environment. Technologies to be developed and integrated include helmet mounted and/or flat panel displays, photographic quality image generation, environmental effects models, radar/infra-red/electro-optic and acoustic sensor simulations; and 3) Aviation Training Technology Integration Facility (ATTIF) is a man-in-the-loop testbed for the integration of software, hardware, mission management systems, and threat environment simulations. ATTIF was formally an ARPA project known as What-If Simulation Systems for Advanced Research & Development (WISSARD). ATTIF includes a Distributed Interactive Simulation (DIS) node for participation in fleet exercise synthetic battlespace. This capability provides a window to fleet aviators for critical comment, evaluation, and fine tuning of new and innovative technology before it is fielded.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development
PROJECT NUMBER: W2124
PROJECT TITLE: Air Warfare Training Development (AWTD)

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:
   - (U) ($379) Developed UTSS hardware system/populate system. Completed Preliminary Design Review.
   - (U) ($367) Tested and met IOC of UTSS system.
2. (U) FY 1996 PLAN: Not Applicable.
3. (U) FY 1997 PLAN:
   - (U) ($846) Define Performance Level specification for Mission Rehearsal and develop integration plan.
   - (U) ($250) Prepare contract packages for prototype development.
   - (U) ($570) Prepare ATTIF facility.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development
PROJECT NUMBER: W2124
PROJECT TITLE: Air Warfare Training Development (AWTD)

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	746	0	0
(U) Adjustments from PRESBUDG:	0	0	+1,666
(U) FY 1997 President's Budget Submit:	746	0	+1,666

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 97 net adjustment of +$1,666 reflects +$1,720 for Mission Rehearsal technologies and an Aviation Training Technology Integration Facility; -$54 for revised DoD inflation rates and minor pricing adjustments.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

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

- (U) APN/P1# BA-7 (47C2) Common Ground Equipment

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
0	1,000	0	0	0	1,000	7,000	CONT.	CONT.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development
PROJECT NUMBER: W2124
PROJECT TITLE: Air Warfare Training Development (AWTD)

(U) RELATED RDT&E: Not Applicable.

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	UTSS 4Q SYS IOC		MISSION REHEARSAL 3Q INTEG PLAN	Init Production Decision 4Q/01
Engineering Milestones	UTSS 3Q SYS PDR		MISSION REHEARSAL 4Q PERF SPEC	PDR 1Q/00 CDR 4Q/00
T&E Milestones				Fleet Project Team Testing 2Q/01
Contract Milestones	UTSS 1Q SYS INTEG		MISSION REHEARSAL 4Q Prototype Pkg	

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training 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
X1823 Training and Training Devices Systems (TTDS)	2,386	1,394	5,988	6,683	6,988	5,436	7,654	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The employment of naval forces in a multi-dimensional warfare environment is a complex operational problem. To counter the threat expected in hostile environments, naval officer training must be provided for all mission areas on a real-time basis at the Battle Force/Group level. This training must focus on tactical decision-making, tactics development/evaluation, and operational planning/execution. Shore-based classroom training and at-sea exercises have historically satisfied the Battle Group tactical training requirement. However, the effectiveness of this approach to training was reduced by the lack of a real-time decision-making environment during shore-based training and the reduction in number and scope of at-sea exercises. Training and Training Devices Systems is composed of the Enhanced Naval Warfare Gaming System (ENWGS) which provides the decision-making environment and is a critical portion of the training that Battle Group Commanders and their supporting Warfare Commanders receive prior to deployment. ENWGS provides development of an enhanced wargaming/simulation capability to provide training to Battle Group Commanders and associated Warfare Commanders. ENWGS is a geographically distributed wargaming system that supports the needs and objectives of the Fleet Commanders. Through computer simulation, ENWGS assists tactical commanders in planning, executing, and evaluating Fleet operations and exercises. ENWGS also provides the ability to test the Battle Groups' Operation Orders, providing the essential supplement to at-sea operations, prior to deployment. During FYs 95-97, ENWGS will complete its conversion to an open systems architecture to provide software portability (Release 5.0) and lead to the development of the capability to provide exercise scenarios for other Navy models (Release 6.0/7.0).

B. Based on recent experience, culminating in DESERT SHIELD/DESERT STORM, training of Naval forces must be enhanced to ensure proficiency in joint operations. This type of training at the Joint Task Force level Simulation Protocol (ALSP) confederation, consisting of disparate service models integrated through a complex infrastructure, requiring frequent testing and integration as new capabilities are added to individual models. In 1994, the Services with concurrence of the Defense Modeling and Simulation Office and the Director, Defense Research and Engineering, determined that the ALSP confederation should be replaced by a new model designed specifically to meet joint training requirements, while retaining the ability to meet individual Service training requirements as well. The Operational Requirements Document for this new model, called the Joint Simulation System (JSIMS), has been approved. This project represents the Navy development of JSIMS SEA WARFARE

functionality. The investment in this project is vital to ensure the resulting product represents Joint operations capabilities of all the Services, and can support operational readiness at various levels of required training.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development
PROJECT NUMBER: X1823
PROJECT TITLE: Training and Training Devices Systems (TTDS)

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($2,386) Completed TAC 3 port of Release 4.0 (R4.0) and Final Qualification Test of R4.0 (TAC 3). Conducted System Design Review (SDR) for R4.1 (Phase 1 of WorkStation (W/S) and Phase 1 of Distributed Interactive Simulation (DIS)). Conducted R4.1 Preliminary Design Review (PDR) and In Process Reviews(IPR). Performed regression testing on R4.1.(R4.1 and R5.0 involve the conversion and rehost of old work station software onto the TAC-N platform and incorporates JMCIS strategy which completes the conversion of ENWGS to an open systems architecture).

2. (U) FY 1996 PLAN:

- (U) ($1,385) Field R4.1. Commenced development of R5.0 (Phase 2 W/S and Phase 2 DIS) and conducted PDR and IPRs. Perform regression testing on R5.0. Complete and field R5.0.

- (U) ($9) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($1,905) Begin R6.0 which provides technical enhancements to support interoperability capabilities (Link 11, Link 16, OTH-T, etc.)and provides improved functionality in the following areas: DIS, amphibious warfare, terrain/land warfare, mine warfare, national sensors, post game analysis, etc. Conduct PDRs and IPRs for R6.0. Perform regression testing, complete and field R6.0. Commence development of R7.0. Conduct PDR, SDR of R7.0.

- (U) ($4,083) Fund Navy development of Sea Warfare Functionality into JSIMS. Tasks include defining, prototyping, and developing Sea Warfare objects for use by all services. Objects will interface with common JSIMS core developed by JSIMS Joint Program Office.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

PROJECT NUMBER: X1823
PROJECT TITLE: Training and Training Devices Systems (TTDS)

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/97 President's Budget:	2,386	1,437	1,366
(U) Adjustments from PRESBUDG:	0	-43	+4,622
(U) FY 1997 President's Budget Submit:	2,386	1,394	5,988

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 96 reduction is due to Congressional undistributed general and inflation reductions (-$27); and revised DoD inflation rates and other minor pricing adjustments (-$16). FY 97 was increased by $4,957 thousand to reflect an increase in program requirements. This increase is offset by revised DoD inflation estimates and other minor pricing adjustments (-$335).

(U) Schedule: Several In Process Reviews (IPRs) are scheduled in lieu of Critical Design Reviews (CDRs). The development contract was completed in June 1995. Added software release 4.1 (Phase 1 of W/S and DIS) because of user requirements and release 5.0 is scheduled for FY 96 vice FY 97.

(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 COMP	TOTAL PROG
• (U) OPN LI #8210	2,370	0	0	0	0	0	0	CONT.	CONT.
• (U) OPN LI #2760	0	1,059	1,592	952	1,072	1,334	1,117	CONT.	CONT.
• (U) OMN AG/SAG 1C4C	2,537	2,487	2,212	2,241	2,336	2,403	2,457	CONT.	CONT.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development
PROJECT NUMBER: X1823
PROJECT TITLE: Training and Training Devices Systems (TTDS)

(U) RELATED RDT&E: Not applicable.

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	Release 4.0 (TAC3) Release 4.1	Release 5.0	Release 6.0 Release 7.0	CONT.
Engineering Milestones	Release 4.1 SDR, PDR & IPRs	Release 5.0 PDR & IPRs	Release 6.0 & 7.0 SDR, PDR, & IPRs	CONT.
T&E Milestones	Release 4.0 (TAC3) DT & OT	Release 5.0 DT Test Release 4.1	Release 5.0 OT Release 6.0 DT & OT	CONT.
Contract Milestones	Complete Development (CSC) Contract			CONT.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development
PROJECT NUMBER: X1823
PROJECT TITLE: Training and Training Devices Systems (TTDS)

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Systems Engineering	625	[illegible]	4,533
b. Software Development	1,361	1,185	1,205
c. System Test & Evaluation	400	200	250
d. SBIR Assessment		9	
Total	2,386	1,394	5,988

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 Contracts	RC	VARIOUS	CONT.	CONT.	5,805	1,361	1,185	1,205	Cont.	Cont.
Support and Management										
NRAD,SD,CA	WX	VARIOUS	CONT.	CONT.	356	625	0	0	Cont.	Cont.
Various Contracts	RC	VARIOUS	CONT.	CONT.	0	0	0	4,533	Cont.	Cont.
Test and Evaluation										
OMNI,Mclean,VA	CPFF	08/94	CONT.	CONT.	920	400	200	250	Cont.	Cont.

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

DATE: MARCH 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

PROJECT NUMBER: X1823
PROJECT TITLE: Training and Training Devices Systems (TTDS)

GOVERNMENT FURNISHED PROPERTY: Not Applicable

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									
				Total *FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development				5,805	1,361	1,185	1,205	Cont.	Cont.
Subtotal Support & Management				356	625	0	4,533	Cont.	Cont.
Subtotal Test and Evaluation				920	400	200	250	Cont.	Cont.
SBIR Assessment						9			
Total Project				7,081	2,386	1,394	5,988	Cont.	Cont.

*-Includes FY92-FY94.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204575N
PROGRAM ELEMENT TITLE: Electronic Warfare Readiness Support

(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
R2263 Information Warfare Systems	0	0	1,651	1,932	3,935	5,236	6,150	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Naval Information Warfare Activity is tasked as the Navy's principal technical agent to research, assess, develop and prototype Information Warfare (IW) capabilities. This new start program will support the development of an effort encompassing all aspects of IW attack, protect and exploit. A key focus of efforts in this line will be providing tactical commanders with an IW Mission Planning, Analysis, and Command and Control Targeting System (IMPACTS) tool. An aggressive program is maintained to acquire and analyze state-of-the-art technologies (software and hardware), evaluate fleet applicability and prototype developmental capabilities.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

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

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

3. (U) FY 1997 PLAN:
   - (U) ($300) Migrate offensive IW capabilities to Fleet Information Warfare Command. Develop for use in tactical environments.
   - (U) ($1,151) Develop Joint Maritime Command Information Strategy (JMCIS)-based IMPACTS.
     - Transition IMPACTS electromagnetic environmental planning component to Level III JMCIS compliance.
     - Migrate NSA-developed ADVERSARY software to JMCIS/TAC-N architecture.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204575N PROJECT NUMBER: R2263
PROGRAM ELEMENT TITLE: EW Readiness Support PROJECT TITLE: Information Warfare Systems

- (U) ($200) Initiate study to develop system-specific requirements for Naval Deception capabilities.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	0	0	800
(U) Adjustments from FY 1996 PRESBUDG:	0	0	+851
(U) FY 1997 PRESBUDG Submit:	0	0	1,651

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The increase in FY 1997 is due to OPNAV direction to develop Information Warfare capabilities to include Modeling and Simulation and Counter-Command and Control capabilities. Information Warfare funding will support the immediate requirement for development of Joint Maritime Command Information Strategy IW/Command and Control Warfare (C2W) segments which will support the C2W Commander and his staff. The centerpiece of this effort will be the Information Warfare Mission Planning, Analysis, and C2 Targeting System.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: 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
OPN Line 2340	1,677	1,449	0	0	0	0	0	CONT.	CONT.
OPN Line 2347	0	0	4,876	5,464	8,060	9,241	10,291	CONT.	CONT.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204575N
PROGRAM ELEMENT TITLE: EW Readiness Support

PROJECT NUMBER: R2263
PROJECT TITLE: Information Warfare Systems

(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: 7 PROGRAM ELEMENT: 0204575N
PROGRAM ELEMENT TITLE: EW Readiness Support
PROJECT NUMBER: R2263
PROJECT TITLE: Information Warfare Systems

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Information Warfare Systems	0	0	1,651
Total	0	0	1,651

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:										
Miscellaneous					0	0	0	1,651	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: 7

PROGRAM ELEMENT: 0204575N
PROGRAM ELEMENT TITLE: EW Readiness Support

PROJECT NUMBER: R2263
PROJECT TITLE: Information Warfare Systems

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	0	0	0	1,651	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	1,651	CONT.	CONT.

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204575N
PROGRAM ELEMENT TITLE: EW Readiness Support

PROJECT NUMBER: R2263
PROJECT TITLE: Information Warfare Systems

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205601N
PROGRAM ELEMENT TITLE: HARM 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
W1780 HARM Improvement	0	2,291	2,395	2,466	1,912	0	0	0	9,064
W2211 Joint Advanced Weapons System (JAWS) (Army Lead)	0	956	953	0	0	0	0	0	1,909
TOTAL	0	3,247	3,348	2,466	1,912	0	0	0	10,973

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: W1780/HIGH-SPEED ANTI-RADIATION (HARM) IMPROVEMENT: HARM Improvement program consists of a tactical software upgrade to the missile and development of a technical data package that will be used to modify in-service rocket motors to meet Insensitive Munitions (IM) requirements for shipboard compatibility.

(U) W2211/JOINT ADVANCED WEAPONS SYSTEM (JAWS): JAWS is a proposed joint service program which will fulfill Army and Marine Corps Mission Needs Statement requirements for the post-2000 force structure. The Army (the TOW/HELLFIRE lead service) is proposed as the lead service for the program. The Navy plans to participate with the Army in joint trade studies and development of Milestone 0 support documentation including an FY 1998 new start decision and a joint Cost and Operational Effectiveness Analysis (COEA).

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing operational systems.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205601N
PROGRAM ELEMENT TITLE: HARM 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
W1780 HARM Improvement	0	2,291	2,395	2,466	1,912	0	0	0	9,064

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The High-speed Anti-Radiation Missile (HARM) is an ACAT I joint service program with the Air Force (NAVY lead). The program has been in full production since FY 1983 and this P.E. was used until FY 1990 to develop and test one hardware and two software upgrades to the HARM as Engineering Change Proposals (ECP). Another ECP software program is planned that modifies HARM software (Block V) in order to meet expanding requirements. This joint service upgrade is being developed with Air Force funds under Texas Instrument contract N0001993G0179. The Air Force funds cover all contractor development and contractor Test and Evaluation (T&E) cost. The Navy funds cover all government costs related to development and T&E. The tactical software upgrade will give HARM a Home-On-Jam (HOJ) capability, improved geographic specificity, and improved capability against advanced waveforms. Studies to address corrective actions for documented deficiencies will be conducted. Also, in order to meet Insensitive Munitions (IM) requirements for shipboard compatibility, studies will be conducted regarding the development of a technical data package to verify that a recommended Fast-Cook-Off mitigating material is compatible with the HARM weapon system. The technical data package will be used to modify in-service rocket motors to meet IM requirement.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

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

2. (U) FY 1996 PLAN:

- (U) ($16) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.
- (U) ($480) Government initiation of IM studies and other weapon system upgrade studies to assess service life, missile performance, deficiencies, and logistics support.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205601N PROJECT NUMBER: W1780
PROGRAM ELEMENT TITLE: HARM Improvement PROJECT NAME: HARM Improvement

- (U) ($1,129) Government participation in defining Block V software requirements, supporting missile software development and Electronic Intelligence (ELINT) file changes, and in support of upgrades to Tactical Aircraft Mission Planning System (TAMPS). Participation in Preliminary Design Review and Critical Design Review (PDR/CDR).
- (U) ($72) Block V Test and Evaluation Master Plan and Development Testing/Operational Testing (DT/OT) test plan development.
- (U) ($544) Government development of Home-On-Jam (HOJ)/Modulated target.
- (U) ($50) Block V OPTEVFOR/VX9 DT/OT test execution development and planning.

3. (U) FY 1997 PLAN:

- (U) ($221) Government continues Insensitive Munitions studies and evaluation of other weapon system upgrades to assess service life, missile performance, deficiencies, and logistics support.
- (U) ($1,555) Continue government participation in defining Block V software requirements, supporting missile software development, and ELINT file changes in support of upgrades to TAMPS.
- (U) ($452) Government begins Block V system integration tests and software Identification, Verification, & Validation.
- (U) ($83) Complete HOJ/Modulated target development and upgrades.
- (U) ($84) OPTEVFOR/VX9 continues DT/OT test execution development and planning.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205601N PROJECT NUMBER: W1780
PROGRAM ELEMENT TITLE: HARM Improvement PROJECT NAME: HARM Improvement

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	0	2,363	3,243
(U) Adjustment from PRESBUDG:	0	-72	-848
(U) FY 1997 President's Budget Submit:	0	2,291	2,395

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: Net reduction in FY96 of -$72 thousand reflects -$46 thousand for Congressional undistributed general and inflation reductions and -$26 thousand for revised inflation rates. Net reduction in FY97 of -$848 thousand is comprised of -$3 thousand for revised inflation rates; -$8 thousand for minor pricing adjustments and -$837 thousand for Defense Business Operating Fund adjustments.

(U) Schedule: Schedule restructured due to Air Force participation. The Air Force funds cover all contractor development and contractor Test and Evaluation (T&E) cost. The Navy funds cover all government costs related to development and T&E.

(U) Technical: Improved geographic specificity and improved capability against advanced waveforms included in restructured software upgrade. As Block V program matured, it was determined that proper incorporation should be via an Engineering Change Proposal (ECP). Therefore, the Block V Milestone II decision shown in earlier budgets is not required.

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

	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
(U) WPN HARM MODS (IM)	0	0	0	1,407	2,522	2,599	2,661	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: 7

PROGRAM ELEMENT: 0205601N
PROGRAM ELEMENT TITLE: HARM Improvement

PROJECT NUMBER: W1780
PROJECT NAME: HARM Improvement

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones		4Q Block V PDR/CDR		2Q/99 ECP Incorp.
Engineering Milestones				1Q/99 Block V FCA/PCA
T&E Milestones			1Q DT/OT Block V TRR	1Q/99 Block V DT/OT
Contract Milestones				

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205601N PROJECT NUMBER: W1780
PROGRAM ELEMENT TITLE: HARM Improvement PROJECT NAME: HARM Improvement

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Government Engineering Services	0	1,454	1,621
b. Government Test and Evaluation	0	122	536
c. Government Furnished Equipment	0	544	83
d. Program Management Support	0	110	110
e. Travel	0	45	45
f. SBIR Assessment	0	16	0
Total	0	2,291	2,395

UNCLASSIFIED

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205601N PROJECT NUMBER: W1780
PROGRAM ELEMENT TITLE: HARM Improvement PROJECT NAME: HARM 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										
NAWC - China Lake	WX	11/96	6,763	6,763	0	0	1,454	1,621	3,688	6,763
Miscellaneous (In-House)		10/96	180	180	0	0	45	45	90	180
Support and Management										
Miscellaneous (Contracts)	C/CPFF	TBD	440	440	0	0	110	110	220	440
Test and Evaluation										
NAWC China Lake (In-House)	WX	11/96	1,038	1,038	0	0	122	536	380	1038

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									
Targets	WX	11/96	TBD	0	0	544	83	0	627

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205601N
PROGRAM ELEMENT TITLE: HARM Improvement

PROJECT NUMBER: W1780
PROJECT NAME: HARM Improvement

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	0	0	1,499	1,666	3,778	6,943
Subtotal Support and Management	0	0	110	110	220	440
Subtotal Test and Evaluation	0	0	666	619	380	1,665
SBIR Assessment	0	0	16	0	0	16
Total Project	0	0	2,291	2,395	4,378	9,064

UNCLASSIFIED

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205601N
PROGRAM ELEMENT TITLE: HARM 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
W2211 Joint Advanced Weapons Systems (JAWS)	0	956	953	0	0	0	0	0	1,909

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Joint Attack Weapon System (JAWS) is a proposed joint service program which will fulfill Army and Marine Corps Mission Needs Statement requirements for the post-2000 force structure. The Army (the TOW/HELLFIRE lead service) is proposed as the lead service for the program. To support an FY 1998 new start decision, the Navy plans to participate with the Army in joint trade studies and development of Milestone 0 support documentation, including a joint Cost and Operational Effectiveness Analysis (COEA). The initial basis for trade studies will be improvements to the Army HELLFIRE, including alternative seekers and rocket motor improvements. Proposed TOW follow-on will also be evaluated including Future Missile Technology Insertion (FMTI) and Army Missile System Heavy (AMS-H) Programs. The Mission Needs Statement requires a state of the art technology solution which counters air and surface threats in the post-2000 battlefield.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

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

2. (U) FY 1996 PLAN:

- (U) ($935) Support joint trade study, incorporate Navy simulations into the Army Battlefield Environment Weapon System Simulation (BEWSS), evaluate HELLFIRE and TOW improvements options, prepare pre-Milestone 0 documentation and initiate joint COEA. ($500K Army and $435K Government In-House)

- (U) ($21) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638(f)(1).

UNCLASSIFIED

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205601N PROJECT NUMBER: W2211
PROGRAM ELEMENT TITLE: HARM Improvement PROJECT NAME: Joint Advanced Weapons Systems (JAWS)

3. (U) FY 1997 PLAN:

- (U) ($953) Complete joint trade study and complete Navy BEWSS Simulations, develop HELLFIRE seeker/rocket motor improvement options, complete pre-Milestone 0 documentation, complete joint COEA, participate in structuring acquisition program and procurement documentation. ($500K Army and $453K Government In-House)

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	0	985	983
(U) Adjustment from PRESBUDG:	0	-29	-30
(U) FY 1997 President's Budget Submit:	0	956	953

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: Reductions in FY96 of -$29 thousand reflect -$10 thousand for revised inflation rates and -$19 thousand for Congressional undistributed general and inflation reductions. Reductions in FY 1997 of -$30 thousand reflect -$2 thousand for minor pricing adjustments and -$28 thousand for revised inflation rate adjustments.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

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

(U) RELATED RDT&E: US Army P.E. 0603313A PROJ D263 Future Missile Technology Insertion (FMTI).

D. (U) SCHEDULE PROFILE: Not applicable.

UNCLASSIFIED

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205601N PROGRAM ELEMENT TITLE: HARM Improvement PROJECT NUMBER: W2211 PROJECT NAME: Joint Advanced Weapons Systems (JAWS)

A. (U) PROJECT COST BREAKDOWN ($ in thousands): NOT APPLICBLE

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: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

(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
P1743 C2 Processor Program	3,663	1,267	106	0	0	0	0	0	93,055
P1753 Link Eleven Improvements	2,089	6,045	2,308	2,144	4,588	4,389	4,405	CONT.	CONT.
P1977 Navy JTIDS	5,265	9,255	6,104	527	0	0	0	0	552,321
P2126 Multifunctional Information Distribution System	18,424	30,863	28,784	45,620	38,342	27,936	16,461	CONT.	CONT.
TOTAL	29,441	47,430	37,302	48,291	42,930	32,325	20,866	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element (PE) develops and improves the Navy's tactical datalink system. It includes the Joint Tactical Information Distribution System (JTIDS), the Multifunctional Information Distribution System (MIDS), the Command and Control Processor (C^2P), and the Link 11 Improvement Program (LEIP).

(U) JTIDS will provide selected U.S Navy tactical aircraft, U.S Navy ships, and U.S Marine Corps ground units with crypto-secure, jam resistant, low-probability-of-exploitation communication of tactical data and voice at a high data rate. It will have additional capabilities of common grid navigation and automatic relay inherent in the equipment that will enable long range communication and provide jam resistance. The system will be interoperable among all Services and NATO/Allied users equipped with JTIDS or NATO MIDS.

(U) The MIDS program is a multinational cooperative development program that will provide space constrained tactical fighter aircraft with Link-16 capability through the development of a terminal (MIDS-Low Volume terminal (LVT)) that is functional identical to the JTIDS Class 2 terminal, but through the use of VHSIC and MMIC technology is one-half the weight and one-third the size of the JTIDS terminal. This project funds the costs to integrate and test MIDS on the F/A-18 and other platforms. The multinational cooperative development of the MIDS terminal is funded in PE 0604771D.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

(U) The Command and Control Processor (C^2P) program is a software development effort that will provide an interface between the Tactical Digital Information Links (TADILs) (Link 4A, 11 and 16) and major surface ship Command and Control systems (ACDS and AEGIS C&D). The C^2P will provide translation between TADILs and isolate all tactical data link equipment, message standards and protocols from tactical information processors. This will provide a flexible capability for rapidly exchanging tactical information using a single data base for translating various link formats while remaining completely independent of communications equipment and tactical data computing systems.

(U) The Link 11 Improvement Program (LEIP) is made up of several efforts to improve existing computer-to-computer digital radio communications in the HF and UHF radio frequency bands among Combat Direction System (CDS) equipped ships, submarines, aircraft and shore sites. Data link improvements will allow more effective employment of fleet units by increasing the timeliness, accuracy, and content of tactical data transfer. In order to ensure interoperability, the U.S. is the Lead Technical Nation to the NATO Improved Link Eleven (NILE) Office.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

(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
P1743 C2 Processor Program	3,663	1,267	106	0	0	0	0		093,055

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Command and Control Processor (C2P) will remove link translation and processing duties from the tactical data processor, thereby increasing track capacity and target insertion rates for the combat direction system. The C2P will be a newly developed computer program hosted on Navy standard computers (AN/UYK-43) that will serve as the interface between tactical digital communication systems and selected shipboard processors, providing a rapid and flexible capability for exchanging tactical information. Where installed, the C2P will isolate all tactical data link equipment, message standards and protocols from tactical information processors. The C2P provides the interface between Links 4A, 11, Improved Link 11, 16, the Advanced Combat Direction System (ACDS), and AEGIS Command and Decision (C&D). The C2P will extract information from Tactical Digital Information Links (TADILs), translate between TADILs, forward data between specific TADILs and provide the information derived from those links to on-board processors. Information received from shipboard processors will be formatted and provided to the appropriate link equipment for transmission. The C2P program is being developed in two versions. Version O (VO) will support ACDS Block 0 and AEGIS Model 4 C&D ships. Version 1 (V1) will support ACDS Block 1 and AEGIS Model 5 C&D ships.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($3,663) Verified fixes to C2P VO deficiencies identified in TECHEVAL/OPEVAL and continued C2P V1 development.

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MARCH 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: P1743
PROJECT TITLE: C2 Processor

Program

2. (U) FY 1996 PLAN:

- (U) ($272) Complete testing to verify fixes to C2P V0 deficiencies identified in TECHEVAL/OPEVAL.
- (U) ($989) Complete C2P V1 development.
- (U) ($6) Portion of extramural program resrved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($106) Complete system documentation.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/97 President's Budget:	1,766	1,306	109
(U) Adjustments from PRESBUDG:	+1,897	-39	-3
(U) FY 1997 President's Budget:	3,663	1,267	106

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY95 increased by $1,897K for Navy execution adjustments. FY96 decreased for Congressional general and inflation reductions ($25K): and revised DOD inflation rates and other minor pricing adjustments ($14K). FY97 decreased for revised inflation estimates and other minor pricing adjustments ($3K).

(U) Schedule: Not Applicable.

(U) Technical: Rapid prototype demonstrations of inter-network connectivity and satellite link.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: P1743
PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: C2 Processor

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

Program

	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 #2614	18,701	7,960	6,426	3,849	5,212	7,661	7,160	CONT.	CONT.
SCN Line	2,568	2,646	2,724	2808	2892	2979	3066	CONT.	CONT.

(U) RELATED RDT&E:
(U) PE (0205604N) - Tactical Information Systems: LINK 16 is one of the tactical data links currently under development that interfaces with C2P.
(U) PE (0604518N) - CIC Conversion: ACDS is a shipboard processor currently under development that interfaces with C2P.

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	AFP NPDM 1/95			N/A
Engineering Milestones				
T&E Milestones			ACDS BLK 1 Level 2 TECHEVAL 5/97	
Contract Milestones				

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: TACTICAL DATA LINKS

(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
P1753 LINK ELEVEN IMPROVEMENT PROGRAM	2,089	6,045	2,308	2,144	4,588	4,389	4,405	CONT	CONT

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Link Eleven Improvement Program (LEIP) improves existing computer-to-computer radio communications in the High Frequency and Ultra-High Frequency radio and shore sites. The program includes near term improvements to existing Link 11 systems (Link 11 Display System (LEDS), Mobile Universal Link Translator System (MULTS), Common Shipboard Data Terminal Set (CSDTS), and Link 11 Baseline Freeze message standard work) and a Link 22 program, to improve the performance of Link 11, which is a combination of the results of the Critical Systems Demonstration (CSD) project and the NATO Improved Link Eleven (NILE) project. These projects will allow more effective employment of fleet units by increasing timeliness, accuracy, and content of tactical data transfer. In order to insure interoperability and to upgrade Link 11 to Link 22, the U.S. is the lead technical nation to the NILE office. The NILE development will occur in two Design and Development subphases. Subphase 1 will validate specifications, using simulation, emulation and modeling, and a testbed developed in this subphase. Subphase 2 involves the acquisition, integration and testing of the NILE Reference System (NRS). The U.S. NILE Companion Program (USNCP) will implement Link 22 in the USN.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($1,223) Began Link 22 preparations.
- (U) ($ N/A) Prepared and delivered NILE simulation.
- (U) ($716) Continued preparations for NILE Reference System.
- (U) ($150) Completed Early Operational Capability (EOC) Phase 2.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROGRAM ELEMENT TITLE: TACTICAL DATA LINKS PROJECT NUMBER: P1753 PROJECT TITLE: Link Eleven Improvement Program

2. (U) FY 1996 PLAN:

- (U) (N/A) Complete NILE testbed.
- (U) ($423) Begin NILE subphase 2 for the NILE reference system.
- (U) ($200) Upgrade MULTS to common, supportable hardware host; upgrade software.
- (U) ($1,840) Continue preparations for U.S. implementation of Link 22.
- (U) ($807) Conduct CSDTS upgrades.
- (U) ($1,000) LINK-11 portion of Common Datalink Management System.
- (U) ($1,671) Provide updates to Link 11 message standard baseline.
- (U) ($104) 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) ($1,300) Continue efforts of subphase 2 for the NILE reference system.
- (U) ($1,008) Continue preparing for U.S. implementation of Link 22.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 199

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: TACTICAL DATA LINKS
PROJECT NUMBER: P1753
PROJECT TITLE: Link Eleven Improvement Program

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/97 President's Budget:	1,858	6,240	5,966
(U) Adjustments from PRESBUDG:	+231	-195	-3658
(U) FY 1997 President's Budget:	2,089	6,045	2,308

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY95 increased by $231K to fund Navy execution adjustments. FY96 decreased for Congressinal undistributed general and inflation reductions ($122K): and revised DOD inflation rates and other minor pricing adjustments ($73K). FY97 decreased to reflect Navy reprogramming to fund LINK-11 IMPACCCS requirements ($2400K):and revised inflation extimates and other nimor pricing adjustments ($1,258K).

(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
OPN Line #2660	0	3,476	3,239	3,093	4,641	4,421	4,853	CONT	CONT

(U) RELATED RDT&E: N/A

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROGRAM ELEMENT TITLE: TACTICAL DATA LINKS PROJECT NUMBER: P1753 PROJECT TITLE: Link Eleven Improvement Program

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones		USNCP MS II 4Q/96		
Engineering Milestones				
T&E Milestones				
Contract Milestones			NRS 3Q/97	USNCP 3Q/98

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 199(

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: TACTICAL DATA LINK
PROJECT NUMBER: P1753
PROJECT TITLE: Link Eleven Improvement Program

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Nato Improved Link Eleven	716	423	1,300
b. Link 22	1,223	1,840	1,008
c. Link 11 Baseline Freeze	150	2,782	
d. Common Datalink Management System		1,000	
Total	2,089	6,045	2,308

FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 199(

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: TACTICAL DATA LINKS
PROJECT NUMBER: P1753
PROJECT TITLE: Link Eleven 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										
NRL							500	1,300	Cont.	Cont.
NRAD/SD							1,000			
All other Product Development					2,111	917	2,455		Cont.	Cont
Support and Management										
All other Support and Management					328	180	250	100	Cont.	Cont.
Test and Evaluation										
All other Test and Evaluation					2,117	992	1,840	908	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				0	0	0	0	0	0
Support and Management				0	0	0	0	0	0
Test and Evaluation				0	0	0	0	0	0

UNCLASSIFIED

Exhibit R-3
DATE: March 1996

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: TACTICAL DATA LINKS

PROJECT NUMBER: P1753
PROJECT TITLE: Link Eleven Improvement Program

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	2,111	917	3,955	1,300	Cont.	Cont.
Subtotal Support and Management	328	180	250	100	Cont.	Cont.
Subtotal Test and Evaluation	2,117	992	1,840	908	Cont.	Cont.
Total Project	4,556	2,089	6,045	2,308	Cont.	Cont.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 199

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: P1977
PROJECT TITLE: Joint Tactical Information Distribution System

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY95 increased by $349K for Navy execution adjustments. FY96 decreased for Congressional undistributed general and inflation reductions ($363K); and revised DOD inflation rates and other minor pricing adjustments ($112K). FY97 decreased for the consolidation of Link implementation into MIDS ($3300K): reised inflation estmates and other nimor pricing adjustments ($166K).

(U) Schedule: Not Applicable.

(U) Technical: Increase support for OPTEVFOR requirements.

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
BA-1 APN	5,608	4,404	6,004	6,184	6,369	6,560	6,757	CONT.	CONT.
BA-5 APN	11,105	0	0	3,024	4,672	1,609	0	CONT.	CONT.
BA-6 APN	608	0	0	0	0	0	0	CONT.	CONT.
OPN Ln #2614	31,070	7,021	11,382	20,583	2,007	2,468	0	CONT.	CONT.
SCN	8,904	9,168	9,444	9,729	10,020	10,320	10,629	CONT.	CONT.

Exhibit R-

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 19

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: P1977
PROJECT TITLE: Joint Tactical Informatio Distribution System

(U) RELATED RDT&E:

(U) PE (0205667N) - F-14 Upgrade. Aircraft upgrades include integration with JTIDS.
(U) PE (0204152N) - E-2C Improvements. Aircraft upgrades include integration with JTIDS.
(U) PE (0604771D) - Common JTIDS. Funding develops and procures the Navy's Engineering and Manufacturing Development terminals through the Joint Program Office.

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	NPDM 1/95 DAB IIIB FRP 2/95			
Engineering Milestones				
T&E Milestones	JTC 3A 11/94-6/95	DT-IIIA 1/96 OT-IIIA 3/96 DT-IIIB 8/96 DT-IIIC 9/96	OT-IIIB 1/97 OT-IIIC 1/97	
Contract Milestones				

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

(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
P1977 Joint Tactical Information Distribution System	5,265	9,255	6,104	527	0	0	0	0	552,321

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Combat experience gained during the Southeast Asia conflict, Middle East incidents, Grenada, and Desert Storm exposed several deficiencies in U.S. tactical communication, navigation, and identification systems. Extensive analyses of these combat situations indicate that a joint service, high capacity, secure and jam resistant communication and data link would increase force effectiveness and substantially reduce losses due to hostile action and friend-on-friend engagements. These capabilities are critical in the high speed, long range, and electronically hostile environment envisioned in any substantial modern-day conflict. This includes any engagement with minor or third world powers due to the proliferation of high-technology weaponry.

(U) The Time Division Multiple Access (TDMA) family of Joint Tactical Information Distribution System (JTIDS) terminals and the Tactical Digital Information Link J (TADIL J) Message Standard databases resident in C2P are sub-systems integrated into the LINK-16 system. It will provide selected U.S. Navy tactical air, U.S. Navy ships and U.S. Marine Corps ground units crypto-secure, jam resistant, low-probability-of-exploitation communication of tactical data and voice at a high data rate. It will have the additional capabilities of common-grid navigation and the use of automatic relay inherent in the equipment that will enable long-range communication and provide jam resistance. The system will be interoperable among all Services and NATO/Allied users equipped with JTIDS or the European version, NATO MIDS (Germany, Italy, France, and Spain). This project will fund the costs to integrate and test JTIDS in the E-2C, F-14D, CV, CG, DDG, the required development to accommodate expanded LINK 16 operational capabilities for additional warfare areas, and development of automated network management aids.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 19

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT NUMBER: P1977 PROJECT TITLE: Joint Tactical Informatic Distribution System

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($2,126) Continued developing fixes to deficiencies identified during TECHEVAL/OPEVAL.
- (U) ($1,845) Participated in joint service development of TADIL J network implementation and certification testing.
- (U) ($1,294) Continued CASS TPS development.

2. (U) FY 1996 PLAN:

- (U) ($1,585) Joint certification implementation and testing.
- (U) ($1,486) Tadil J network implementation and certification testing.
- (U) ($1,785) Systems engineering and EMI/EMC certification.
- (U) ($3,314) Conduct FOT&E.
- (U) ($933) Start implementation of OPSPEC chg 4.
- (U) ($152) Portion of extramual 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 199

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROGRAM ELEMENT TITLE:Tactical Data Links PROJECT NUMBER: P1977 PROJECT: Joint Tactical Information Distribution System

3. (U) FY 1997 PLAN:

- (U) ($594) Continue joint certification implementation and testing.
- (U) ($2,055) Conduct LK-16 ACDS BLK 1 and AEGIS Model 5 testing.
- (U) ($710) Tadil J Network implementation.
- (U) ($1,788) Complete FOT&E.
- (U) ($957) Continue implementation of OPSPEC chg 4.

NOTE: Continuing Link 16 implementation will be funded in P2126 (MIDS) commencing in FY 1997.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/97 President's Budget:	4,916	9,618	9,570
(U) Adjustments from PRESBUDG:	+349	-363	-3,466
(U) FY 1997 President's Budget:	5,265	9,255	6,104

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links
PROJECT NUMBER: P1977
PROJECT TITLE: Joint Tactical Information Distribution System

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY95 increased by $349K for Navy execution adjustments. FY96 decreased for Congressional undistributed general and inflation reductions ($363K); and revised DOD inflation rates and other minor pricing adjustments ($112K). FY97 decreased for the consolidation of Link implementation into MIDS ($3300K): reised inflation estmates and other nimor pricing adjustments ($166K).

(U) Schedule: Not Applicable.

(U) Technical: Increase support for OPTEVFOR requirements.

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
BA-1 APN	5,608	4,404	6,004	6,184	6,369	6,560	6,757	CONT.	CONT.
BA-5 APN	11,105	0	0	3,024	4,672	1,609	0	CONT.	CONT.
BA-6 APN	608	0	0	0	0	0	0	CONT.	CONT.
OPN Ln #2614	31,070	7,021	11,382	20,583	2,007	2,468	0	CONT.	CONT.
SCN	8,904	9,168	9,444	9,729	10,020	10,320	10,629	CONT.	CONT.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: P1977
PROJECT TITLE: Joint Tactical Information Distribution System

(U) RELATED RDT&E:

(U) PE (0205667N) - F-14 Upgrade. Aircraft upgrades include integration with JTIDS.
(U) PE (0204152N) - E-2C Improvements. Aircraft upgrades include integration with JTIDS.
(U) PE (0604771D) - Common JTIDS. Funding develops and procures the Navy's Engineering and Manufacturing Development terminals through the Joint Program Office.

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	NPDM 1/95 DAB IIIB FRP 2/95			
Engineering Milestones				
T&E Milestones	JTC 3A 11/94-6/95	DT-IIIA 1/96 OT-IIIA 3/96 DT-IIIB 8/96 DT-IIIC 9/96	OT-IIIB 1/97 OT-IIIC 1/97	
Contract Milestones				

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

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links
PROJECT NUMBER: P1977
PROJECT TITLE: Joint Tactical Information Distribution System

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Testing exercises	2,126	4,952	3,843
b. Joint service work	1,845	1,585	594
c. Capability enhancement	1,294	2,718	1,667
Total	5,265	9,255	6,104

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT NUMBER: P1977 PROJECT TITLE: Joint Tactical Information Distribution 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	FY 1997 Budget	To Complete	Total Program
PRODUCT DEVELOPMENT											
NCCOSC R&D Div San Diego, CA	WX	Oct 93			2,839				CONT.	CONT.	
		Oct 94				0			CONT.	CONT.	
		Oct 95					1,027		CONT.	CONT.	
		Oct 96						787	CONT.	CONT.	
NCCOSC R&D Div/Det Warminster, PA	WX	Oct 93			1,000				CONT.	CONT.	
		Oct 94				1,665			CONT.	CONT.	
		Oct 95					1,315		CONT.	CONT.	
		Oct 96						990	CONT.	CONT.	
NADEP NI San Diego, CA	WX	Oct 93			1,766				CONT.	CONT.	
		Oct 94				0			CONT.	CONT.	
		Oct 95					500		CONT.	CONT.	
		Oct 96						0	CONT.	CONT.	

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

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links
PROJECT NUMBER: P1977
PROJECT TITLE: Joint Tactical Information Distribution 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	FY 1997 Budget	To Complete	Total Program
NCTSI											
San Diego, CA	RCP	Dec 93			1,034				CONT.	CONT.	
		Dec 94				0			CONT.	CONT.	
		Dec 95					0		CONT.	CONT.	
		Dec 96						0	CONT.	CONT.	
GRUMMAN		Mar 97							CONT.	CONT.	
All Other Product Development		Mar 94			1,090				CONT.	CONT.	
		Mar 95				1,294			CONT.	CONT.	
		Mar 96					915		CONT.	CONT.	
		Mar 97						0	CONT.	CONT.	
Product Development					7,729	2,959	3,757	1,777	CONT.	CONT.	
SUPPORT AND MANAGEMENT											
All Other Support and Management					828	180	546	484	CONT.	CONT.	

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT NUMBER: P1977 PROJECT TITLE: Joint Tactical Information Distribution 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	FY 1997 Budget	To Complete	Total Program
TEST AND EVALUATION											
NCCOSC R&D DIV											
San Diego, CA	WX	Oct 94			658				CONT.	CONT.	
		Oct 95				2,126			CONT.	CONT.	
		Oct 96					3,385		CONT.	CONT.	
		Oct 97						2,357	CONT.	CONT.	
All Other Test and Evaluation					1,936	0	1,567	1,486	CONT.	CONT.	
Test and Evaluation					2,594	2,126	4,952	3,843	CONT.	CONT.	
TOTAL PERFORMING ORGANIZATIONS					11,151	5,265	9,255	6,104	CONT.	CONT.	

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FY 1997 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 199(

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: P1977
PROJECT TITLE: Joint Tactical Information Distribution System

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
GOVERNMENT FURNISHED PROPERTY									
Product Development	N/A								
Support and Management	N/A								
Test and Evaluation	N/A								

	FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	7,729	2,959	3,757	1,777	CONT.	CONT.
Subtotal Support and Management	828	180	546	484	CONT.	CONT.
Subtotal Test and Evaluation	2,594	2,126	4,952	3,843	CONT.	CONT.
Total Project	11,151	5,265	9,255	6,104	CONT.	CONT.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

(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
P2126 Multifunctional Information Distribution System	18,424	30,863	28,784	45,620	38,342	27,936	16,461	CONT	CONT

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Multifunctional Information Distribution System (MIDS) is a multinational (U.S., France, Germany, Italy, and Spain) cooperative development program established to design, develop, and deliver low volume (LV), lightweight tactical information systems terminals for U.S. fighter aircraft, as well as foreign fighter aircraft, helicopters, ships and ground sites. The terminals will be designed as a Pre-Planned Product Improvement (P^3I) of the Joint Tactical Information Distribution System (JTIDS) Time Division Multiple Access (TDMA) Class 2 terminals. The goal of the MIDS program is to produce a terminal that is smaller, lighter, fully compatible with, and as capable as the JTIDS TDMA Class 2 terminals, but suitable for use in platforms that cannot accommodate the bulkier, heavier JTIDS terminals. The first U.S. Navy planned application is on the F/A-18. This PE will fund the costs to integrate and test MIDS on the F/A-18 and other platforms. The LINK-16 implementation includes development and test of a TADIL J SATLINK capability. Terminal development costs are funded in PE 0604771D.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($18,424) Continued development of aircraft design modifications and initial MIDS platform software build for incorporation into MIDS Test Operational Flight Program (OFP) 11CM.
- (U) (N/A) Conducted Preliminary Design Review (PDR) for aircraft modification.

UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 199(

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: P2126
PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: Multifunctional Information Distribution System

2. (U) FY 1996 PLAN:

- (U) ($27,841) Continue development of MIDS platform software and platform aircraft modification designs and testing.
- (U) ($1,500) TADIL J SATLINK implementation.
- (U) ($1,000) MIDS shipboard implementation.
- (U) (N/A) Conduct Critical Design Review (CDR) for aircraft modification.
- (U) ($522K) Portion of extramual program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($23,284) Continue development of MIDS platform software and platform aircraft modification designs and testing.
- (U) ($3,500) TADIL J SATLINK implementation.
- (U) ($2,000) MIDS shipboard implementation.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT NUMBER: P2126 PROJECT TITLE: Multifunctional Information Distribtuion System

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/97 President's Budget:	22,770	37,705	32,167
(U) Adjustments from PRESBUDG:	-4,346	-6,842	-3,383
(U) FY 1997 President's Budget:	18,424	30,863	28,784

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY95 decreased $4,346K for Navy execution adjustments. FY96 decreased for Congressional undistributed general and inflation related reductions ($820K); revised DOD inflation rates and otherr minor pricing adjustments ($418K); and Navy reprogramming to cover Global Broadcasting system ($5584K). FY97 decreased for revised inflation estimates and other minor pricing adjustments ($3,383K).

(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
APN LINE					32,660	75,536	95,586	269,218	473,000
# 052500									
RDT&E DA	49,600	45,700	40,000	27,000	15,000	13,975	14,760	TBD	TBD
OPN Ln #2614					28,354	15,889	13,737	TBD	TBD
SCN				7,100	7,300	7,500	7,700	TBD	TBD

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 199(

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: P2126
PROJECT TITLE: Multifunctional Information Distribution System

(U) RELATED RDT&E:

(U) PE (0205604N) - JTIDS: Funds integration and test costs for JTIDS on the following Navy Platforms: E-2C, F-14D, CV, CG/CGN, and DDG.
(U) PE (0604771D) - JTIDS: Funding develops and procures the Navy's JTIDS and MIDS Engineering and Manufacturing Development (EMD) terminals.
(U) PE (0604771D) - MIDS: MIDS terminal development.

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				DAB IIIA 3Q/98 MS IIIB 3Q/98 (FRP) IOC 1Q/01
Engineering Milestones	PDR 4Q/95	CDR 2Q/96	OFP 11CM 1Q/97	OFP 13CM 2Q/99 OFP 15C 3Q/00 F/A-18 E/F ECP 4Q/01 F/A-18 OT 2Q/99 Ship OA/3Q/98 Submarine OA 4Q/98
T&E Milestones				TECHEVAL 4Q/99 OPEVAL 2Q/00
Contract Milestones				

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: P2126
PROJECT TITLE: Multifunctional Information Distribution System

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Systems Engineering	1,834	1,928	4,071
b. Test and Evaluation	1,093	4,055	9,321
c. Integration	14,828	24,080	14,075
d. Integrated Logistics Support	669	800	1,317
Total	18,424	30,863	28,784

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: P2126
PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: Multifunctional Information Distribution 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										
McDonnell Douglas	SS/CPFF	Dec 91	8,799	8,799	8,799					8,799
McDonnell Douglas	SS/CPIF	Jul 94	101,840	101,840	15,946					
		Nov 94				11,149				
		Nov 95					18,512			
		Nov 96						11,804	Cont.	Cont.
Texas Instruments	SS/FFP	Dec 91	10,538	10,538	10,538					10,538
NCCOSC R&D Div Det/ Warminster PA	WX	Nov 93	12,210	12,210	3,766					
		Nov 94				1,963				
		Nov 95					1,576			
		Nov 96						2,734	Cont.	Cont.
NAVAIRWARCENWPNDIV/ China Lake, CA	WX	Mar 94	12,769	12,769	1,219					
		Dec 94				1,000				
		Dec 95					2,494			
		Dec 96						1,618	Cont.	Cont.
All other Product Development			17,340	17,340	8,568	1,919	2,469	1,699	Cont.	Cont.
Product Development			163,496	163,496	48,836	16,031	25,051	17,855	Cont.	Cont.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT NUMBER: P2126 PROJECT TITLE: Multifunctional Information Distribution 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
SUPPORT AND MANAGEMENT										
All other Support and Management			12,788	12,788	2,843	1,300	1,885	1,608	Cont.	Cont.
Support and Management			12,788	12,788	2,843	1,300	1,885	1,608	Cont.	Cont.
TEST AND EVALUATION										
NAVAIRWARCENWPNDIV/ China Lake, CA	WX	Dec 95 Dec 96	22,807	22,807	1,533		2,323	5,715	Cont.	Cont.
NCCOSC R&D Div/ San Diego, CA	WX	Nov 93 Nov 94 Nov 95 Nov 96	16,904	16,904	1,355	1,093	1,604	3,422	Cont.	Cont.
All other Test and Evaluation			3,105	3,105	526			184	Cont.	Cont.
Test and Evaluation			42,816	42,816	3,414	1,093	3,927	9,321	Cont.	Cont.
SUBTOTAL PERFORMING ORGANIZATIONS			219,100	219,100	55,093	18,424	30,863	28,784	Cont.	Cont.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: P2126
PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: Multifunctional Information Distribution System

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	TOTAL FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
PRODUCT DEVELOPMENT									
Product Development				0	0	0	0	0	0
SUPPORT AND MANAGEMENT									
Support and Management				0	0	0	0	0	0
TEST AND EVALUATION									
TECHEVAL/OPEVAL Terminals	TBD	TBD	FY 1999					25,000	25,000
Test and Evaluation				0	0	0	0	25,000	25,000
SUBTOTAL GOVERNMENT FURNISHED PROPERTY				0	0	0	0	25,000	25,000

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	48,836	16,031	25,051	17,855	Cont.	Cont.
Subtotal Support and Management	2,843	1,300	1,885	1,608	Cont.	Cont.
Subtotal Test and Evaluation	3,414	1,093	3,927	9,321	Cont.	Cont.
Total Project	55,093	18,424	30,863	28,784	Cont.	Cont.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205620N
PROGRAM ELEMENT TITLE: Surface ASW Combat System Integration

(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
V0896 ASW Combat System Integration	3,418	0	0	0	0	0	0	0	218,166
V1916 Surface ASW System Improvements	11,868	9,623	4,901	6,576	5,902	7,665	7,618	CONT.	CONT.
TOTAL	15,286	9,623	4,901	6,576	5,902	7,665	7,618	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The objective of this program element is to incrementally modernize the existing AN/SQQ-89(V) system by providing improved contact management capabilities and active classification performance, and developing an open system architecture. Additionally, this PE supports the efforts to develop adjunct processing capability to process SQS-53C transmissions bistatically using the SQS-53C or SQR-19(TARS) as the receiver. These efforts will provide a fully integrated AN/SQQ-89(V) ASW Combat System, and will open the AN/SQQ-89 system architecture to enable further affordable performance growth.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205620N
PROGRAM ELEMENT TITLE: Surface ASW Combat System Integration

(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
V1916 Surface ASW System Improvements	11,868	9,623	4,901	6,576	5,902	7,665	7,618	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Surface ASW Systems Improvement project will fully support the DDG-51 Flight IIA and follow-on requirements, develop an open system architecture to allow enhanced or new functions to be inserted into the AN/SQQ-89(V) at reduced costs, and will provide: 1) interoperability with low frequency active (LFA) and LAMPS MK III Blk II, 2) torpedo alertment and countermeasure capability, 3) and improved active classification from the development of the Echo Tracker Classifier and Bistatics.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($5,144) Analyzed and evaluated SURTASS active and passive capabilities applicable to Fleet-requested SQQ-89 improvements which included LFA, Very Low Frequency (VLF) and Full Spectrum functionality. $807K used to forward fund FY 1996 tasks due to poor expenditures.

- (U) ($6,724) Converted Echo Tracker Classifier (ETC) software for use in SQQ-89, then evaluated and tested it in prototype form. Integrated components of AN/SQQ-89(V)6 Adjunct Subsystem into a unified architecture using open system technologies. Developed features and capabilities to fully integrate with the rest of SQQ-89(V)6, and Joint Maritime Command Information System.

2. (U) FY 1996 PLAN:

- (U) ($3,912) Begin efforts to develop, test and evaluate AN/SQS-53C / AN/SQR-19 Bistatics prototype software. Continue SURTASS and other systems analysis to assist in development of Full Spectrum Processing, final VLF and LFA Bistatics.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205620N PROJECT NUMBER: V1916
PROGRAM ELEMENT TITLE: Surface ASW Combat Sys Integ PROJECT TITLE: Surface ASW Sys Improvements

- (U) ($5,622) Develop, test and evaluate the initial ETC software. $807K used to forward fund FY 1997 tasks due to poor expenditures.
- (U) ($89) 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) ($3,689) Complete efforts to develop, test and evaluate AN/SQS-53C / AN/SQR-19 Bistatics prototype software.
- (U) ($1,212) Develop, test and evaluate the final ETC software.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	12,154	9,955	6,051
(U) Adjustments from PRESBUDG:	-286	-332	-1,150
(U) FY 1997 PRESBUDG Submit :	11,868	9,623	4,901

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995 was reduced $286K due to an SBIR reduction and a reprogramming of funds to PE 0603506N. FY 1996 was reduced $332K due to Congressional undistributed reductions. FY 1997 was reduced $807K due to lagging expenditures and $343K due to revised inflation estimates and other minor pricing 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: 7 PROGRAM ELEMENT: 0205620N PROJECT NUMBER: V1916
PROGRAM ELEMENT TITLE: Surface ASW Combat Sys Integ PROJECT TITLE: Surface ASW Sys 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) OPN Line 47 (CLI 213600, 213605)	82,284	22,747	24,674	17,782	28,679	29,671	27,830	CONT.	CONT.

(U) RELATED RDT&E:

(U) PE 0603553N (Surface Anti-Submarine Warfare) - Advanced ASW Development
(U) PE 0604212N (Anti-Submarine Warfare & Other Helicopter Developments)
(U) PE 0604507N (Enhanced Modular Signal Processor) - Development of Navy Standards
(U) PE 0604574N (Navy Tactical Computer Resources) - Development of Navy Standard Displays

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: March 199

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205620N PROJECT NUMBER: V1916
PROGRAM ELEMENT TITLE: Surface ASW Combat Sys Integ PROJECT TITLE: Surface ASW Sys Improvements

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones					
Engineering Milestones	1Q EMSP PDR 1Q AIDS PDR 2Q AIDS CDR 3Q EMSP CDR		2Q (V)6 Integration Development Complete 4Q VLF Development Complete 4Q Full Spectrum Development Complete 4Q ETC Development Complete	4Q ETC Prototype Complete	
T&E Milestones	4Q Integ Tests		4Q TECHEVAL at Sea Test		2Q98 OPEVAL at Sea Test
Contract Milestones	4Q EMSP EMD				

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205620N PROJECT NUMBER: V1916
PROGRAM ELEMENT TITLE: Surface ASW Combat Sys Integ PROJECT TITLE: Surface ASW Sys Improvements

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Prime Mission Equipment	973	270	166
b. Software	2,918	3,215	1,120
c. System Engineering	5,123	3,917	2,040
d. Program Management	1,012	836	627
e. Integrated Logistics	51	130	80
f. T&E	1,771	1,090	738
i. Travel	20	165	130
Total	11,868	9,623	4,901

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205620N PROJECT NUMBER: V1916
PROGRAM ELEMENT TITLE: Surface ASW Combat Sys Integ PROJECT TITLE: Surface ASW Sys 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										
NUWC/NL	WR	10/95	CONT.	CONT.	9,017	4,038	2,279	2,078	CONT.	CONT.
SPAWAR (Bistatics)	PD	10/95	CONT.	CONT.	0	1,500	1,520	200	CONT.	CONT.
SPAWAR (ETC)	PD	10/95	CONT.	CONT.	0	1,040	1,053	600	CONT.	CONT.
Miscellaneous	WR/RCP	Various	CONT.	CONT.	5,361	2,819	2,984	942	CONT.	CONT.
Support and Management										
Tracor/Vitro	CPFF	01/95	CONT.	CONT.	1,054	1,000	697	343	CONT.	CONT.
Test and Evaluation										
Miscellaneous	WR/RCP	Various	CONT.	CONT.	725	1,471	1,090	738	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									
AT&T	CPAF	12/93	03/94	112	0	0	0	0	112

* Efforts for Surface ASW Sys Improvements (V1916) were funded under PE 0604713N prior to FY 1993.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205620N
PROGRAM ELEMENT TITLE: Surface ASW Combat Sys Integ
PROJECT NUMBER: V1916
PROJECT TITLE: Surface ASW Sys Improvements

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	14,490	9,397	7,836	3,820	CONT.	CONT.
Subtotal Support and Management	1,054	1,000	697	343	CONT.	CONT.
Subtotal Test and Evaluation	725	1,471	1,090	738	CONT.	CONT.
Total Project	16,269	11,868	9,623	4,901	CONT.	CONT.

* Efforts for Surface ASW Sys Improvements (V1916) were funded under PE 0604713N prior to FY 1993.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MAR 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205632N
PROGRAM ELEMENT TITLE: MK 48 ADCAP

(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
V0366 MK48 ADCAP	26,703	21,516	12,772	11,740	12,622	12,453	12,671	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The MK 48 ADCAP (ADvanced CAPability) torpedo R&D program focuses on two specific areas: the Guidance and Control (G&C) software block upgrades and the Torpedo Propulsion Upgrade (TPU). These efforts were significantly restructured in the past two years to reflect the changes to the threat. ADCAP was initially developed to counter high speed deep diving Soviet submarines. Chief of Naval Operations continues to stress shallow water (less than 600 feet) as a critical operating area to counter third world diesel electric submarines. Severe water temperature gradients, reflection of acoustic energy from the ocean surface and bottom, and non-combatant ship traffic are but a few of the factors which make shallow water a difficult operating environment for acoustically guided weapons. Torpedo testing in shallow water has demonstrated that in-service ADCAP has less than full capability in this difficult environment. However, this testing, in conjunction with laboratory simulation efforts, has shown that significant performance improvements can be made by implementing changes to weapon tactics and software algorithms. Development, implementation and testing of these changes is being accomplished under the ADCAP G&C software block upgrade program. As part of this effort, several dedicated shallow water test exercises were conducted to fully characterize the environment and assess weapon performance. ADCAP software is being converted from the CMS-2 programming language to ADA (Navy standard) in a phased approach. Software Block Upgrade II, written in CMS-2, was the first upgrade to enhance shallow water capability. Introduced to the fleet in 1994, Software Block Upgrade II provides a limited increase in shallow water capability through improved P(HIT) probabilities in uncountered (no CMS) scenerios. Advanced sonar waveforms and computer processing techniques, currently in 6.2 funded development, will be used to further improve shallow water performance, scheduled for Fleet introduction in 1998.

(U) The TPU, which is a propulsion quieting program, is required to decrease torpedo radiated noise and reduce the time available for the target to take evasive action and counterfire against the U.S. submarine. TPU will significantly reduce the probability of U.S. submarine loss during a regional conflict. TPU will increase shallow water performance by reducing the amount of radiated noise which is reflected off the ocean surface and bottom, thereby making target

acquisition less difficult. Quieting levels are designed to meet the Navy's requirements for performance in all environments. The TPU program has been combined programmatically with a WPN funded ordnance alteration of the ADCAP G&C to constitute the ADCAP MODS program. Major design reviews, testing, and hardware procurement of both TPU and G&C upgrades are being performed concurrently when possible to minimize cost. The MODS program successfully completed a Milestone IV review in January 1993. Low Rate Initial Production (LRIP) review was successfully completed in April 1995. As requested during the LRIP review, a tactical assessment of MK 48 ADCAP MODs performance was submitted to ASN(RDA) in June 1995 and resulted in approval for LRIP procurement in FY 95. The MK 48 ADCAP MODs program successfully completed OPEVAL on 7 December 1995, this effort was FOT&E OT-III C/D for the MODs guidance & control and the new quieted TPU afterbody. COMOPTEVFOR published a quicklook analysis on 8 January 1996 and the final OPEVAL report was issued on 29 February 1996. The ASN Beyond LRIP (BLRIP) report has been published. All exit criteria for Milestone III decision are satisified. The MODS program Milestone III approval for full rate production is scheduled for 2nd quarter FY 1996.

(U) The proposed MK 48 Improved Submarine Launched Mobile Mine (SLMM) program is based upon a dual-warhead MK48 Torpedo body. It responds to the Mission Need Statement (MNS) and resolves the decreasing supportability and limited capability of the MK 67 SLMM by taking advantage of excess MK48 inventory and the improved MK71 TDD. A FY95/FY96 and early completion in FY 97 of the demonstration of the dual-warhead MK48 capability will provide a rapid prototype vehicle for in water testing.An Improved SLMM demo is being funded within the torpedo RDT&E line because it utilizes the MK 48 torpedo as a delivery vehicle for other mine components that have already been developed. The other SLMM components, such as the warhead and the warhead triggering device were developed under a separate program.

The Mission Need Statement (MNS) shows a Fleet need for clandestine minefields comprised of bottom mines, planted by a submarine from standoff ranges, outside defended shallow waters of littoral areas. The draft POM-98 NNOR increases the inventory requirements for SLMM weapons by 89% from previous levels. The use of excess MK 48 inventory provides the most cost effective means of satisfying this requirement while also eliminating the obsolescence issues with the current MK 67 SLMM increase. The forty year old technology and aging hardware of the in-service MK67 SLMM is no longer supportable and will require cannibalization of in service assets to maintain supportability beyond 2001. In addition, the MK 67 SLMM, a 19" weapon, will not be compatible in post-688-class submarines and is therefore not supported by the NSSN Storage & Handling System. The MK 48 based SLMM will provide greater standoff range and launch flexibility than the MK 67 SLMM. Loadout capacity (mines per submarine) will be doubled, reducing required number of sorties and time on station. The MK48 maintenance infrastructure will be used to minimize maintenance costs.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MAR 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205632N
PROGRAM ELEMENT TITLE: MK 48 ADCAP

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing operational systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($4,016) Continued contract for TPU Prototype Design/Fabrication and completed Critical Design Review (CDR).
- (U) ($6,205) Continued development testing (DT-III) and operation testing (OT) of the TPU.
- (U) ($2,519) Completed TPU Design Qualification and Verification testing.
- (U) ($9,999) Continued Block Upgrade III/IV Improvement Program.
- (U) ($1,243) Continued to support and upgrade Weapon Analysis Facility simulator to reflect latest G&C hardware configuration.
- (U) ($524) Conducted COMOPTEVFOR MODS operational testing (OT).
- (U) ($2,000) Began the design and prototype development of 4ea MK 48 based Submarine Launched Mobile Mine (SLMM) vehicles. This effort is to develop a dual-warhead weapon utilizing the MK 48 torpedo body to provide a logistically supportable follow-on weapon to the MK 67 SLMM. The intent of this effort is to perform a rapid prototype demonstration and in-water test, plan the follow-on EM&D phase development of the MK 48 dual-warhead SLMM concept, and subsequently define the acquisition approach which will allow for rapid transition to fleet introduction.
- (U) ($197) Continued program management and travel to support above activities.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MAR 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205632N
PROGRAM ELEMENT TITLE: MK 48 ADCAP

2. (U) FY 1996 PLAN:

- (U) ($975) Complete final testing and close-out of TPU development program.
- (U) ($6,084) Continue G&C Software Block Upgrade III Improvement Program. Block III addresses the software interfaces with the TPU program and shallow water improvements in various tactical environments.
- (U) ($6,946) Continue G&C Software Block Upgrade IV Improvement Program. Block IV addresses continuing improvements in shallow water capabilities through improved algorithms and processor techniques being developed by 6.2/6.3A R&D community.
- (U) ($1,600) Continue the design and development of 4ea prototype MK 48 based Submarine Launched Mobile Mine (SLMM) vehicles. Perform a rapid prototype demonstration, in-water test and independent variable cost and effectiveness studies for Milestone II. Plan the follow-on EMD of the MK 48 dual-warhead SLMM concept, and subsequently define the acquisition approach which will allow for rapid transition to fleet introduction.
- (U) ($3,182) Complete development testing of Block Upgrade III and continue to conduct special shallow water exercises.
- (U) ($1,678) Upgrade Weapon Analysis Facility simulator to reflect latest G&C hardware configuration.
- (U) ($418) Continue shallow water upgrade of WAF simulators.
- (U) ($350) Continue efforts toward COMOPTEVFOR validation of WAF simulator, and continue support of Block support of Block Upgrade DT/OT testing.
- (U) ($205) Program management and travel to support above activities.
- (U) ($78) Portion of extramural program reserved for Small Business Innovation Research assessment in

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accordance with 15 U.S.C.638.

3. (U) FY 1997 PLAN:

- (U) ($1,169) Complete G&C Software Block Upgrade III Improvement Program.
- (U) ($2,053) Complete development testing of Block Upgrade IV. Complete operational testing of Block Upgrade III.
- (U) ($5,397) Continue G&C Software Block Upgrade IV Improvement Program.
- (U) ($1,850) Begin R&D development of G&C software improvements. The software improvements continue beyond the completion of Block Upgrades III and IV to provide improvements and enhancement to torpedo performance in adverse, shallow water countermeasure environments and increase bottom targeting capabilities that will address emerging/evolving threat characteristics and environments. Software improvements will incorporate new improvements to optimize torpedo effectiveness algorithm and processor techniques being developed by the 6.2/6.3 R&D community.
- (U) ($1,043) Continue to support and upgrade Weapon Analysis Facility simulator to reflect latest G&C hardware configuration.
- (U) ($550) Conduct COMOPTEVFOR Operational Testing of Software Block Upgrade III.
- (U) ($500) Prototype new propulsion concepts resulting from 6.2 R&D technology initiatives in alternate fuels and reduced maintenance components.
- (U) ($210) Program management and travel to support above activities.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MAR 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205632N
PROGRAM ELEMENT TITLE: MK 48 ADCAP

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	26,954	22,214	13,824
(U) Adjustments from PRESBUDG:	-251	-698	-1,052
(U) FY 1997 PRESBUDG Submit:	26,703	21,516	12,772

(U) PROGRAM CHANGE SUMMARY EXPLANATION:

(U) Funding:
Fy 95: Below Threshhold Reprogramming to fund FY 1996 Major Range and Test Facility Base (MRTFB) shortfalls (-$251K).
FY 96: Congressional undistributed general and inflation reductions (-$437K); and revised DOD inflation rates (-$261K).
FY 97: Revised inflation estimates and other minor pricing adjustments (-$1052K).

(U) Schedule: Not applicable.
(U) Technical: Not applicable.
FY 96: adjustment reflected above will result in the reduction of development testing by fourteen in water runs for Software Block Upgrade III and in water concept exploration of Block Upgrade IV.
FY 97: adjustment reflected above will result in the cancellation of the start of the advanced processor development, start of software commonality and reuse initiatives, and reduction in Software Block Upgrade Improvements.

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

(U) WPN - 322500

FY 1995 ACTUAL	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE	TOTAL PROGRAM
2,262	3,856	9,426	8,033	10,404	8,284	8,337	7,132	57,734

(MODS/TPU Hardware Procurement Only)

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: MAR 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205632N
PROGRAM ELEMENT TITLE: MK 48 ADCAP

(U) RELATED RDT&E:
(U) PE 0603562N (Submarine Tactical Warfare Systems)
(U) PE 0604562N (Submarine Tactical Warfare Systems Eng)

D.(U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones		2Q MODS MS III		
Engineering Milestones	1Q TPU CDR	1Q SLMM SRR		
T&E Milestones	1Q MODS G&C DT-IIIC 1Q MODS TPU DT-IIID	1Q MODS G&C OT-IIIC 1Q MODS TPU OT-IIID 4Q G&C BLK III DT-IIIE	2Q G&C BLK III OT-IIIE 4Q G&C BLK IV DT-IIIF	2Q G&C BLK IV OT-IIIF
Contract Milestones	3Q MODS LRIP	2Q MODS P1	2Q MODS P2	

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

DATE: MAR 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205632N
PROGRAM ELEMENT TITLE: MK 48 ADCAP

PROJECT NUMBER: V0366
PROJECT TITLE: MK 48 ADCAP

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Systems Engineering	9,388	9,773	6,312
b. Software Engineering	3,130	3,257	2,104
c. Simulation/Modeling	1,243	2,096	1,043
d. Hardware Development	4,016	975	500
e. Test and Evaluation	6,729	3,532	2603
f. Program Management Support	130	135	139
g. MK48 Based SLMM	2,000	1,600	0
h. Travel	67	70	71
I. SBIR		78	
Total	26,703	21,516	12,772

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205632N PROJECT NUMBER: V0366
PROGRAM ELEMENT TITLE: MK 48 ADCAP PROJECT TITLE: MK 48 ADCAP

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

PERFORMING ORGANIZATIONS

Contractor/ Contract

Government Performing Activity	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										
Sundstrand ROCKFORD, ILL	C,FPI	8-88	18,436	18,436	18,436	0	0	0	0	18,436
WECO/HAC CLEVELAND, OH	C,FPI	9-93	16,724	16,724	11,733	4,016	975	0	0	16,724
NUWC NEWPORT	WR	OCT.95	CONT.	CONT.	CONT.	20,004	19,206	11,210	CONT.	CONT.
ARL/PSU	PD	OCT.95	CONT.	CONT.	CONT.	500	500	500	CONT.	CONT.
Support and Management										
PEAT MARWICK WASH DC	C,CPFF	AUG.90	CONT.	CONT.	CONT.	130	135	139	CONT.	CONT.
Test and Evaluation										
NUWC KEYPORT	WR	OCT.95	CONT.	CONT.	CONT.	1,529	350	373	CONT.	CONT.
COMOPTEVFOR	WR	OCT.95	CONT.	CONT.	CONT.	524	350	550	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1994 & Prior	FY 1995 Actual	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Not Applicable				0	0	0	0	0	0

000249

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205632N
PROGRAM ELEMENT TITLE: MK 48 ADCAP
PROJECT NUMBER: V0366
PROJECT TITLE: MK 48 ADCAP

(H) PROJECT COST BREAKDOWN: ($ in thousands)

	Total FY 1994 & Prior	FY 1995 Actual	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	CONT.	19,844	17,849	10,030	CONT.	CONT.
Subtotal Support and Management	CONT.	130	135	139	CONT.	CONT.
Subtotal Test and Evaluation	CONT.	6,729	3,532	2,603	CONT.	CONT.
Total Project	CONT.	26,703	21,516	12,772	CONT.	CONT.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205633N
PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS

(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
W0601 Common Ground Equipment	2,925	2,482	2,089	2,810	3,415	3,415	3,482	CONT.	CONT.
W0852 Consolidated Automated Support System (CASS)	3,400	13,084	7,599	9,157	9,095	9,096	9,278	CONT.	CONT.
W1041 Aircraft Equipment Reliability & Maintainability Improvement Program (AERMIP)	1,907	1,464	1,136	1,573	1,948	1,947	1,986	CONT.	CONT.
W1355 Aircraft Engine Component Improvement Program (CIP)	55,033	47,743	42,688	47,790	60,281	64,008	65,823	CONT.	CONT.
TOTAL	63,265	64,773	53,512	61,330	74,739	78,466	80,569	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Common Ground Equipment is a Naval Aviation project to apply new technology to common support equipment necessary to support all aircraft. Consolidated Automated Support System (CASS) develops standardized Automated Test Equipment (ATE) with computer assisted, multi-functional capabilities to support the maintenance of aircraft subsystems and missiles. AERMIP is the only Navy program that provides engineering support for in-service out-of-production aircraft equipment and provides increased readiness at reduced operational and support cost. Aircraft Engine CIP develops reliability and maintainability (R&M) and safety enhancements for in-service Navy aircraft engines, transmissions, propellers, starters, auxiliary power units, electrical generating systems, fuel systems, and fuels and lubricants.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

000252

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205633N
PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS

(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
W0601 Common Ground Equipment	2,925	2,482	2,089	2,810	3,415	3,415	3,482	CONT	CONT

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project improves support equipment systems and thereby enhances Fleet supportability through the application of new technology. It improves aircraft readiness via effective, efficient, and cost saving fleet support equipment introductions.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($1,470) Continued USN involvement with Joint Service USA Advanced Boresight Equipment project.
- (U) ($292) Continued testing and evaluation of Aircraft Generator Test Stand.
- (U) ($641) Constructed prototype Test Program Set (TPS) Software and System Engineering Environment Test (SEET) for ATE interface.
- (U) ($191) Completed SD-2 Shift Linkage and Engine Oil By-Pass Filter projects.
- (U) ($31) Finalized Dynamic Line Drop Compensator project and started prototype testing.
- (U) ($300) Continued USN involvement with US Air Force (USAF) Joint Service Electronic Combat Tester.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205633N PROJECT NUMBER: W0601
PROGRAM ELEMENT TITLE: Aviation Improvements PROJECT TITLE: Common Ground Equipment

2. (U) FY 1996 PLAN:

- (U) ($1,410) Complete USN involvement with USA Advanced Boresight Equipment development program.
- (U) ($149) Complete testing of the Dynamic Line Drop Compensator and Aircraft Generator Test Stand and prepare approval for production documentation.
- (U) ($100) Continue development and testing of the SEET standardization of TPS software development environment and ATE interface.
- (U) ($490) Continue USN involvement with US Air Force (USAF) Joint Service Electronic Combat Tester.
- (U) ($303) Initiate USN involvement with US Air Force (USAF) Next Generation Munitions Handler.
- (U) ($30) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:

- (U) ($1,034) Continue USN involvement with the USAF Next Generation Munitions Handlers.
- (U) ($250) Continue development and testing of the SEET standardization of TPS software development environment and ATE interface.
- (U) ($300) Continue USN involvement with US Air Force (USAF) Joint Service Electronic Combat Tester.
- (U) ($405) Initiate development of Universal Aircraft Axle Jack.
- (U) ($50) Initiate development and testing of the General Purpose O-Level Wire Tester.
- (U) ($50) Initiate development of an Automated Engine Turning Tool to use with the Borescope Defect Measurement Group.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205633N PROJECT NUMBER: W0601
PROGRAM ELEMENT TITLE: Aviation Improvements PROJECT TITLE: Common Ground Equipment

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/97 President's Budget	2,925	2,561	2,926
(U) Adjustment from PRESBUDG:	0	-79	-837
(U) FY 1997 OSD Budget Submit:	2,925	2,482	2,089

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1996 decrease reflects $50 for Congressional undistributed general and inflation reductions; $29 for revised DoD inflation rates. FY 1997 decrease reflects $774 for Defense Business Operating Fund R&D activites and $63 thousand for revised DoD inflation rates.

(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 PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: March 1996

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205633N PROJECT NUMBER: W0601
PROGRAM ELEMENT TITLE: Aviation Improvements PROJECT TITLE: Common Ground Equipment

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Software Development	672	1,004	0
b. Developmental Test & Eval	400	39	414
c. Development Support Equipment Acquisition	1,853	1,409	1,675
d. SBIR Assessment	0	30	0
Total	2,925	2,482	2,089

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:										
AAI Corp (Cockeysville, MD)	FP	5/19/94	2,760	2,760	39	1,470	1,251	0	0	2,760
Misc (In-house)	WR		CONT	CONT	7,489	1,055	1,012	959	CONT	CONT
Air Force	MIPR							1,000		
DOE	IPR						150			

Support and Management: Not Applicable

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205633N PROJECT NUMBER: W0601
PROGRAM ELEMENT TITLE: Aviation Improvements PROJECT TITLE: Common Ground Equipment

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										
NAWCAD, LKE	WR	CONT	CONT	0	300	400	39	130	CONT	CONT

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	7,729	2,525	2,413	1,959	CONT	CONT
Subtotal Support and Management	0	0	0	0	0	0
Subtotal Test and Evaluation	300	400	39	130	0	0
SBIR Assessment	0	0	30	0		
Total Project	8,029	2,925	2,482	2,089	CONT	CONT

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205633N
PROGRAM ELEMENT TITLE: Aviation Improvements

(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
W0852 Consolidated Automated Support System									
	3,400	13,084	7,599	9,157	9,095	9,096	9,278	CONT	CONT

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Consolidated Automated Support System (CASS) project will design and develop modularly constructed automated test equipment with computer-assisted, multi-functional capability based standardized hardware and software elements. CASS responds to Fleet Commanders' expressed requirements to correct serious deficiencies in existing automatic test equipment. Program objectives are: (1) increase material readiness; (2) reduce life cycle costs through standardization; (3) improve tester sustainability at depot and intermediate maintenance levels; (4) reduce proliferation of unique test equipment; and (5) provide test capability for existing and future avionics/electronics systems. Current effort addresses the joint development of a CASS All-Up-Round (AUR)/guidance section missile test capability.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($1,700) Completed Phase II development effort for a missile test capability.
- (U) ($1,700) Initiated CASS pre-planned product improvement program by commencing work on High Speed Digital Data Bus software emulation and DOD Automated Test System (ATS) standard interfaces/architectures.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205633N PROJECT NUMBER: W0852
PROGRAM ELEMENT TITLE: Aviation Improvements PROJECT TITLE: Consolidated Automated Support System

2. (U) FY 1996 PLAN:
- (U) ($1,846) Continue development of DOD ATS standard interfaces/architectures.
- (U) ($2,555) Commence development of A Broad Base Environment for Test (ABBET) standards instrument control software.
- (U) ($2,108) Continue development of High Speed Digital Data Bus interfaces and software emulation.
- (U) ($2,200) Commence development of Radio Frequency (RF) phase noise test, additional switching, and load capability.
- (U) ($2,100) Develop a Bit-Error-Rate test capability.
- (U) ($2,000) Develop array processing capability.
- (U) ($275) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:
- (U) ($1,760) Continue development of DOD ATS Standard Interfaces/architectures.
- (U) ($1,000) Continue development of High Speed Digital Data Bus interfaces and software emulation.
- (U) ($2,657) Continue development of ABBET standards for DOD common instrument control software.
- (U) ($1,182) Complete development of RF phase noise test capability.
- (U) ($1,000) Continue development of RF switching, leading and commence development of millimeter wave generation source.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205633N PROGRAM ELEMENT TITLE: Aviation Improvements PROJECT NUMBER: W0852 PROJECT TITLE: Consolidated Automated Support System

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	3,400	13,508	8,864
(U) Adjustment from PRESBUDG:	0	-424	-1,265
(U) FY 1997 OSD Budget Submit:	3,400	13,084	7,599

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1996 decreases reflect $158 for revised DoD inflation rates and $266 for revised Congressional undistributed general and inflation reductions. FY 1997 decreases reflect $621 CASS P3I execution adjustment; $382 for Defense Business Operating Fund; and $262 for 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: 7 PROGRAM ELEMENT: 0205633N
PROGRAM ELEMENT TITLE: Aviation Improvements
PROJECT NUMBER: W0852
PROJECT TITLE: Consolidated Automated Support System

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-7 (CASS)								
159,230	121,437	111,829	114,173	109,171	119,307	120,427	CONT	CONT
(U) O&MN								
4,400	2,300	1,100	900	300	0	0	0	9,900

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205633N PROGRAM ELEMENT TITLE: Aviation Improvements PROJECT NUMBER: W0852 PROJECT TITLE: Consolidated Automated Support System

(U) RELATED RDT&E: PE 0207163F (AMRAAM Air Force)
PE 0207163N (AMRAAM)
PE 0604746A (Automated Test Equipment Development)

- (U) A Memorandum of Agreement was executed between Naval Air Systems Command (NAVAIR) and the Air Force Systems Command (October 1988) in which the Navy will provide complete depot level repair for Advanced Medium Range Air-to-Air on CASS. A Memorandum of Understanding has also been executed between the U.S. Army and NAVAIR (March 1991) for technical support and procurement of the CASS Electro-optical subsystem for integration with the Army's Integrated Family of Test Equipment (IFTE) program.

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	III 6/95 (EO)			
Engineering Milestones	CTS DVFT 4/95			
T&E Milestones	6/95 FOT(OT-IIIA)			
Contract Milestones	FRP 6/95 (HYB,RF,CNI)	FRP 4/96 (HYB,RF,CNI) LRIP (EO) 8/96	FRP 3/97 (HYB,RF,CNI) LRIP (EO) 7/97	

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205633N
PROGRAM ELEMENT TITLE: Aviation Improvements
PROJECT NUMBER: W0852
PROJECT TITLE: Consolidated Automated Support System

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Development of Support Equipment Acquisition	1,700	0	0
b. Ancillary Hardware Development	700	1,900	2,000
c. Software Development	600	9,509	3,992
d. Systems Engineering	400	1,400	1,607
e. Config Mgmt/Technical Data	0	0	0
f. SBIR Assessment	0	275	0
TOTAL	3,400	13,084	7,599

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205633N
PROGRAM ELEMENT TITLE: Aviation Improvements

PROJECT NUMBER: W0852
PROJECT TITLE: Consolidated Automated Support 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:										
Hughes/USAF										
Tucson, AZ	FPI	9/03/93	43,627	43,627	43,324	303	0	0	0	43,627
LMC/Orlando FL	FPI	1/15/95	21,000	21,000	0	1,268	5,661	2,462	CONT	CONT
Misc (In house)	WR/PD									
NAWC, Pt. Mugu	WR		2,621	2,621	1,561	1,060	0	0	0	CONT
NAWC, Lakehurst			18,000	18,000	0	469	6,576	4,719	CONT	CONT
Support and Management:										
IDA	MIPR		575	575	575	0	0	0	0	575
Misc (In house)	WR		2,172	2,172	738	300	572	418	CONT	CONT
NAWC, Patuxent River MD										
NADEP North Island CA										

Test and Evaluation: Not Applicable.

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205633N
PROGRAM ELEMENT TITLE: Aviation Improvements

PROJECT NUMBER: W0852
PROJECT TITLE: Consolidated Automated Support 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	44,885	3,100	12,237	7,181	CONT	CONT
Subtotal Support and Management	1,313	300	572	418	CONT	CONT
Subtotal Test and Evaluation	0	0	0	0	0	0
SBIR Assessment	0	0	275	0		
Total Project	46,198	3,400	13,084	7,599	CONT	CONT

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT:0205633N
PROGRAM ELEMENT TITLE: Aviation Improvements

(U) COST: (Dollars in Thousands)

PROJECT NUMBER &	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
W1041 Aircraft Equipment Reliability & Maintainability Improvement Program (AERMIP)									
	1,907	1,464	1,136	1,573	1,948	1,947	1,986	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: AERMIP is the only Navy program which provides Research, Development, Test & Evaluation (RDT&E) engineering support specifically for in-service, out-of-production aircraft equipment. AERMIP increases readiness through Reliability and Maintainability (R&M) and safety improvments to existing systems and equipments installed in Naval aircraft. It provides a cost effective solution to obsolescence problems encountered when service lives are extended, and promotes commonality and standardization across aircraft platform lines and among the services through both extension of application and use of non-developmental items. AERMIP also decreases life cycle costs through reduced operational and supportive costs. AERMIP facilitates the Operational, Safety, and Improvement Program by applying proven, low-risk solutions to current fleet problems. AERMIP also funds high priority flight testing which is not associated with any acquisition or development program under the Flight Test General (FTG) task.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205633N PROJECT NUMBER: W1041
PROGRAM ELEMENT TITLE: Aviation Improvements PROJECT TITLE: ACFT EQ REL/MAINT PROG

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($444) Initiated AAU-31/32, S-3, and H-60 improvement tasks.
- (U) ($800) Concluded helicopter/ship dynamic interface simulation improvement and standard parachute R&M improvement tasks.
- (U) ($602) Continued Skyflex airplane sealant task, S3 pivot hinge fitting redesign task and engineering services in identification, analysis and evaluation of AERMIP candidates.
- (U) ($61) Conducted AH-1W Flight Test General Task.

2. (U) FY 1996 PLAN:

- (U) ($764) Initiate F-14 Mechanical Fuel Tank Release Mechanism (MXU) and Standard Altitude Heading Reference System (AHRS) R&M improvements. Continue identification, analysis and evaluation of AERMIP candidates.
- (U) ($400) Conclude AAU-31/32, S-3, and H-60 improvement tasks.
- (U) ($300) Conduct Flight Test General tasks, as directed.

3. (U) FY 1997 PLAN:

- (U) ($886) Continue prior R&M improvements, as applicable. Initiate new improvement tasks, for ARA-63 and ASN-92 Carrier Aircraft Integrated Navigation System (CAINS). Continue identification, analysis and evaluation of AERMIP candidates.
- (U) ($250) Conduct Flight Test General tasks, as directed.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205633N
PROGRAM ELEMENT TITLE: Aviation Improvements

PROJECT NUMBER: W1041
PROJECT TITLE: ACFT EQ REL/MAINT PROG

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	1,915	1,510	1,635
(U) Adjustments from PRESBUDG:	-8	-46	-499
(U) FY 1997 President's Budget Submit:	1,907	1,464	1,136

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY95 decrease reflects $8 transferred to canceled accounts to cover prior-year liabilities. FY 96 decrease reflects $29 for minor pricing adjustments and $17 for revised DOD inflation rates. FY 97 decrease reflects $444 and Defense Business Operating Fund R&D activities reductions; $21 for minor pricing adjustments and $34 for revised DoD inflation rates.

(U) Schedule: FY 97 will delay initiation, improvement and task for ALQ-144 Bearings, and ALQ-126 High Voltage Power Supply and Base Band.

(U) Technical: Not Applicable

000268

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205633N
PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS

(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
W1355 Aircraft Engine Component Improvement Program (CIP)	55,033	47,743	42,688	47,790	60,281	64,008	65,823	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Aircraft Engine CIP provides the only source of critical engineering support to resolve safety, reliability and maintainability problems of in-service Navy aircraft engines, transmissions, propellers, starters, auxiliary power units, electrical generating systems, and fuel and lubricant systems. CIP addresses all safety-of-flight issues (highest priority), corrects service-revealed deficiencies, improves Operational Readiness (OR) and Reliability and Maintainability (R&M), reduces engine Life Cycle Cost (LCC), maintains specification performance, and conducts testing to qualify engineering changes and verify life limits. Historically, the missions, tactics, and environmental exposure of military aircraft systems keep changing to meet new threats or operational demands, and often result in unforeseen problems, which if not corrected, can cause critical safety/readiness degradation, such as that experienced during DESERT SHIELD/DESERT STORM operations due to sand erosion. In addition, numerous new problems arise through actual use during deployment and during service use. Development programs, while geared to resolve as many problems as possible before deployment, cannot duplicate actual operations or account for the vast array of environmental and usage variables. Therefore, it is essential to maintain a CIP that can provide an immediate engineering response to these flight-critical problems. CIP tasks reduce in-flight aborts, safety incidents, non-mission capable rates, scheduled and unscheduled engine removals, maintenance work hours, and overall cost of ownership. Programs identify hardware, maintenance and procedural safety and R&M problems and develop corrective engineering proposals. CIP starts after engine development and Navy acceptance of the first production engine. CIP continues over the engine's life, gradually decreasing to a minimum level sufficient to keep older inventory operational. CIP addresses usage and life problems not covered by engine warranties. CIP is a highly leveraged tri-service program with Foreign Military Sales participation.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205633N PROJECT NUMBER: W1355
PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS PROJECT TITLE: AIRCRAFT ENGINE COMPONENT

1. (U) FY 1995 ACCOMPLISHMENTS:
   - (U) ($51,104) To ensure fleet safety, executed 212 redesign and analysis tasks and continued unfinished FY 1994 programs. Conducted 6390 engine and component test hours. Major safety programs identify hardware, maintenance and procedural safety problems and develop corrective engineering proposals. These efforts reduce safety incidents and in-flight aborts. Some of the major safety program accomplishments include the following:
   . (U) Continued redesign of AV-8 engine controller which has caused mishaps and is a top safety concern.
   . (U) Conducted H-53 and H-60 auxiliary power unit endurance and containment tests.
   . (U) Evaluated surface plating and corrosion of aircraft battery components.
   . (U) Continued comprehensive life analyses on the F-14, F/A-18, AV-8, T-45, EA-6B, H-60, H-46, H-3, H-53, and S-3 engine systems.
   . (U) Continued efforts to eliminate turbine fires from oil leaks in the F-14A engines. Provided an afterburner analytical model to understand cause of afterburner mishaps on the F-14B/D aircraft.
   . (U) Conducted hardware tests using carbon fiber contaminated fuel.

   - (U) ($3,929) To improve systems R&M, executed 36 redesign and analysis tasks to achieve a 20 year LCC savings/cost escalation avoidance of over $97M. Some of the major R&M program accomplishments include the following:
   . (U) Continued F/A-18 engine variable exhaust nozzle and afterburner mixer durability improvements that will yield over $50M LCC savings/cost escalation avoidance.
   . (U) Continued an F/A-18 engine bearing redesign that will allow engine hot section inspection intervals to double.
   . (U) Developed requirements and plans for the T-45/F405 lead-the-fleet program.
   . (U) Developed Afterburner Fuel Pump Housing Improvement to increase durability and reliability of afterburner servo to reduce afterburner malfunctions experienced by fleet.
   . (U) Introduced Corrosion Inhibited Gas Turbine engine oil for fleet use to minimize corroded engine bearings.

2. (U) FY 1996 PLAN:
   - (U) ($43,592) To ensure fleet safety, execute 182 redesign and analysis tasks and continue unfinished FY 1995 programs. Conduct approximately 4934 engine and component test hours. Conduct major safety programs to resolve safety-related hardware, maintenance and procedural problems and develop corrective engineering proposals. These efforts reduce safety incidents and in-flight aborts. Some of the major safety programs include the following:
   . (U) Complete redesign of AV-8 engine controller which has caused mishaps and is a top safety concern.
   . (U) Complete efforts to eliminate turbine fires from oil leaks in the F-14A engines.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205633N PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS PROJECT NUMBER: W1355 PROJECT TITLE: AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM

. (U) Continue comprehensive life analyses on the F-14, F/A-18, AV-8, T-45, EA-6B, H-60, H-46, H-3, H-53, and S-3 engine systems.

- (U) ($3,403) To improve system reliability and maintainability, execute 31 redesign and analysis tasks and achieve an estimated 20 year LCC savings/cost avoidance of over $87M. Some of the major R&M programs include the following:
. (U) Complete efforts to improve F/A-18 engine variable exhaust nozzle and afterburner mixer durability. Complete a bearing redesign to allow engine hot section inspection interval to double.
. (U) Complete efforts to increase EA-6B engine first stage turbine vane durability.
. (U) Initiate effort to insert near-term technology to meet increasing electrical power demands of aircraft modification programs.
. (U) Complete fleet conversion to the new Corrosion Inhibited Gas Turbine engine oil.
. (U) ($748) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN:
- (U) ($39,637) To ensure fleet safety, execute 165 redesign and analysis tasks and continue unfinished FY 1996 programs. Conduct approximately 4614 engine and component test hours. Conduct major safety programs to resolve safety-related hardware, maintenance and procedural problems and develop corrective engineering proposals. These efforts reduce safety incidents and in-flight aborts. Continue comprehensive life analyses on the F-14, F/A-18, AV-8, T-45, EA-6B, H-60, H-46, H-3, H-53, and S-3 engine systems.

- (U) ($3,051) To improve system R&M, execute 28 redesign and analysis tasks and achieve an estimated 20 year LCC savings/cost avoidance of over $86M.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205633N PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS PROJECT NUMBER: W1355 PROJECT TITLE: AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	55,054	49,296	48,433
(U) Adjustments from PRESBUDG:	-21	-1,553	-5,745
(U) FY 1997 President's Budget Submit:	55,033	47,743	42,688

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995 decrease reflects $21 tranferred to canceled accounts to cover prior year liabilities. FY 1996 decrease includes $972 for minor pricing adjustments; $581 for revised DoD inflation rates. FY 1997 decreases reflect $4,354 for Defense Business Operating Fund R&D activities; $1,291 for revised DoD inflation rates, and $100 for minor pricing adjustments.

(U) Schedule: FY 1997 decrease is associated with overall engine test hours.

(U) Technical: Not applicable.

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

(U) RELATED RDT&E:

(U) PE 0203752A (Aircraft Engine CIP Army)
(U) PE 0207268F (Aircraft Engine CIP Air Force)
(U) PE 0603217N (Air Systems Advanced Tech. Dev.)

D. (U) SCHEDULE PROFILE: Not Applicable.

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205633N
PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS

PROJECT NUMBER: W1355
PROJECT TITLE: AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Product Development	54,623	46,600	42,293
b. Support and Management	109	135	135
c. Travel	301	260	260
d. SBIR Assessment		748	
Total	55,033	47,743	42,688

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205633N
PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS

PROJECT NUMBER: W1355
PROJECT TITLE: AIRCRAFT ENGINE COMPONENT 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										
MAJOR EFFORTS ($1M OR MORE)										
F110 ENGINE PROGRAM										
F3365788C2133 GE	CPAF	2/89	22,242	22,242	22,242	0	0	0	0	22,242
F3365793C0045 GE	CPAF	4/94	4,851	4,851	4,851	0	0	0	0	4,851
F3365794C0028 GE	CPAF	12/94	CONT.	CONT.	0	3,774	3,803	2,215	CONT.	CONT.
(EVENDALE, OHIO)										
F402 ENGINE PROGRAM										
N0001993C0034 UK	CPFF	11/92	9,432	9,432	9,432	0	0	0	0	9,432
N0001994C0126 UK	CPFF	3/94	8,016	8,016	8,016	0	0	0	0	8,016
N0001994C0053 RR	CPAF	3/95	3,079	3,079	0	3,079	0	0	0	3,079
N0001995C0169 UK	CPFF	4/95	5,700	5,700	0	5,700	0	0	0	5,700
N0001995C0170 RR	CPFF	12/95	CONT.	CONT.	0	0	1,910	1,695	CONT.	CONT.
N0001996CXXXX UK	CPFF	2/96	CONT.	CONT.	0	0	2,366	2,000	CONT.	CONT.
(BRISTOL, ENGLAND)										
F404/T58/T64 ENGINE PROGRAM										
N0001991C0253 GE	CPFF	3/92	12,152	12,152	12,152	0	0	0	0	12,152
N0001992C0226 GE	CPFF	5/93	14,123	14,123	16,413	0	0	0	0	16,413
N0001993C0060 GE	CPFF	11/93	30,644	30,644	12,512	14,443	3,689	0	0	30,644
N0001995C0129 GE	CPFF	2/96	CONT.	CONT.	0	0	7,928	10,320	CONT.	CONT.
(LYNN, MASSACHUSETTS)										

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205633N PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS PROJECT NUMBER: W1355 PROJECT TITLE: AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM

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
J52 ENGINE PROGRAM										
N0001992C0048	P&W CPFF	3/92	2,850	2,850	2,850	0	0	0	0	2,850
N0001993C0068	P&W CPFF	3/93	4,140	4,140	4,140	0	0	0	0	4,140
N0001993C0175	P&W CPFF	3/94	3,557	3,557	3,557	0	0	0	0	3,557
N6852095C0007	P&W CPFF	1/95	CONT.	CONT.	0	2,937	2,000	1,700	CONT.	CONT.
(WEST PALM BEACH, FLORIDA)										
T56 ENGINE PROGRAM										
F4160893C0856	ALLISON CPFF	4/93	CONT.	CONT.	4,545	1,774	1,902	1,700	CONT.	CONT.
(INDIANAPOLIS, INDIANA)										
TF30 ENGINE PROGRAM										
N6852092D0043	P&W CPFF	4/92	2,910	2,910	2,910	0	0	0	0	2,910
N6852094D0009	P&W CPFF	4/94	978	978	978	1,135	0	0	0	2,113
N6852095C0007	P&W CPFF	1/95	CONT.	CONT.	0	0	956	900	CONT.	CONT.
(WEST PALM BEACH, FLORIDA)										
T700 ENGINE PROGRAM										
DAAJ0991C0454	GE CPFF	2/92	3,850	3,850	3,850	0	0	0	0	3,850
DAAJ0993C0283	GE CPFF	3/94	2,135	2,135	2,135	300	0	0	0	2,435
DAAJ0995C0101	GE CPFF	6/95	CONT.	CONT.	0	1,491	1,273	1,150	CONT.	CONT.
(LYNN, MASSACHUSETTS)										

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205633N
PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS

PROJECT NUMBER: W1355
PROJECT TITLE: AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM

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
TF34 ENGINE PROGRAM										
F4160892C1055 GE	CPFF	7/92	5,180	5,180	5,180	0	0	0	0	5,180
F4160895C0160 GE	CPFF	3/95	CONT.	CONT.	0	1,813	1,425	1,300	CONT.	CONT.
(LYNN, MASSACHUSETTS)										
F405 ENGINE PROGRAM										
N0001994C0053 RR	CPAF	3/95	1,877	1,877	0	1,877	0	0	0	1,877
N0001995C0170 RR	CPAF	12/95	CONT.	CONT.	0	0	1,232	1,050	CONT.	CONT.
(BRISTOL, ENGLAND)										
All other contracts less than $ 1.0M (Aggregate Total):					3,115	1,113	1,395	1,650	CONT.	CONT.
Subtotal Contracts:					118,878	39,436	29,879	25,680	CONT.	CONT.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205633N PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS

PROJECT NUMBER: W1355 PROJECT TITLE: AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM

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
Lab/Field Activity ($1.0M or more)										
NAWC TRN CIP SPT. WX	VARIOUS		CONT.	CONT.	25,169	8,584	0	0	CONT.	CONT.
NAWC PAX CIP SPT. WX	VARIOUS		CONT.	CONT.	9,415	3,754	14,362	14,400	CONT.	CONT.
NSWC CRN CIP SPT. WX	VARIOUS		CONT.	CONT.	2,280	1,069	736	650	CONT.	CONT.
All other in-house support less than $1.0M (Aggregate Total):										
VARIOUS	VARIOUS		CONT.	CONT.	2,692	1,438	1,252	1,115	CONT.	CONT.
Subtotal Lab\Activity\Other:					39,556	14,845	16,350	16,165	CONT.	CONT.

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

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0205633N
PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS
PROJECT NUMBER: W1355
PROJECT TITLE: AIRCRAFT ENGINE COMPONENT 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									
All other GFP: (FUEL)	MD	INCREMENTAL		1,532	342	371	448	CONT.	CONT.
Support and Management				540	410	395	395	CONT.	CONT.
SBIR Assessment (FY 1996)						748		CONT.	CONT.
Test and Evaluation	Not Applicable								

	FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	159,966	54,623	46,600	42,293	CONT.	CONT.
Subtotal Support and Management	540	410	395	395	CONT.	CONT.
SBIR Assessment			748			
Total Project	160,506	55,033	47,743	42,688	CONT.	CONT.

000277

000278

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205658N
PROGRAM ELEMENT TITLE: Navy Science Assistance 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
R0834 Navy Science Assistance Program (NSAP)	7,071	5,848	5,067	5,435	6,700	6,719	6,876	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Provides assistance to the Fleet by on-site support of scientists and engineers from the Navy Research, Development, Test & Evaluation (RDT&E) Infrastructure. Program ensures communications between technology producer (Navy RDT&E community) and technology customer (Navy/Marine Corps operating forces). Program provides rapid response to technical needs of customer and develops technology issues documents to influence longer term Science and Technology (S&T) programs. Program develops a cadre of scientists and engineers fluent in operational issues.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:
   - (U) ($5,907) Fielded 31 advisors in support of 26 operational commands.
   - (U) ($80) Completed demonstration of submarine environmental data collection (temperature, conductivity, depth), real time multiple remote station display, tactical computer fusion, and tactical exploitation for support of littoral operations. - COMSUPAC
   - (U) ($120) Demonstrated data optical/video data recording system for single personnel use during special forces operations. - COMMARFORLANT
   - (U) ($180) Completed evaluation of ways for CINCPACFLT to exploit spincast technology to other application areas within CINCPACFLT.
   - (U) ($100) Completed demonstration system to acquire and fuse Naval 5-inch/54 caliber gun muzzle velocity data with own ship Global Positioning System data into Naval Gun Fire Control Systems to improve surface ship long range naval gun fire accuracy. - COMNAVSURFLANT

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7 | PROGRAM ELEMENT: 0205658N | PROGRAM ELEMENT TITLE: Navy Science Assistance Program | PROJECT NUMBER: R0834 | PROJECT TITLE: Navy Science Assistance Program

- (U) ($200) Completed demonstration of replacement of shipboard Air Conditioning & Refrigeration systems with a reliable chilling process such as thermoacoustic cooling which will operate without releasing chemicals which destroy stratospheric ozone. - COMNAVSURFLANT
- (U) ($75) Assisted CINCs in identification of Command Technology Issues (CTIs) and melding of these CTIs into S&T requirements development. - CINCLANTFLT/CINCPACFLT/CINCUSNAVEUR/COMUSNAVCENT
- (U) ($105) Assessed effectiveness of NSAP technical products in filling fleet requirements.
- (U) ($304) Identified and resolved S&T issues based on priority operational readiness deficiencies.

2. (U) FY 1996 PLAN:
- (U) ($5,348) Serve as primary S&T advisors to the 29 operational Navy and Marine Corps commands. Liaison with RDT&E and acquisition communities to better inform these communities of readiness shortfalls.
- (U) ($200) Provide S&T assistance to the operations command as required. Identify and resolve S&T issues based on priority operational readiness deficiencies by working with CINCs and subordinate commands to identify their priority technology issues and provide link to the RDT&E community.
- (U) ($110) Assess effectiveness of NSAP technical products in fulfilling fleet requirements.
- (U) ($190) Continued utilization of communications and information transfer network.

3. (U) FY 1997 PLAN:
- (U) ($4,684) Serve as primary S&T advisors to the 26 operational Navy and Marine Corps commands. Liaison with RDT&E and acquisition communities to better inform these communities of readiness shortfalls.
- (U) ($63) Provide S&T assistance to the operations command as required. Identify and resolve S&T issues based on priority operational readiness deficiencies by working with CINCs and subordinate commands to identify their priority technology issues and provide link to the RDT&E community.
- (U) ($76) Assess effectiveness of NSAP technical products in fulfilling fleet requirements.
- (U) ($244) Continued utilization of communications and information transfer network.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205658N PROGRAM ELEMENT TITLE: Navy Science Assistance Program PROJECT NUMBER: R0834 PROJECT TITLE: Navy Science Assistance Program

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	7,071	6,036	5,737
(U) Adjustments from PRESBUDG:	-0-	-188	-670
(U) FY 1997 President's Budget Submit:	7,071	5,848	5,067

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1996 funds decreased due to Congressional undistributed reductions (-118) and revised DoD economic assumptions reductions (-70). FY 1997 change reflects minor pricing adjustments (-516) and revised DoD inflation estimates (-154).

(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.

000281

FY 1996 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: February 1995

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205658N PROGRAM ELEMENT TITLE: Navy Science Assistance Program

PROJECT NUMBER: R0834 PROJECT TITLE: Navy Science Assistance Program

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Government Science & Technology Support to the Operator	7,071	5,848	5,067
Total	7,071	5,848	5,067

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 "Miscellaneous"			CONT.	CONT.	CONT.	7,071	5,848	5,067	CONT.	CONT.
GOVERNMENT FURNISHED PROPERTY: Not applicable.										
Subtotal Product Development					CONT.	7,071	5,848	5,067	CONT.	CONT.
Total Project					CONT.	7,071	5,848	5,067	CONT.	CONT.

C. (U) FUNDING PROFILE: Not required.

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

BUDGET ACTIVITY: 07 PROGRAM ELEMENT: 0205667N
PROGRAM ELEMENT TITLE: F-14 UPGRADE

(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
E1408 F-14 UPGRADE	34,072	17,739	9,879	11,341	13,818	0	0	0	1,828,488

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element provides for the development of improvements to the Navy F-14 squadrons in order to counter the projected threat through the year 2000 and beyond. The F-14D has increased capability in three major areas: new engine, new digital avionics, and upgraded radar. These changes yield significant improvements in capability and performance, as well as reliability and maintainability, and will facilitate the total integration and exploitation of related programs i.e., Joint Tactical Information Distribution System (JTIDS), Infrared Search and Track System (IRST), and inclusion of Airborne Self-Protection Jammer (ASPJ) in the electronic warfare (EW) suite for the F-14D operational evaluation. A Pre-deployment Update (PDU) program (primarily software) includes Global Positioning System (GPS), air-to-ground ordnance delivery capability, full Link 16 capability, and radar/Electronic Counter-Countermeasures (ECCM) improvements for the F-14D. The PDU program was created because of concurrent development of the F-14D and the above listed common avionics and weapons. It implements the capabilities inherent in systems incorporated during the full scale development (FSD) program and is a planned integral part of the evolution of the F-14D aircraft. F-14D weapons integration supports integration of EW improvements, correction of OPEVAL deficiencies, and various software upgrades.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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

BUDGET ACTIVITY: 07 PROGRAM ELEMENT: 0205667N PROJECT NUMBER: E1408
PROGRAM ELEMENT TITLE: F-14 Upgrade PROJECT TITLE: F-14
Upgrade

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($27,872) Conducted DT on second PDU tape and continued development and test of third PDU tape.
- (U) ($1,700) Continued initial flight tests on the Digital Flight Control System.
- (U) ($2,500) Commenced second phase of operational evaluation on F-14D concurrent with OPEVAL on Longwave IRST systems.
- (U) ($2,000 to be executed in FY 1996) Completed second phase of operational evaluation on F-14D.

2. (U) FY 1996 PLAN:

- (U) ($17,048) Release second PDU tape. Continue development and test of third PDU tape.
- (U) ($600) Completed initial flight tests on the Digital Flight Control System.
- (U) ($91) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

3. (U) FY 1997 PLAN:

- (U) ($9,879) Continue development and test of third PDU tape.

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

BUDGET ACTIVITY: 07 PROGRAM ELEMENT: 0205667N PROJECT NUMBER: E1408
PROGRAM ELEMENT TITLE: F-14 Upgrade PROJECT TITLE: F-14 Upgrade

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	40,646	44,490	37,125
(U) Adjustments from PRESBUDG	-6,574	-26,751	-27,246
(U) FY 1997 President's Budget Submit:	34,072	17,739	9,879

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The net reduction of -$6,574 thousand in FY 1995 is comprised of -$74 thousand for cancelled accounts liabilities; -$200 thousand reprogrammed for Precision Strike Study; -$300 thousand for various program adjustments; and -$6,000 thousand for the JDAM Congressional rescission. The net reduction of -$26,751 thousand in FY 1996 is comprised of -$217 thousand for revised DoD inflation rates; -$300 thousand reprogrammed for Global Broadcast System (GBS); -$859 thousand for Congressional undistributed general and inflation reductions; and -$25,375 thousand for the redefined Precision Strike program which was transferred to the F-14 APN-5 appropriation. The net reduction of -$27,246 thousand in FY 1997 is comprised of a -$85 thousand minor pricing adjustment; -$299 thousand for revised DoD inflation rate adjustments; -$1,722 thousand for Defense Business Operating Fund adjustments; and -$25,140 thousand for the redefined Precision Strike program which was transferred to the F-14 APN-5 appropriation.

(U) Schedule: N/A

(U) Technical: The Cost and Operational Effectiveness Analysis (COEA) recommended integration of a Forward Looking InfraRed/Laser Designator as the most effective means to improving the F-14 strike capability. The Precision Strike program has been transferred to APN. As part of an evaluation by the F-14 Fleet, integration of Advanced Medium Range Air-to-Air Missiles (AMRAAM) has been cancelled. The AMRAAM was slated for use by only the F-14D aircraft. The Phoenix missile, which only the Tomcat can carry, is considered adequate for the F-14 Air Superiority Mission. Other high priority Fleet requirements such as full Link 16 Joint Tactical Information Distribution System, will provide greater fleet payback in tactical utility and aircraft survivability for our new mission in the air-to-ground arena.

C00285

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

BUDGET ACTIVITY: 07 PROGRAM ELEMENT: 0205667N PROJECT NUMBER: E1408
PROGRAM ELEMENT TITLE: F-14 Upgrade PROJECT TITLE: F-14 Upgrade

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	F-14 (B.A. 5) Line 21								
	137,968	102,493	201,574	242,514	204,849	105,210	29,550	17,736	2,312,609
(U) APN-6	0	6,099	16,447	22,320	20,959	1,812	395	0	68,821

(U) RELATED RDT&E:

(U) PE 0205604N (Tactical Data Links)
(U) PE 0604270N (EW Development)

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program				
Engineering Milestones				
T&E Milestones	4Q Operational Test (F-14D)			
Contract Milestones				

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

BUDGET ACTIVITY: 07 PROGRAM ELEMENT: 0205667N PROGRAM ELEMENT TITLE: F-14 Upgrade PROJECT NUMBER: E1408 PROJECT TITLE: F-14 Upgrade

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. PDU Software Development	25,331	15,548	9,279
b. Repair of Repairables	1,000	0	0
c. PDU Systems Engineering/Test and Evaluation	1,541	1,500	600
d. Digital Flight Control System Flight Tests	1,700	600	0
e. Operational Evaluation	4,500	0	0
f. SBIR assessment		91	
Total	34,072	17,739	9,879

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

BUDGET ACTIVITY: 07 PROGRAM ELEMENT: 0205667N PROJECT NUMBER: E1408
PROGRAM ELEMENT TITLE: F-14 Upgrade PROJECT TITLE: F-14 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:										
CONTRACTS										
Northrop/Grumman, Bethpage, NY										
AMRAAM Int.	SS/CPFF	6/94	12,521	12,521	11,171	1,350	0	0	0	12,521
Blk I/JDAM	SS/CPFF	8/94	6,506	6,506	6,506	0	0	0	0	6,506
FSD Cont	SS/FFP	8/84	994,378	994,378	994,378	0	0	0	0	994,378
GEC Marconi, Rochester, England										
DFCS*	SS/FFP	6/92	300	300	0	0	300	0	0	300
Hughes, Los Angeles, CA										
APG-71										
Radar Set	SS/FFP	12/95	1,100	1,100	0	0	1,100	0	0	1,100
IN-HOUSE										
NAVAIRWARCENWPNDIV Pt Mugu, CA										
PDU	WX	10/96	222,848	222,848	150,581	23,981	14,448	9,279	24,559	222,848
BLK I/JDAM	WX	1/94	6,876	6,876	6,876					6,876
NAVAIRWARCENACDIV Warminster, PA										
PDU	WX	10/96	6,512	6,512	5,012	300	300	300	600	6,512
BLK I/JDAM	WX	1/94	1,253	1,253	1,253	0	0	0	0	1,253
NAVAIRWARCENACDIV Patuxent River, MD										
PDU	WX	10/96	5,533	5,533	2,792	1,241	1,200	300	0	5,533
DFCS	WX	10/95	4,765	4,765	2,765	1,700	300	0	0	4,765
BLK I/JDAM	WX	1/94	369	369	369	0	0	0	0	369
Support and Management: Not Applicable.										
Test and Evaluation:										
COMOPTEVFOR	PD	6/95	4,500	4,500	0	4,500	0	0	0	4,500

*PREVIOUS FUNDING ON THIS CONTRACT PROVIDED BY FOREIGN COMPARATIVE TEST FUNDING

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

BUDGET ACTIVITY: 07 PROGRAM ELEMENT: 0205667N PROJECT NUMBER: E1408
PROGRAM ELEMENT TITLE: F-14 Upgrade PROJECT TITLE: F-14 Upgrade

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:									
REPAIR OF REPAIRABLES	MP	VARIOUS	VARIOUS	10,078	1,000	0	0	0	11,078
Support and Management: Not Applicable.									
Test and Evaluation: Not Applicable.									
Subtotal Product Development				1,191,781	29,572	17,648	9,879	25,159	1,274,039
Subtotal Support and Management				0	0	0	0	0	0
Subtotal Test and Evaluation				0	4,500	0	0	0	4,500
Other FY 1993 & Prior costs				549,858	0	0	0	0	549,858
SBIR Assessment						91			91
Total Project				1,741,639	34,072	17,739	9,879	25,159	1,828,488

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communications 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
C0048 Communications Terminal Improvement[1]	105	335	0	0	0	0	0	0	28,188
C0049 Unit Level Switches (ULS)[2]	3,780	2,009	0	0	0	0	0	0	7,138
C0065 Communications Control (COMM CON)[3]	3,277	2,277	0	0	0	0	0	0	6,760
C1931 Communications Ancillary Equipment[4]	129	665	0	0	0	0	0	0	13,794
C1975 Digital Communications Terminal (DCT) Product Improvement Program[5]	194	1,135	0	0	0	0	0	0	18,064
C2270 Command Post Systems[6]	0	0	15,832	20,223	17,419	12,175	16,268	CONT.	CONT.
C2271 Maneuver C2 Systems[7]	0	0	4,806	4,578	4,535	2,029	2,001	CONT.	CONT.
C2272 Intelligence C2 Systems[8]	0	0	12,200	10,748	10,947	12,375	12,300	CONT.	CONT.
C2273 Air Operations C2 Systems[9]	0	0	7,042	9,876	4,217	4,018	1,040	CONT.	CONT.
C2274 C2 Warfare Systems[10]	0	0	109	112	115	117	120	CONT.	CONT.
C2275 Radio Systems[11]	0	0	428	68	144	0	0	0	823
C2276 Communications Switching and Control Systems[12]	0	0	2,877	1,142	1,135	1,159	1,187	CONT.	CONT.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communications 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
C2277 Systems Engineering and Integration[13]	0	0	9,211	7,028	9,154	7,140	6,551	CONT.	CONT.
C2278 Air Defense Weapons Systems[14]	0	0	4,182	1,643	2,601	3,065	3,059	CONT.	CONT.
TOTAL	7,485	6,421	56,687	55,418	50,267	42,078	42,526	CONT.	CONT.

1. FY 1997 through FY 2001 funding is contained in this Program Element (PE), Project C2275, Radio Systems.

2. FY 1997 through FY 2001 funding is contained in this PE, Project C2276, Communications Switching and Control Systems.

3. FY 1997 through FY 2001 funding is contained in this PE, Project C2270, Command Post Systems, Subprogram SPEED and Project C2276, Communications Switching and Control Systems, Subprogram DTC.

4. FY 1997 through FY 2001 funding is contained in this PE, Project C2275, Radio Systems.

5. FY 1997 through FY 2001 funding is contained in this PE, Project C2271, Maneuver C2 Systems.

6. FY 1995 and FY 1996 funding is contained in various PEs and projects: This PE, Project C0065, Communications Control (COMM CON), subproject System Planning, Engineering, and Evaluation Device (SPEED); PE 0206625M, Marine Corps Intelligence/ Electronic Warfare Systems, Project C0062, Intelligence Analysis Systems (IAS); PE 0206626M, Marine Corps Command/Control/ Communications Systems: Project C1443, Training Devices/Simulators (Engineering) Program; Project C2102, Improved Direct Air Support Center (IDASC); and Project C2122, Tactical Combat Operations (TCO); and PE 0604719M, Marine Corps Command/Control/ Communications Systems, Project C1929, Advanced Tactical Air Command Central (ATACC) and Project C2085, Advanced Field Artillery Tactical Data Systems (AFATDS).

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems

7. FY 1995 and FY 1996 funding is contained in various PEs and projects: This PE, Project C1975, Digital Communications Terminal (DCT) Product Improvement Program; PE 0604719M, Marine Corps Command/Control/Communications Systems, Project C0053, Joint Tactical Information Distribution System (JTIDS) and PE 0206626M, Marine Corps Command/Control/Communications Systems, Project C2035, Position Location Reporting System (PLRS)/NAVSTAR/Global Position System (GPS).

8. FY 1995 and FY 1996 funding is contained in various PEs and projects: PE 0206625M, Marine Corps Intelligence/ Electronics Warfare Systems: Project C0062, Intelligence Analysis System (IAS), subprojects Secondary Imagery Dissemination System (SIDS) and Commanders Tactical Terminal (CTT); Project C1297, Tactical Remote Sensor System (TRSS); and Project C1928, Tactical Electronic Reconnaissance Processing and Evaluation System TERPES; PE 0603635M, Marine Corps Ground Combat/Support System, Project C2247, Coastal Battlefield Reconnaissance and Analysis (COBRA); PE 0603640M, Marine Corps Advanced Technology Demonstrations (ATD), Project C2223, Subproject COBRA; PE 0604270N, Electronic Warfare Development, Project C1961, Mobile Electronic Warfare Support System (MEWSS); and PE 0605871M, Marine Corps Tactical Exploitation of National Capabilities (TENCAP), Project C1424, TENCAP.

9. FY 1995 and FY 1996 funding is contained in various PEs and projects: PE 0206623M, Marine Corps Ground Combat/ Supporting Arms Systems, Project C1120, Air Defense Missile System (ADMS), subprogram Air Defense Communication Platform (ADCP); and PE 0206626M, Marine Corps Command/Control/Communications Systems: project C0103, Tactical Air Operations Module (TAOM) (Operational Systems Product Improvements); and project C1067, Aviation Radar Product Improvement Program.

10. FY 1995 and FY 1996 funding is contained in PE 0206625M, Marine Corps Intelligence/Electronics Warfare Systems, Project C1463, Counterintelligence and Security Equipment (CI&SE).

11. FY 1995 and FY 1996 funding is contained in this PE: Project C0048, Communications Terminal Improvement and Project C1931, Communications Ancillary Equipment.

12. FY 1995 and FY 1996 funding is contained in this PE: Project C0049, Unit Level Switches and Project C0065, Communications Control (COMM CON), subproject Digital Technical Control (DTC).

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems

13. FY 1995 and FY 1996 funding is contained in PE 0206626M, Marine Corps Command/Control/Communications Systems: Project C0045, Tactical Systems Inter/Intraoperability Program (TACSIIP); Project C1079, Joint Interoperability of Tactical Command and Control Systems (JINTACCS); and Project C2150, Marine Air-Ground Task Force Command, Control, Communications, Computers, and Intelligence Systems Engineering and Integration (MAGTF C4I SE&I).

14. FY 1995 and FY 1996 funding is contained in PE 0206623M, Marine Corps Ground Combat/Supporting Arms Systems, Project C1120, Air Defense Missile System (ADMS), Subprojects HAWK and Avenger.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element provides funding to develop the command and control (C2) support and information infrastructures from the Fleet Marine Force and supporting establishment. Doctrinally, the C2 support system and the information infrastructure form two parts of a triad of capabilities which permits command and control systems to be transformed into a complete operating system. The third element of the triad is command and control organization and is not covered in this program element. USMC command and control is divided into six functional areas and one supporting functional area as follows: maneuver C2, intelligence C2, fire support C2, air operations C2, combat service support C2, command and control warfare C2, and C2 support (information processing and communications). Within this program element, subprojects have been grouped by C2 functional area for more efficient planning. Combat service support C2 has not been assigned to a project since there are no active subprojects in this functional area during the FY 1997 planning cycle. Air defense weapons systems have been added to facilitate planning and a separate project is used for systems assigned to the supporting establishment. Subprojects which support the commander's decision processes have been collected into the Command Post Systems project since these systems must work in close cooperation to ensure effective C2 of Marine Air Ground Task Forces.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communications 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
C2270 Command Post Systems	0	0	15,832	20,223	17,419	12,175	16,268	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Systems assigned to this project are to be used by commanders and their staffs to process, fuse, and tailor information to assist decision-making and enhance situational awareness. They will integrate and share information from sources both internal and external to the MAGTF to provide a shared understanding of the battlespace. Decision support integrates information from the seven C2 functional areas and the support function. The information is tailored to support the users' specific needs. The TCO will provide systems to the command post which support Maneuver C2. Maneuver C2 is the executive layer of decision support that pulls and fuses information from other functional areas. The IAS supports the employment of reconnaissance, surveillance, and target acquisition resources and the timely planning and processing of all-source intelligence; it ensures that tactical intelligence is tailored to meet specific mission requirements. AFATDS will consist of digital fire support command and control automated software, fielded on Marine Corps common hardware. AFATDS will automate for the Marine commander the integration and coordination of his supporting arms. The ATACC will function as the operational command post of the MAGTF ACE. It provides automated assistance for planning and executing tactical air operations, and provides voice and data interface with joint and combined Air C2 agencies. The IDASC links information and systems needed to conduct Air Operations C2 with Maneuver C2 of the ground combat element of the MAGTF. The Combat Service Support C2 (CSSC2) system ensures effective administrative and logistics planning and operations, including manpower management and all logistics functions that support deployment, employment, and reconstruction of forces. MTWS provides the basis (modeling/simulation) for satisfying a wide range of Marine Corps training requirements. The continued enhancement and system re-engineering of MTWS, will complete multiple interfaces with the widest assortment of C2 decision-making applications, and achieve advanced levels of interoperability which will ultimately be required to interact in large scale Joint/Allied conflict simulations and wargaming into the next century.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2270
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT TITLE: Command Post Systems

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS: Funding ($17,959) is contained in various PEs and projects. This PE, Project C0065, COMM CON, subproject SPEED ($415); PE 0206625M, Marine Corps Intelligence/Electronic Warfare Systems, Project C0062, IAS ($4,617); PE 0206626M, Marine Corps Command/Control/Communications Systems: Project C1443 ($2,239), Training Devices/Simulators (Engineering) Program; Project C2102 ($2,640), IDASC; and Project C2122 ($1,932), subproject TCO and ($476), subproject MCSSC2; and PE 0604719M, Marine Corps Command/Control/Communications Systems, Project C1929, ATACC ($2,683) and Project C2085 ($2,957), AFATDS.

2. (U) FY 1996 PLAN: Funding ($17,546) is contained in various PEs and projects: This PE, Project C0065, COMM CON, subproject SPEED ($539); PE 0206625M, Marine Corps Intelligence/Electronic Warfare Systems, Project C0062, IAS ($2,800); PE 0206626M, Marine Corps Command/Control/Communications Systems: Project C1443 ($2,847), Training Devices/Simulators (Engineering) Program; Project C2102 ($1,261), IDASC; and Project C2122 ($953), subproject TCO and ($75), subproject MCSSC2; PE 0604719M, Marine Corps Command/Control/Communications Systems, Project C1929 ($6,247), ATACC; and Project C2085 ($2,542), AFATDS and ($282) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638(f)(1).

4. (U) FY 1997 PLAN:

- (U) ($527) TCO: Develop ground-to-air computer-to-computer target handoff system.
- (U) ($709) TCO: Begin development of Carrier Detect Multiple Access full duplex cellular telephone grid.
- (U) ($161) TCO: Complete LINK-11 Radar to computer software and OT-HT GOLD message format.
- (U) ($709) IAS: Investigate hardware engineering change proposals for MEF IAS, IAS Suites and IAS Workstations.
- (U) ($320) IAS: Incorporate and test new standard software applications.
- (U) ($87) IAS: Conduct interoperability testing with system modifications.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT NUMBER: C2270 PROJECT TITLE: Command Post Systems

- (U) ($960) AFATDS: Continue developmental and interoperability efforts with the Army on AFATDS 98 software. This effort will include migration to the Global Command and Control System (GCCS) Common Operating Environment (COE), adding additional fire support functionality and formal developmental testing.
- (U) ($2,007) AFATDS: Prepare "MEF SLICE" test-bed unit for the AFATDS 98 Multi-service Operational Test and Evaluation (MOTE). This effort will include hardware fielding, operator training, and unit/Command Post Exercise (CPX) training.
- (U) ($240) AFATDS: Start Preliminary Design Review of AFATDS 98 software.
- (U) ($582) ATACC: Continue ATACC Phase II Engineering Development Model (EDM) contract for GCCS compliant hardware which when combined with Marine Corps Tactical Systems Support Activity's (MCTSSA) software effort will serve as the Research and Development platform for migrating the Tactical Digital Information Links (TADILs) and other functionality to GCCS.
- (U) ($1,779) ATACC: Continue efforts for development of receive-only TADIL-J software integration required to maintain joint interoperability for Marine aviation command and control (Phase II).
- (U) ($2,000) ATACC: Complete development of voice communication upgrade, including construction and test.
- (U) ($800) ATACC: Management and contract support services required to reduce risk of managing diverse efforts (Phase II).

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2270
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT TITLE: Command Post Systems

- (U) ($133) IDASC: Complete DASC Phase III software Block upgrade requirement, follow-on effort to complete tailoring software for one hardware platform.
- (U) ($87) IDASC: Maximize recently introduced technology for large screen display and over-the-horizon satellite communications.
- (U) ($72) IDASC: Update and complete data package/training manuals, developmental testing, and software documentation.
- (U) ($72) IDASC: Begin development of Nuclear Biological Chemical (NBC) protection capability.
- (U) ($551) SPEED: Develop a Foliage Model that will predict what effect the density, distance and type of foliage will have on the ability of a transmitter to close a radio link. Develop a Circuit Route Planning Module that will generate and analyze primary and alternate circuit routing, generate plots of circuit networks, and the route of specified high internet circuits.
- (U) ($612) MCSSC2: Conduct software development, system software, hardware integration, integration testing, performance of developmental testing, user evaluations and assessments. Also, procurement of hardware test articles to be utilized in developmental testing.
- (U) ($1,274) MTWS: Continue to upgrade resident software to achieve improved tactical simulation; man-machine interface; after action reporting, scenario generation, and tactical planning capabilities.
- (U) ($1,133) MTWS: Achieve an intermediate level of Distributed Interactive Exercise Capabilities and Joint/Combined simulations interoperability and explore telecommunications options.
- (U) ($1,017) MTWS: Continue to refine and enhance at intermediate levels, the integration into the Unified Build of Joint/Naval C3I systems. Emphasize Common Tactical Message protocols and automated intelligence interfaces.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2270
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT TITLE: Command Post Systems

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	15,832
(U) FY 1997 PRESBUD:	0	0	15,832

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1997 change is due to realignment of Command, Control, Communications, Computers and Intelligence (C4I) programs within the Marine Corps in the amount of $17,345. The following are included in FY 1997: $496 reduction to ATACC; $105 reduction to IDASC; DBOF rate adjustment of ($254); and $658 decrease for programmatic reductions and Nonpay Purchases Inflation.

(U) Schedule: IAS: Schedule delays were incurred due to hardware alternative procurement which caused the MSIII to slip from fourth quarter FY 1995 to first quarter FY 1997. ATACC: As a result of restructuring, the ATACC program is now following an evolutionary acquisition approach which will progressively field the required capabilities in three phases. Significant revisions in the Phase II ATACC schedule profile reflect the decision of the Command and Control Program Manager to exploit opportunities to use the ATACC program as a vehicle for development of a common voice communications systems and a joint-compliant, open systems software implementation which can be re-used in the planned common air command control system. This Voice Communication System is not a single system. It is being integrated with other systems. AFATDS: Delay of MS III from 1Q96 to 3Q98 due to delay in joint program office. TCO: At Milestone III on 3 Oct 1995, it was determined that the subsequent TCO milestones were not necessary because the program will fall under the MAGTF C4I baseline master plan.

(U) Technical: Not applicable.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2270
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT TITLE: Command Post Systems

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 44 (BLI# 474700) IAS (MEF)									
	647	0	6,969	9,383	0	0	0	0	16,999
(U) PMC Line 44 (BLI# 474700) IAS (TCAC)									
	0	0	10,982	0	0	0	0	0	10,982
(U) PMC Line 56 (BLI# 461300) TCO									
	0	10,793	0	0	0	0	0	0	10,793
(U) PMC Line 42 (BLI# 461100) AFATDS									
	5,304	11,884	0	0	0	0	0	0	27,154
(U) PMC Line 40 (BLI# 459700) ATACC									
	0	9,118	0	0	0	0	0	0	15,903
(U) PMC Line 41 (BLI# 461000) MTACCS (IDASC Portion Only)									
	2,788	0	0	0	0	0	0	0	5,445
(U) PMC Line 41 (BLI# 461000) MTACCS (TCO Portion only)									
	5,245	0	0	0	0	0	0	0	5,245
(U) PMC Line 84 (BLI# 653200) Training Devices (MTWS only)									
	0	4,585	0	0	0	0	0	0	5,377
(U) PMC Line 57 (BLI# 463100) Command Post Systems									
TCO	0	0	10,490	9,757	4,611	0	0	0	24,858
AFATDS	0	0	0	0	11,284	0	0	0	11,284
ATACC	0	0	0	2,826	16,454	2,095	0	0	21,375
GCCS/WWMCCS	0	0	912	965	988	1,011	1,005	CONT.	CONT.
(U) PMC Line 63 Mod Kits (MAGTF C4I) (BLI#463600)									
IDASC	0	0	3,954	0	0	0	0	0	3,954
(U) O&MMC									
TCO	0	737	1,291	1,247	1,191	1,225	1,262	CONT.	CONT.
ATACC	0	108	1,227	1,148	3,072	3,162	3,254	CONT.	CONT.
AFATDS	0	756	907	1,047	1,228	1,274	1,288	CONT.	CONT.
IAS	0	1,078	1,315	1,353	1,393	1,434	1,475	CONT.	CONT.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2270
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT TITLE: Command Post Systems

(U) RELATED RDT&E:

(U) PE 0301301L (Department of Defense Intelligence and Information Systems/Military Intelligence Integrated Data System/Integrated Data Base I and II) (Defense Intelligence Agency).
(U) Navy Tactical Flag Communications and Control System.
(U) PE 0206313M, Marine Corps Communications Systems Command/Control/.
(U) PE 0206626M, Marine Corps Command/Control/Communications Systems.
(U) PE 0604719M, Marine Corps Command/Control/Communications Systems.

(U) SCHEDULE PROFILE:

		FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	TCO:		1Q MS III		4Q98 FOC
	IAS:			2Q IOC/1Q MS III	2Q 99 FOC
	ATACC	3Q MSII(PHII)	3Q MSIII(PHI)		4Q 98 MS III (Ph II)
	IDASC:		3Q MS III (PH I)	1Q MS II (PH III)	
	AFATDS:				3Q98 MSIII
	MTWS:	3Q MS III	4Q FOC		
Engineering Milestones	ATACC:			4Q S&E EVAL	CONT.
	IDASC:			4Q S&E EVAL	
	MTWS:	2Q FQT			
T&E Milestones	TCO:	3Q DT/OT	1,3Q OT&E	1, 3, & 4Q OT&E	CONT.
	AFATDS:				1Q 98 MOTE (AFATDS 98)
	IDASC:	IER	2Q OT(PH I)/DT(PH II)	1Q PHASE III DT	
	IAS:		2Q IOT&E		
	ATACC:		2Q FOT&E (PH I)		1Q 98 IOT&E (PH II)
					1Q 00 FOT&E (Phase II)
Contract Milestones	TCO:	2Q TAC IV	1Q TAC V	1Q TAC V	CONT.
	SPEED:	OPTION 3	OPTION 4		
	ATACC:		4Q VOICE COMM RFP		1Q 99 Voice Comm Prod.
	IAS:			3Q Cont AWD	
	IDASC:		3Q TAC IV Voice Comm Sys		

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2270
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT TITLE: Command Post Systems

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Primary Hardware Development	0	0	615
b. Ancillary Hardware Development	0	0	219
c. Software Development	0	0	3,680
d. Systems Engineering	0	0	1,188
e. Training Development	0	0	40
f. Developmental Test and Evaluation	0	0	570
g. Operational Test and Evaluation	0	0	1,327
h. Government Engineering Support	0	0	597
i. Program Management Support	0	0	2,435
j. Licenses/Hardware Maintenance	0	0	115
k. Technical Data	0	0	30
l. Joint Tactical Information Distribution System	0	0	1,888
m. Phase II EDM Build (GCCS)	0	0	582
n. Mobile Enhanced Communications Distribution System (MECDS)	0	0	1,890
o. Configuration Management	0	0	100

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems

PROJECT NUMBER: C2270
PROJECT TITLE: Command Post Systems

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
p. Miscellaneous	0	0	159
q. Contractor Engineering Support	0	0	397
Total	0	0	15,832

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2270
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT TITLE: Command Post 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										
NSWC, Crane, IN	WR	JAN 97			0	0	0	325	CONT.	CONT.
MCTSSA, Camp Pendleton, CA	WR	JAN 97			0	0	0	797	CONT.	CONT.
Magnavox, Ft. Wayne, IN	C/CPFF	JAN 97			0	0	0	922	CONT.	CONT.
NISE EAST, St. Inigoes, MD	WR	JAN 97			0	0	0	809	CONT.	CONT.
Grumman Data Systems, Springfield, VA	C/CPFF	JAN 97			0	0	0	2,470	CONT.	CONT.
	TBD	APR 97			0	0	0	1,891	CONT.	CONT.
ECAC, Annapolis, MD	C/CPFF/MIPR	APR 97			0	0	0	571	CONT.	CONT.
MISC	TBD	APR 97			0	0	0	812	CONT.	CONT.
MTWS										
NRAD, San Diego, CA	WR	JAN 97			0	0	0	565	CONT.	CONT.
VISICOM, San Diego, CA	CPFF	APR 97			0	0	0	2,356	CONT.	CONT.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2270
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT TITLE: Command Post Systems

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										
CSC, Dumfries, VA	RCP	JAN 97			0	0	0	2,033	CONT.	CONT.
NISE WEST, San Francisco, CA	RCP	APR 97			0	0	0	18	CONT.	CONT.
MCCDC, Quantico, VA	WR	JAN 97			0	0	0	100	CONT.	CONT.
Ft Sill, Ft Sill, OK	MIPR	JAN 97			0	0	0	20	CONT.	CONT.
TBD					0	0	0	90	CONT.	CONT.
MCTSSA, Camp Pendleton, CA	WR	JAN 97			0	0	0	511	CONT.	CONT.
MTWS CECOM, Ft Monmouth, NJ	MIPR	JAN 97			0	0	0	203	CONT.	CONT.

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

DATE: March 1996

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT NUMBER: C2270 PROJECT TITLE: Command Post Systems

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										
MCTSSA, Camp Pendleton, CA	WR	JAN 97			0	0	0	858	CONT.	CONT.
NAWC, Pt. Mugu, CA	WR	APR 97			0	0	0	81	CONT.	CONT.
MCCDC, Quantico, VA	WR	JAN 97			0	0	0	100	CONT.	CONT.
MTWS										
MCTSSA, Camp Pendleton, CA	WR	JAN 97			0	0	0	300	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: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2270
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT TITLE: Command Post Systems

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	0	0	0	11,518	CONT.	CONT.
Subtotal Support and Management	0	0	0	2,975	CONT.	CONT.
Subtotal Test and Evaluation	0	0	0	1,339	CONT.	CONT.
Total Project	0	0	0	15,832	CONT.	CONT.

C. (U) FUNDING PROFILE: Not Applicable.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communication 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
C2271 Maneuver C2 Systems	0	0	4,806	4,578	4,535	2,029	2,001	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Maneuver C2 is the executive layer of decision support that pulls and fuses information from the functional areas. It provides an integrated representation of the battlespace or a specific area of concern. The subprojects below develop systems which report unit status and location to the Tactical Combat Operations (TCO) and Advanced Tactical Air Command Control (ATACC). They also disseminate maneuver information throughout the battlespace. The Position-Location Reporting System (PLRS) provides unit location and reporting for ground units and it also contains a limited communications capability. The Joint Tactical Information Distribution System (JTIDS) provides unit location and status in near-real-time, primarily for aircraft, ships, and air defense systems. The Data Automated Communications Terminal (DACT) input/output battlefield situational awareness system and communication terminal, handles positionsl and messaging information for company-sized units and below.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS: Funding ($3,046) is contained in various PEs and projects: This PE, Project C1975 ($194), DCT Product Improvement Program; PE 0604719M, Marine Corps Command/Control/Communications Systems, Project C0053 ($2,421), JTIDS; and PE 0206626M, Marine Corps Command/Control/Communications Systems, Project C2035 ($431), PLRS/NAVSTAR/GPS.

2. (U) FY 1996 PLAN: Funding ($2,254) is contained in various PEs and projects: This PE, Project C1975 ($1,133), DCT Product Improvement Program; PE 0604719M, Marine Corps Command/Control/Communications Systems, Project C0053 ($950), JTIDS; PE 0206626M, Marine Corps Command/Control/Communications Systems, Project C2035 ($150), PLRS/NAVSTAR/GPS; and ($21) portion of extramural program reserved for Small Business Innovation Research (SBIR) assessment in accordance with 15 USC 638(f)(1).

3. (U) FY 1997 PLAN:

- (U) ($200) PLRS (DSMS): Complete the software rehosting of the Downsized Master Station (DSMS).
- (U) ($151) PLRS (DSMS): Continue integration of logistic support development.
- (U) ($125) PLRS (DSMS): Conduct Developmental Testing.
- (U) ($113) JTIDS: Finish development, software testing, and integration of the Shelterized JTIDS System (SJS). Commence software support.
- (U) ($100) JTIDS: Continue pre-operational support for the Class 2 Terminals used in the development of the SJS.
- (U) ($100) JTIDS: Provide pre-operational support for the Class 2H Full Scale Development Terminals which will be used in JTIDS common processor. Upgrade Full Scale Development (FSD) terminals to production models.
- (U) ($2,215) JTIDS: Commence EMD effort of JTIDS common processor and development of host platform interfaces.
- (U) ($300) JTIDS: Continue software maintenance and validation of common processor.
- (U) ($40) JTIDS: TAD to attend various Technical Interchange Meetings, Technical Demonstrations and conferences.
- (U) ($30) DACT: Develop positional/navigational Variable Message Format (VMF) application software for use with COTS/GOTS programs.
- (U) ($13) DACT: Test improvements to the positional/navigational and VMF software interfaces and their compatibility with emerging hardware developments.
- (U) ($1,419) DACT: Continue to develop the software application program to support operational requirements of the DACT.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2271
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT TITLE: Maneuver C2 Systems

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	4,806
(U) FY 1997 PRESBUD:	0	0	4,806

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1997 change is due to realignment of Command, Control, Communications, Computers and Intelligence (C4I) programs within the Marine Corps in the amount of $5,529. FY 1997 includes a $578 reduction to JTIDS, (funding decrease resulted in decreased EMD efforts of JTID Common Processor and development of host platform interfaces); and a $145 decrease for Nonpay Purchases Inflation.

(U) Schedule: PLRS (DSMS): MS III slipped from FY 1996 to FY 1997. The Marine Corps is now required to do its' own testing. Marine Corps Operational Test and Evaluation Activity (MCOTEA) will begin testing FY 1997. OT has slipped from FY 1996 to FY 1997 to accommodate MCOTEA scheduling. DT has slipped into FY 1996 due to Army schedule. GPSIU: FOC slipped because of a new requirement to upgrade the firmware to make it compatible with the new PSN-11. JM: FQT/FAT slipped from 4Q 95 to 1Q 96due to multiplexer software integration development slippage. DACT: Late 4Q 95 modification to DACT acquisition strategy caused a one month delay in the MSI/II decision, and a four month change in DT schedule. The modified strategy enables better exploitation of late-breaking technology developments. Multiplexer software integration now complete.

(U) Technical: Not applicable.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2271
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT TITLE: Maneuver C2 Systems

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 32 (BLI# 421300) JTIDS	4,959	6,865	0	0	0	0	0	0	11,824
(U) PMC Line 38 (BLI# 458800) PLRS	1	0	0	0	0	0	0	0	2
(U) PMC Line 36 (BLI# 455500) Modification Kits (Tel) (COMSEC Cables only)	1,087	1,073	0	0	0	0	0	0	5,759
(U) PMC Line 54 (BLI# 498400) Items Less Than $2 Million (Nontel)/GPSIU (PLRS)	0	1,956	0	0	0	0	0	0	1,956
(U) PMC Line 58 (BLI# 463200) Maneuver C2 Systems									
PLRS	0	0	0	0	18,949	0	0	0	18,949
JTIDS	0	0	2,840	2,211	0	0	0	0	5,148
DACT	0	0	4,986	9,461	8,960	3,629	0	CONT.	CONT.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2271
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems PROJECT TITLE: Maneuver C2 Systems

(U) RELATED RDT&E:
(U) PE 0603713A (Army Data Distribution System), Net Control Station Down Size.
(U) PE 0604771D and 0604754F (MCE-P3I Joint Program). The Marine Corps is the lead service for the development of the Joint Tactical Air Operations Module (TAOM).
(U) This PE, Project C2270, Command Post Systems; Project C2273, Air Operations C2 Systems.
(U) PE 0206623M, Marine Corps Ground Combat/Supporting Arms Systems.

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				
DSMS			MS III	IOC
GPSIU		MS III	IOC	FOC
DCT		1Q MS I/II	2Q MS III	
Engineering Milestones				
DSMS	PHASE I/II (CONT'D) SOFTWARE			
T&E Milestones				
DSMS		DT	OT	
DCT		4Q DT/OT II		
GPSIU	DT/OT			
JTIDS		1Q JM FQT/FAT		
Contract Milestones				
DSMS				PRODUCTION
GPSIU		PRODUCTION		
JTIDS	4Q JMTRR			

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT NUMBER: C2271 PROJECT TITLE: Maneuver C2 Systems

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Primary Hardware Development	0	0	1,217
b. Software Development	0	0	1,848
c. Development, Test, & Evaluation	0	0	116
d. Program Management Support	0	0	950
e. System Engineering	0	0	63
f. Integrated Logistics Support	0	0	266
g. Operational Testing & Evaluation	0	0	210
h. Travel	0	0	35
i. Miscellaneous	0	0	101
Total	0	0	4,806

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2271
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT TITLE: Maneuver C2 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:										
ELDYNE San Diego, CA	T&M	FEB 97	335	335	0	0	0	335	0	335
LITTON Augora Hill, CA	CPFF	DEC 96	1,928	1,928	0	0	0	1,928	0	1,928
NISE WEST San Diego, CA	PLRS WR	OCT 96	200	200	0	0	0	200	0	200
MITRE Bedford, MS	CPFF	JUN 97	698	698	0	0	0	98	600	698
GEC Totowa, NJ	FFP	JAN 97	400	400	0	0	0	100	300	400
NAWC Indianapolis, IN	WR	OCT 96			0	0	0	445	CONT.	CONT.
MCTSSA Camp Pendleton	WR	OCT 96			0	0	0	138	CONT.	CONT.
PM ADDS	MIPR	OCT 96	200	200	0	0	0	200	0	200
Support and Management										
GEC Totowa, NJ	FFP	OCT 96	250	250	0	0	0	100	150	250

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2271
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT TITLE: Maneuver C2 Systems

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 (Continued)										
MCTSSA Camp Pendleton, CA	WR	OCT 96	50	50	0	0	0	50	0	50
TRANDES/NSR Camp Pendleton, CA	CPFF	OCT 96	50	50	0	0	0	50	0	50
MCCDC Quantico, VA	WR	OCT 96	95	95	0	0	0	35	60	95
TBD Dumfries, VA	C/FP				0	0	0	200	CONT.	CONT.
MCTSSA Camp Pendleton, CA	WR	OCT 96			0	0	0	170	CONT.	CONT.
NAWC Indianapolis, IN	WR	OCT 96			0	0	0	170	CONT.	CONT.
TBD	CPFF	OCT 96	175	175	0	0	0	175	0	175
Test and Evaluation										
MCTSSA Camp Pendleton, CA	WR	OCT 96			0	0	0	137	CONT.	CONT.
NAWC Indianapolis, IN	WR	TBD			0	0	0	150	CONT.	CONT.
TBD	CPFF	OCT 96	125	125	0	0	0	125	0	125

GOVERNMENT FURNISHED PROPERTY: Not applicable.

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems

PROJECT NUMBER: C2271
PROJECT TITLE: Maneuver C2 Systems

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	0	0	0	3,444	CONT.	CONT.
Subtotal Support and Management	0	0	0	950	CONT.	CONT.
Subtotal Test and Evaluation	0	0	0	412	CONT.	CONT.
Total Project	0	0	0	4,806	CONT.	CONT.

C. (U) FUNDING PROFILE: Not Applicable

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communication 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
C2272 Intelligence C2 Systems	0	0	12,200	10,748	10,947	12,375	12,300	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Intelligence Command and Control (C2) supports the employment of reconnaissance, surveillance, and target acquisition resources and the timely planning and processing of all-source intelligence. It ensures that all-source tactical intelligence is tailored to meet specific mission requirements. The systems below collect raw intelligence data on the battlefield, convert raw intelligence data into processed information and deliver the processed products to the Intelligence Analysis Systems (IAS) for analysis. The Secondary Imagery Distribution System (SIDS) is used to distribute processed imagery throughout the Marine Corps Communications Systems. The Tactical Remote Sensor System (TRSS) includes deployable unattended ground sensors, a receiver system to collect signals from the sensors, a processing system to analyze the sensed data, and a communications capability to deliver the processed intelligence to the IAS system. The Tactical Electronic Reconnaissance Processing and Evaluation System (TERPES) is used to analyze electronic intelligence data. The Mobile Electronic Warfare Support System (MEWSS) will be used to collect and process electronic intelligence from a mobile ground platform. Tactical Exploitation of National Capabilities (TENCAP) is a program designed to enhance the ability of tactical Marine Corps forces to exploit the capabilities of national intelligence-gathering systems. Congressionally directed, it requires close liaison with the intelligence community and involves complex and highly-sensitive activities. Coastal Battlefield Reconnaissance and Analysis (COBRA) will be a UAV-mounted multispectral scanner and processor for stand-off reconnaissance. Commander's Tactical Terminal (CTT) is a communications relay and data link processing device for use on joint intelligence circuits.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS: Funding ($10,694) is contained in various PEs and projects: PE 0206625M, Marine Corps Intelligence/Electronics Warfare Systems: Project C0062, IAS, subproject CTT ($300); Project C1297 ($563), TRSS; and Project C1928 ($4,069), TERPES; PE 0604270N, Electronic Warfare Development, Project C1961 ($2,726), MEWSS; PE 0605871M, Marine Corps TENCAP, Project C1424 ($925) and PE 0603640M, Marine Corps Advanced Technology Demonstrations, Project C2223, ($2,111), subproject COBRA.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2272
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT TITLE: Intelligence C2 Systems

2. (U) FY 1996 PLAN: Funding ($15,678) is contained in various PEs and projects: PE 0206625M, Marine Corps Intelligence/ Electronics Warfare Systems: Project C0062, IAS, subprojects SIDS ($754) and CTT ($209); Project C1297 ($135), TRSS; and Project C1928 ($2,388), TERPES; PE 0603635M, Marine Corps Ground Combat/Support System, Project C2223 ($3,701), COBRA; PE 0604270N, Electronic Warfare Development, Project C1961 ($2,594), MEWSS; and PE 0605871M, Marine Corps TENCAP, Project C1424 ($2,846); PE 0603640M, Marine Corps ATD, Project C2223 ($2,924); and ($127) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638(f)(1).

4. (U) FY 1997 PLAN:

- (U) ($568) SIDS: Continue upgrade of SIDS software to incorporate current National Imagery Technology Format (NITF) standard.
- (U) ($72) SIDS: Continue development of water proofing kit for Manpack SIDS hardware.
- (U) ($137) TRSS: Thermal Imager OT and MS III.
- (U) ($43) TRSS: Initiate Thermal Imager Software Development for the Advanced Air-Delivered Sensor (AADS).
- (U) ($12) TRSS: Continue preparation for Operational Testing of Re-1162 Relay ECP (Pioner Mounted Relay).
- (U) ($1,000) TERPES: Continue upgrades to TERPES mission planning software to maintain compatibility with EA-6B aircraft software changes.
- (U) ($852) TERPES: Begin development of Tactical Automated Sanitation capability or similar Multi-Level Security (MLS) device or procedure.
- (U) ($520) TERPES: Complete Developmental Testing and Interoperability Testing of TERPES DOWNSIZE effort. Achieve MS III decision.
- (U) ($285) MEWSS: Design the MEWSS system modification to allow targeting of additional advanced communications threats.

- (U) MEWSS: The following accomplishments are funded under PE 0305885G, National Security Agency Tactical Cryptologic Program.
- (U) ($0) MEWSS: Incorporate system antenna modifications to support TACJAM-ECM.
- (U) ($0) MEWSS: Install and test TACJAM-ECM subsystem.
- (U) ($0) MEWSS: Incorporate cellular subsystem.
- (U) ($0) MEWSS: Incorporate pre-planned modifications in single module downsizing.
- (U) ($0) MEWSS: Design mobile tactical Electronic Support Measures system.
- (U) ($1,190) TENCAP: Participate in NISD, technology assessments and utility evaluations. Formulate and submit Tactical Impact Statement (TIS) as required by Congress. Evaluate utility of emerging exploitation, automated and manual target recognition and detection tools. Test automatic target recognition/confirmation technology, such as VIPER software, in demonstrations on the Marine Corps' JSIPS to provide rapid target identification. Exploit FY 96 single-discipline Signals Intelligence (SIGINT)/Imagery Intelligence (IMINT) projects, such as MIDAS-T, to develop and evaluate multi-source software and hardware solutions compatible with MARCORSYSCOM's C4I architecture. Transfer Asynchronous Transfer Mode (ATM) and MIDAS-T data to MARCORSYSCOM/C4I for determination of future applicability in the acquisition decision process.
- (U) ($1,333) TENCAP: Participate in Marine Corps TENCAP-related support projects including TENCAP concept development and feasibility demonstrations. Apply planned Global Imagery Broadcast to battalion level operations. Investigate miniaturization of receivers and antennas, weight reduction of equipment associated with broadcast, and the feasibility of broadcasting national imagery to multiple infantry companies simultaneously. Evaluate RADIANT CLEAR capabilities within context of the Joint Countermine Advance Concept Technology Demonstrations (ACTD) Phase I to include new and evolving processing techniques.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2272
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT TITLE: Intelligence C2 Systems

- (U) ($200) TENCAP: With other Services, Joint Staff, and the national reconnaissance community, explore national technologies optimizing support to tactical forces from sensitive current and future national collection, processing, or disseminations systems. Participate in TENCAP system demonstrations/exercises in the FMF and supporting establishments.
- (U) ($200) TENCAP: Coordinate/fund TENCAP training/exercise support.
- (U). ($1,148) COBRA: Prepare DT I test plans and initiate DT I. Redesign the system as required.
- (U) ($1,050) COBRA: Draft Operational Test I (OT I) Test Plan. Design enhanced Phase I sensor, ground-based operator's display, and automatic target recognition algorithm for scattered mines.
- (U) ($1,429) COBRA: Conduct sensor trade-off study. Fabricate and conduct sensor sub-component check-out/testing. Design sensor/UAV integration interfaces.
- (U) ($1,123) COBRA: Initiate system component fabrication and flight test on Pioneer/Hunter. Conduct OT I.
- (U) ($200) CTT: Test and incorporate new software applications; upgrade programmatic documentation; and test system integration.
- (U) ($838) CTT: Integrate two CTT/H-R3 and one CTT/H3 receivers for Tactical Air Operations Center (TOAC), Tactical Air Command Central (TACC) and Intelligence Analysis Systems respectively.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2272
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT TITLE: Intelligence C2 Systems

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	12,200
(U) FY 1997 PRESBUD:	0	0	12,200

(U) CHANGE SUMMARY EXPLANATION:
(U) Funding: FY 1997 change is due to realignment of Command, Control, Communications, Computers and Intelligence (C4I) programs within the Marine Corps in the amount of $12,788. FY 1997 includes a $19 reduction for DBOF rate adjustments and a $569 decrease for programmatic reductions and Nonpay Purchases Inflation.

(U) Schedule: TRSS - RE-1162 Relay ECP 4Q95, DT rescheduled for 2Q96. The platform requirement was changed. OT tentatively scheduled for 2Q97 (NOTE: formal requirements are less stringent to change to ECP). MEWSS: Previous schedule was aligned with Army Intelligence Electronic Warfare Common Sensor (IEWCS) acquisition milestones to support FY 96 production start. At MS II, less aggressive program plan was approved. The current schedule positions the program milestones one year behind Army IEWCS and supports first year production of FY 97. Reduced risk with increased schedule reserve.

(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 44 (BLI# 474700) Intell Support Equipment									
SIDS	0	2,117	7,143	0	0	0	0	0	9,260
TRSS	13,700	678	318	573	3,662	532	580	CONT.	CONT.
CTT	0	12,436	960	5,365	990	0	0	0	19,751

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2272
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT TITLE: Intelligence C2 Systems

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 45 (BLI# 474900 Modification Kits (Intel)									
TERPES	0	0	0	591	1,549	2,507	662	CONT.	CONT.
MEWSS	0	0	11,138	12,167	13,009	18,862	18,851	CONT.	CONT.
(U) O&M, MC									
TRSS	113	663	686	713	742	771	800	CONT.	CONT.
TERPES	2,564	1,467	2,106	2,958	3,025	3,393	3,148	CONT.	CONT.
MEWSS	0	345	664	684	704	724	746	CONT.	CONT.
SIDS	0	383	394	404	416	498	440	CONT.	CONT.

(U) RELATED RDT&E:
(U) PE 0206626M (Marine Corps Command/Control/Communications Systems)
(U) PE 0301301L (Department of Defense Intelligence and Information Systems/Military Intelligence Integrated DataSystem/Integrated Data Base I and II) (Defense Intelligence Agency)
(U) PE 0604270A (Intelligence and Electronic Warfare Common Sensor (IEWCS), TACJAM-A)
(U) MEWSS is fully integrated in the IEWCS program as a fourth platform
(U) PE 0305885G (Tactical Cryptologic Program)
(U) The MEWSS program is joint with National Security Agency's Tactical Cryptologic Program, which provides a portion of the funds required for the system integration and development of the passive portion of TACJAM-A and the Precision Location System.
(U) PE 0603730A (Tactical Surveillance System - Advanced Development), Army TENCAP, Project D560
(U) PE 0603766A (Tactical Electronic Surveillance System - Advance Development), Army TENCAP, Project D907
(U) PE 0604740A (Tactical Surveillance System - Engineering Development), OSD TENCAP, Project D662
(U) PE 0902398M (United States Special Operations Command), Chariot Program
(U) PE 0605867N (SEW Surveillance/Reconnaissance Support), Project Z1034

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2272
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT TITLE: Intelligence C2 Systems

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				
TERPES	2Q MS II		4Q MS III	
MEWSS			1Q MS IIA	1Q98 MS III
COBRA		MS I		MS II
TRSS THERM IMAGE			1Q MS III	
SIDS	4QProcurement			
Engineering Milestones				
COBRA		ADM SYS DES/INTEG	DESIGN ENHANCEMENT	
TERPES	EMD			
MEWSS	3Q CDR/IER			
T&E Milestones				
TERPES			1Q DT/3Q OT	
COBRA			DT I/OT I	
TRSS Airborne RE-1162	RELAY ECP	2Q DT	2Q OT	
TRSS THERM IMAGER		1,4Q OT		
SIDS		4Q FOT&E		
MEWSS	LTD USER TEST (ARMY)	3Q DT/OT MULTI-SVC	3Q OT	
Contract Milestones				
MEWSS			1Q LRIP	1Q98 PROD
COBRA		DEM/VAL CONT AWD		

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2272
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT TITLE: Intelligence C2 Systems

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. System Design/Integration/ Development	0	0	696
b. Component Fabrication	0	0	1,215
c. Developmental Testing/ Operational Testing	0	0	3,099
d. Management Support Services	0	0	1,895
e. TENCAP Concept Development/ Feasibility Demonstration	0	0	1,362
f. TENCAP Training/Exercise Support to FMF	0	0	100
g. Software Development	0	0	714
h. Contractor Engineering Support	0	0	273
i. Government Engineering Support	0	0	215
j. Configuration Management	0	0	150
k. Primary Hardware Development	0	0	395

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2272
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT TITLE: Intelligence C2 Systems

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
l. Training Development	0	0	10
m. Systems Engineering	0	0	500
n. Ancillary Hardware Development	0	0	1,561
o. Integrated Logistics Support	0	0	15
Total	0	0	12,200

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2272
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT TITLE: Intelligence C2 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										
COBRA										
	TBD	JAN 97			0	0	0	3,152	CONT.	CONT.
TENCAP										
	TBD	JAN 97			0	0	0	1,362	CONT.	CONT.
TRSS										
MCTSSA, Camp Pendleton, CA										
	WR	OCT 96	192	192	0	0	0	192	0	192
TERPES										
NAWCWPNS, Pt Mugu, CA										
	WR	OCT 96	950	950	0	0	0	950	0	950
Hardware	C	OCT 96			0	0	0	425	CONT.	CONT.
MEWSS										
ESI, Richardson, TX										
	C/PAF	DEC 96	300	300	0	0	0	287	0	300

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2272
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT TITLE: Intelligence C2 Systems

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

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 (Continued)										
SIDS/CTT										
NSWC, Crane, IN	WR	DEC 96			0	0	0	223	CONT.	CONT.
MCTSSA, Camp Pendleton, CA	WR	DEC 96			0	0	0	420	CONT.	CONT.
NAWC, Pt Mugu, CA	WR	DEC 96			0	0	0	603	CONT.	CONT.
Support and Management										
TERPES										
NAWCPNS, Pt Mugu, CA	WR	OCT 96			0	0	0	798	CONT.	CONT.
COBRA	TBD	JAN 97	838	838	0	0	0	498	340	838
TENCAP	TBD	JAN 97			0	0	0	1,561	CONT.	CONT.
SIDS/CTT										
CRC	RCP	DEC 96			0	0	0	150	CONT.	CONT.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2272
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT TITLE: Intelligence C2 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
Test and Evaluation										
COBRA	TBD	JAN 97			0	0	0	1,078	CONT.	CONT.
TERPES	TBD	OCT 96	197	197	0	0	0	197	0	197
SIDS/CTT										
NAWC, Pt Mugu, CA	WR	DEC 96			0	0	0	304	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	0	0	0	7,614	CONT.	CONT.
Subtotal Support and Management	0	0	0	3,007	CONT.	CONT.
Subtotal Test and Evaluation	0	0	0	1,579	CONT.	CONT.
Total Project	0	0	0	12,200	CONT.	CONT.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communication 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
C2273 Air Operations C2 Systems	0	0	7,042	9,876	4,217	4,018	1,040	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Air Operations C2 coordinates and plans Navy and Marine air combat operations and interfaces with joint and combined forces air operations. It also interfaces with fire support C2. The systems in this project are used to detect aircraft and missiles, process the sensed information, deliver the processed information to the Advanced Tactical Air Command Central (ATACC), and conduct the air battle. The Tactical Air Operations Module (TAOM) improves the current system; the TAOM is the center for directing aircraft and anti-air systems in real time as part of the joint air battle. The Air Defense Communications Platform (ADCP) provides the Marine Corps Communications Systems Commander with mission planning tools, air picture, target assignment and fire control. Aviation radars are used to sense the location and identity of aircraft and missiles in the battle area.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS: Funding ($2,977) is contained in various PEs and projects: PE 0206623M, Marine Corps Ground Combat/Supporting Arms Systems, Project C1120 ($226), ADMS, subprogram ADCP; and PE 0206626M, Marine Corps Command/Control/ Communications Systems: project C0103 ($1,251), TAOM (Operational Systems Product Improvements); and project C1067 ($1,500), Aviation Radar Product Improvement Program.

2. (U) FY 1996 PLAN: Funding ($8,343) is contained in various PEs and projects: PE 0206623M, Marine Corps Ground Combat/ Supporting Arms Systems, Project C1120 ($4,956), ADMS, subprogram ADCP; and PE 0206626M, Marine Corps Command/Control/ Communications Systems: project C0103 ($2,764), TAOM (Operational Systems Product Improvements); and project C1067 ($470), Aviation Radar Product Improvement Program; and ($153) portion of extramural program reserved for Small Business Innovation Research (SBIR) assessment in accordance with 15 USC 638(f)(1).

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT NUMBER: C2273 PROJECT TITLE: Air Operations C2 Systems

3. (U) FY 1997 PLAN:

- (U) ($1,257) TAOM: Continue Engineering Manufacturing Development (EMD) effort of Tactical Digital Information Link-Joint (TADIL-J)/Joint Tactical Information Distribution System (JTIDS) and development of TAOM/JTIDS interface.
- (U) ($1,450) TAOM: Complete design, build prototype interface and test the AN/TPS-59 to TAOM interface with Tactical Ballistic Missile (TBM) capability.
- (U) ($1,871) TAOM: Conduct integration and field testing of prototype Sector Anti-Air Warfare Coordinator (SAAWC) Operations Facility (SAAWF) developed jointly by USAF/USMC.
- (U) ($1,000) TAOM: Continue software development support of SAAWF, OCU replacement, and TADIL-J/JTIDS solution.
- (U) ($850) TAOM: Program Support, which consists of Contractor Support to provide documentation, hardware/software engineering, and logistics analysis to the program office; support of developmental testing, IPR, and contract management.
- (U) ($50) TAOM: Temporary Additional Duty (TAD) to support Program Office.
- (U) ($516) ADCP: Begin software efforts to increase mission planning and force planning capability. Continue software enhancements for the Fire Control capability of the HAWK System. Achieve MS III decision.
- (U) ($28) AV RDR: Continue development of updated threat analyses. Analyze/incorporate recommended changes in accordance with Advanced Change Study Notices, and implement ECPs for AN/TPS-59 Product Improvement Program.
- (U) ($10) AV RDR: Continue reliability analysis and analysis of field identified deficiencies to Aviation Radars.
- (U) ($10) AV RDR: Conduct/coordinate Life Cycle Management and Logistics Support Analysis.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT NUMBER: C2273 PROJECT TITLE: Air Operations C2 Systems

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	7,042
(U) FY 1997 Presbud Submit:	0	0	7,042

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1997 change is due to realignment of Command, Control, Communications, Computers and Intelligence (C4I) programs within the Marine Corps in the amount of $7,268. FY 1997 was decreased by $10 due to DBOF rate adjustments and $216 for the programmatic reductions Nonpay Purchases Inflation.

(U) Schedule: TAOM: The Block Upgrade Program that was reflected in the FY 1996 President's Budget was restructured and so reflected in this submission. ADCP: The Milestone (MS) I/II decision was delayed from the fourth quarter of FY 1994 to the second quarter of FY 1995; CDR was delayed from the first to the third quarter of FY 1995 due to a Department of Defense (DOD) requirement to obtain an ADA waiver from ASN. (In FY 1994, DOD established a requirement that all new software code be written in the ADA programming language. Because the ADCP program was more than 85% developed, a waiver was requested to alleviate the program from the ADA requirement). Once the waiver was approved, the ADCP MS I/II decision was obtained. The program has been adjusted to accommodate the delay due to the ADA requirement. The MS III decision was delayed from the fourth quarter of FY 1996 to the first quarter of FY 1997 to ensure there was enough time to complete required documentation after OT to achieve Approval for Service Use. TAOM accelarated MSII for SAAWF from 2Q to 1Q FY-96.

(U) Technical: Not applicable.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT NUMBER: C2273 PROJECT TITLE: Air Operations C2 Systems

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 39 (BLI# 459400) TAOM	3,653	2,370	0	0	0	0	0	0	7,757
(U) PMC Line 53 (BLI# 496900) Mod Kits Nontel (AN/TPS-59 Radar)	5,084	0	0	0	0	0	0	0	5,914
(U) PMC Line 59 (BLI# 464000) Air Operations C2 Systems									
TAOM	0	0	4,864	10,919	2,858	9,731	8,636	CONT.	CONT.
ADCP	0	0	441	547	562	570	7,141	CONT.	CONT.
(U) PMC Line 63 (BLI# 463600) (AN/TPS-59 Radar)									
AN/TPS-59	0	0	38,413	1,062	4,448	4,549	9,351	CONT.	CONT.

(U) RELATED RDT&E:
PE 0603216C (Ballistic Missile Defense Organization, Theater Missile Defense)

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT NUMBER: C2273 PROJECT TITLE: Air Operations C2 Systems

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				
ADCP	2Q MS I/II		1Q MS III	
AV RDR PIP		*4Q MS III		
TAOM		1Q MS II (SAAWF)		
Engineering Milestones			(SAAWF)	
TAOM			2Q PROTOTYPE	
ADCP	3Q CDR			
AV RDR PIP		*2Q PCA/FCA		
T&E Milestones				
ADCP		2Q DT/4Q OT		
AV RDR PIP		*3Q DT/OT		
TAOM			4Q OT (SAAWF)	
Contract Milestones				

*FY 95 AND FY 96 Research and Development funded by BMDO.

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems

PROJECT NUMBER: C2273
PROJECT TITLE: Air Operations C2 Systems

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. System Development	0	0	5,692
b. Support and Management	0	0	1,222
c. Travel	0	0	128
Total	0	0	7,042

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT NUMBER: C2273 PROJECT TITLE: Air Operations C2 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:										
NSWC, Crane, IN	MIPR	OCT 96			0	0	0	412	CONT.	CONT.
Litton, Augora Hills, CA	SS/CPAF	MAR 97	29,456	29,456	0	0	0	5,280	23,077	29,456
Support and Management:										
NSWC, Crane, IN	MIPR	OCT 96			0	0	0	100	CONT.	CONT.
MCCDC, (TAD), Quantico, VA	MIPR	OCT 96			0	0	0	128	CONT.	CONT.
MCTSSA, Camp Pendleton, CA		OCT 96	1,512	1,512	0	0	0	272	1,240	1,512
CRC, Dumfries, VA	CPFF	OCT 96						850	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: 7 PROGRAM ELEMENT: 0206313M PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT NUMBER: C2273 PROJECT TITLE: Air Operations C2 Systems

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program		
Subtotal Product Development	0	0	0	5,692	CONT.	CONT.		
Subtotal Support and Management		0	0	0	1,350	CONT.	CONT.	
Subtotal Test and Evaluation	0	0	0	0	CONT.	CONT.		
Total Project	0	0	0	7,042	CONT.	CONT.		

C. (U) FUNDING PROFILE: Not applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communications 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
C2274 C2 Warfare Systems	0	0	109	112	115	117	120	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Command and Control (C2) Warfare coordinates counter-C2 activity and C2 defense measures of the Marine Corps Communications Systems. Technical Surveillance Countermeasures (TSCM) devices are used to detect the use of hostile audio and video surveillance systems in sensitive compartmented information facilities.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS: Funding ($143) is contained in PE 0206625M, Marine Corps Intelligence/Electronics Warfare Systems, Project C1463, Counterintelligence and Security Equipment (CI&SE).

2. (U) FY 1996 PLAN: Funding ($108) is contained in PE 0206625M, Marine Corps Intelligence/Electronics Warfare Systems, Project C1463, ($107) Counterintelligence and Security Equipment (CI&SE); and ($1) portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638(f)(1).

3. (U) FY 1997 PLAN:

   - (U) ($67) Research & Development (R&D) Automated Radio Frequency (RF) receiver and analyzer. This is a joint program with the Air Force Office of Special Investigation (OSI).
   - (U) ($16) Evaluate Direction Finding (DF) systems.
   - (U) ($26) Continue development of TSCM Laser detection systems.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M

PROGRAM ELEMENT TITLE: Marine Corps Communication Systems

PROJECT NUMBER: C2274

PROJECT TITLE: C2 Warfare Systems

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	109
(U) FY 1997 PRESBUD Submit:	0	0	109

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1997 change is due to realignment of Command, Control, Communications, Computers and Intelligence (C4I) programs within the Marine Corps in the amount of $112. FY 1997 includes a $3 decrease for Nonpay Purchases Inflation.

(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) PMC Line 46 (BLI#475100)	1,045	1,719	0	664	0	1,830	0	0	5,258

(U) RELATED RDT&E: Not applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems

PROJECT NUMBER: C2274
PROJECT TITLE: C2 Warfare Systems

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				
Phase I	3Q MS III			
Phase II	4Q MS III			
Engineering Milestones				
T&E (USER) Milestones				
Phase I		3Q IOC		
Phase II		3Q FOC		
Phase III			1Q DT/OT	
Contract Milestones				

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems

PROJECT NUMBER: C2274
PROJECT TITLE: C2 Warfare Systems

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Research Support Equipment	0	0	97
b. Training Development	0	0	12
Total	0	0	109

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2274
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT TITLE: C2 Warfare 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:										
OST, Ft Washington, MD	RCP	DEC 96			0	0	0	59	CONT.	CONT.
NSWC, Crane, IN	WR	OCT 96			0	0	0	50	CONT.	CONT.
Support and Management: Not Applicable.										
Test and Evaluation: Not Applicable.										
GOVERNMENT FURNISHED PROPERTY: Not applicable.										
Subtotal Product Development					0	0	0	109	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	109	CONT.	CONT.

C. (U) FUNDING PROFILE: Not Applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communication 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
C2275 Radio Systems	0	0	428	68	144	0	0	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project provides for development and improvement of single and multichannel radios used to support the Marine Corps Communications Systems Command, Control, Communications, Computers and Intelligence (C4I) infrastructure. The Single-Channel Ground-Air Radio System (SINCGARS) is a single-channel, very-high-frequency (VHF), frequency-hopping joint-service product; RDT&E,N funds are used to accommodate improvements in the basic design as a result of field use. The Military Strategic and Tactical Relay Satellite System (MILSTAR) Secure, Mobile, Anti-Jam, Reliable, Tactical Terminal (SMART-T) provides the MAGTF with an extra high-frequency (EHF) satellite capability suitable for mobile operations. The Ground-Mobile Forces (GMF) tri-band satellite terminal provides the MAGTF with an ultra-high-frequency (UHF) satellite capability with 1.544MBPS bandwidth which is based on commercial sources. The AN/PSC-5 is a lightweight manpackable Line-of-Sight (LOS) Tactical Satellite Communication (SATCOM) radio that will provide embedded Communications Security as well as 5 kHz and 25 kHz Demand Assigned Multiple Access capabilities mandated by the Joint Chiefs of Staff.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS: Funding ($234) is contained in this PE: Project C0048 ($105), Communications Terminal Improvement and Project C1931 ($129), Communications Ancillary Equipment.

2. (U) FY 1996 PLAN: Funding ($1,000) is contained in this PE: Project C0048 ($330), Communications Terminal Improvement; Project C1931 ($660), Communications Ancillary Equipment; and ($10) portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638(f)(1).

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2275
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems PROJECT TITLE: Radio Systems

3. (U) FY 1997 PLAN:

- (U) ($200) SINCGARS: Develop follow-on antenna (OE-XXX) for OE-254 antenna. This is a manpackable mast antenna capable of quick erect/take-down and compatible with the SINCGARS radio.
- (U) ($44) SINCGARS: Develop a concept of employment, study and analysis, and requirements for a portable Frequency Hopping Multiplexor (FHMUX).
- (U) ($184) SMART-T: Integrated logistic support document development and program management support.

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	428
(U) FY 1997 PRESBUD Submit:	0	0	428

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1997 change is due to realignment of Command, Control, Communications, Computers and Intelligence (C4I) programs within the Marine Corps in the amount of $440. FY 1997 includes a $12 reduction for Nonpay Purchases Inflation.

(U) Schedule: PSC-5 contract award delayed due to slip in production by approximately one year resulting in delayed OT and production decision until FY 1996.

(U) Technical: Not applicable.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2275
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems PROJECT TITLE: Radio Systems

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 (BLI# 413800) Vehicle Mounted Radios and Equipment									
	0	0	0	0	0	0	0	0	38,021
(U) PMC Line 35 (BLI# 451000) SINCGARS Radio System									
	65,826	47,014	0	0	0	0	0	0	247,930
(U) PMC Line 37 (BLI# 456700) Items less than 2 million (NVIS only)									
	0	0	0	0	0	0	0	0	1,887
(U) PMC Line 30 (BLI# 402700) Manpack Radios and Equipment (AN/PSC-5 portion only)									
	1	14,132	0	0	0	0	0	0	14,133
(U) PMC Line 31 (BLI# 414500) TSC-96 PIP Fleet Satellite Communication Terminal									
	534	0	0	0	0	0	0	0	2,235
(U) PMC Line 60 (BLI# 463300) Radio Systems									
SINCGARS	0	0	46,800	9,244	5,650	0	0	0	61,694
SMART-T	0	0	0	0	34,701	24,366	8,310	0	67,377
GMF	0	0	0	7,695	16,676	19,915	0	0	44,286
Manpack Radios		0	5,509	0	0	0	0	0	5,509

(U) RELATED RDT&E:

(U) PE 0303140N (Information Systems Security Plan) Project X0734, Communications Security Research and Development
(U) PE 0604805A (Command, Control, and Communications Systems Engineering Development) SINCGARS (V)

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems

PROJECT NUMBER: C2275
PROJECT TITLE: Radio Systems

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				
GMF	1Q MS 0/ 4Q (MC Program Joint Decision)	1Q MS-II (ARMY)	1Q MS III	
SMART-T				1Q FY 99/MS III
PSC-5		3Q MS III		
Engineering Milestones				
GMF		3Q CDR		
T&E Milestones				
SMART-T			1Q DT I	
GMF			2Q OT	
TSC-96A	2Q DT			
PSC-5	4Q FAT	2Q OT		
Contract Milestones				
GMF		2Q LRIP*		1Q 98 FSP CONTRACT
SMART-T		3Q LRIP*		
PSC-5		Contract Award		

* Army funded

UNCLASSIFIED

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems

PROJECT NUMBER: C2275
PROJECT TITLE: Radio Systems

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Contractor Engineering Support	0	0	209
b. Systems Engineering	0	0	180
c. Test and Evaluation	0	0	39
Total	0	0	428

UNCLASSIFIED

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2275
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems PROJECT TITLE: Radio 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										
Joint Spectrum Center, Annapolis, MD	C/CPFF	OCT 96	180	180	0	0	0	180	CONT.	CONT.
Support and Management										
VANGUARD	C/CPFF	OCT 96	165	165	0	0	0	165	CONT.	CONT.
ECAC, Annapolis, MD	C/CPFF	JAN 97	44	44	0	0	0	44	CONT.	CONT.
Test and Evaluation										
MARCORSYSCON, Quantico, VA	WR	OCT 96	39	39	0	0	0	39	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY: Not Applicable

UNCLASSIFIED

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2275
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems PROJECT TITLE: Radio Systems

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	0	0	0	180	CONT.	CONT.
Subtotal Support and Management	0	0	0	209	CONT.	CONT.
Subtotal Test and Evaluation	0	0	0	39	CONT.	CONT.
Total Project	0	0	0	428	CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communication 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
C2276 Communications Switching and Control Systems	0	0	2,877	1,142	1,135	1,159	1,187	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program consists of three interrelated projects: Unit Level Circuit Switch Product Improvement Program (ULCS PIP), Digital Technical Control (DTC), and Tactical Data Network (TDN). Together, these systems form an integrated, digital communications backbone for deployed MAGTF which has the capability to manage, control, switch, and multiplex networks providing voice, data, message, imagery, facsimile, and video services to subscribers.

(U) The ULCS PIP will upgrade the ULCS circuit switches (AN/TTC-42 and SB-3865). The ULCS PIP is a competitive reprocurement of special purpose circuit card assemblies (CCAs) produced from a Government-owned technical data package. The additional CCAs will provide improved access to fixed plant analog and Autovon trunk connections. Additional enhancements provide STU-III telephone interfaces in the AN/TTC-42 and SB-3865. The ULCS PIP requires low risk/medium technology engineering and development prior to build-to-print production.

(U) The TDN augments existing MAGTF communications infrastructure to provide the commander an integrated data network forming the communication backbone for MAGTF tactical data systems. The TDN consists of a network of Gateways and Servers interconnected with one another and their subscribers via a combination of common user long-haul transmission systems, local area networks, single channel radios, and the switched telephone system. The network provides its subscribers with basic data transfer and switching services; access to strategic, supporting establishment, joint, and other service component tactical data networks; network management capabilities; and value-added services such as message handling, directory services, file sharing, facsimile handling, and terminal emulation support. Required functionality was separated into three blocks of capabilities due to the leading edge technology required in the Operational Requirement Document (ORD). This funding provides for development of additional capabilities which compose the Block II and Block III upgrades of the system.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communication Systems

(U) The DTC facilitates the installation, operation, restoration, and management of individual circuits and digital links consisting of many multiplexed circuits. It provides the primary interface between subscriber systems/networks within a local area and long-haul multichannel transmissions systems to transport vice, message, data, and imagery traffic. It can add, drop and insert digital circuits into multiplexed groups; provide a source of stable timing to connected equipment; condition circuits; and perform analog/digital, 2-wire/4-wire, and signalling conversions. It contains the monitoring, testing, and patching equipment required by technical controllers to troubleshoot and restore faulty circuits and links. This funding provides for the development of interfaces to new technology transmission systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS: Funding ($6,642) is contained in this PE: Project C0049 ($3,780), Unit Level Switches and Project C0065 ($2,862), Communications Control (COMM CON), subproject Digital Technical Control (DTC).

2. (U) FY 1996 PLAN: Funding ($3,740) is contained in this PE: Project C0049 ($1,990), Unit Level Switches; Project C0065 ($1,703), Communications Control (COMM CON), subproject Digital Technical Control (DTC); and ($47) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638(f)(1).

3. (U) FY 1997 PLAN:

   - (U) ($86) ULCS PIP: Complete ULCS software development for ULCS PIP. Achieve MS III decision.
   - (U) ($533) TDN: Continue Systems engineering, Hardware and Software Development and Integration of Block I, MS-III Documentation Preparation.
   - (U) ($300) TDN: Continue TDN software testing/integration and document review.
   - (U) ($289) TDN: Conduct TDN Block I interoperability certification testing.
   - (U) ($1,669) DTC: Conduct Operational Test, prepare for MS-III/Approval for Service Use.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2276
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems PROJECT TITLE: Communications Switching and Control Systems

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 Presbudg:	0	0	0
(U) Adjustments from PRESBUDG:	0	0	2,877
(U) FY 1997 PRESBUD Submit:	0	0	2,877

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1997 change is due to realignment of Command, Control, Communications, Computers and Intelligence (C4I) programs within the Marine Corps in the amount of $2,963. FY 1997 includes a decrease of $86 for Nonpay Purchases Inflation.

(U) Schedule: Restructuring of schedule to incorporate design improvements and operational testing of system. Delayed DTC and TDN MS III from FY 1996 to FY 1998

(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 (BLI# 417700) ULCS	0	0	0	0	0	0	0	0	303,542
(U) PMC Line 61 (BLI#463400)									
TDN	0	0	0	23,089	34,336	28,835	37,246	CONT.	CONT.
DTC	0	0	0	14,801	20,844	14,921	8,270	CONT.	CONT.
ULCS PIP	0	0	12,524	0	0	0	0	0	12,524
ADPE	0	0	4,398	4,536	4,651	4,758	4,862	CONT.	CONT.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROGRAM ELEMENT TITLE: Marine Corps Communication Systems PROJECT NUMBER: C2276 PROJECT TITLE: Communications Switching and Control Systems

(U) RELATED RDT&E: Not applicable.

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				
DTC	MS I/II			MS III
TDN	MS I/II			MS III
ULCS PIP		MS I/II	MS III	
MSC-63A	MS III			
Engineering Milestones				
DTC	SPECIFICATION	EMD	EMD	PRODUCTION
TDN	FINALIZE SPECS	PROTOTYPE BUILD	EMD	PRODUCTION
ULCS PIP	BUILD PROTOTYPE H/W	DEVELOP S/W	PRODUCTION	PRODUCTION
T&E Milestones				
ULCS PIP		DT JOINT TEST/CERT	HARDWARE FAT	
TDN			DT OT JOINT TEST/CERT	
DTC			DT II/OT II	
Contract Milestones				
DTC	EMD CONTR AWD			PRODUCTION AWD
TDN:	DEVELOPMENT			PRODUCTION AWD
SPEED	OPTION 3	OPTION 4		

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROGRAM ELEMENT TITLE: Marine Corps Communications Systems PROJECT NUMBER: C2276 PROJECT TITLE: Communications Switching and Control Systems

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. ULCS PIP Software Development	0	0	86
b. TDN Software Testing/Integration	0	0	300
c. TDN Block II/III Development	0	0	533
d. TDN Block II/III DT/OT	0	0	289
e. DTC Contract Engineering Support	0	0	600
f. DTC Systems Engineering /Integration	0	0	1,069
Total	0	0	2,877

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2276
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems PROJECT TITLE: Communications Switching and Control 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										
DTC										
ESC, USAF Hanscon AFB, Hanscom, MA	C/FFP/MIPR	OCT 96			0	0	0	1,034	CONT.	CONT.
TDN										
CSC/CRC, Dumfries, VA	C/CPFF/MIPR	OCT 96			0	0	0	500	CONT.	CONT.
Support and Management										
DTC										
VANGUARD, Dumfries, VA	C/CPFF	OCT 96			0	0	0	300	CONT.	CONT.
MCTSSA, Camp Pendleton, CA	WR	OCT 96			0	0	0	30	CONT.	CONT.
MCCDC, Quantico, VA	WR	OCT 96			0	0	0	5	CONT.	CONT.
ESC, USAF Hanscon AFB, Hanscom, MA	C/FFP/MIPR	OCT 96			0	0	0	300	CONT.	CONT.
TDN										
MCTSSA, Camp Pendleton, CA	WR	OCT 96			0	0	0	533	CONT.	CONT.
MCCDC, Quantico, Va	WR	OCT 96			0	0	0	10	CONT.	CONT.

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

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems
PROJECT NUMBER: C2276
PROJECT TITLE: Communications Switching and Control Systems

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										
ULCS PIP										
MCTSSA, Camp Pendleton, CA	WR	OCT 96			0	0	0	86	CONT.	CONT.
Test and Evaluation										
TDN										
JITC, Ft Huachuca, AZ	MIPR	APR 97			0	0	0	79	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: 7
PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems
PROJECT NUMBER: C2276
PROJECT TITLE: Communication switching and Control Systems

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	0	0	0	1,534	CONT.	CONT.
Subtotal Support and Management	0	0	0	1,264	CONT.	CONT.
Subtotal Test and Evaluation	0	0	0	79	CONT.	CONT.
Total	0	0	0	2,877	CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communication 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
C2277 Systems Engineering and Integration	0	0	9,211	7,028	9,154	7,140	6,551	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project provides funds for engineering, test, and evaluation activity which ensures that the systems being developed within the Program Element employ consistent standards for interoperation and, to the maximum extent feasible, use hardware and software which is uniform across programs. The Joint Marine Corps Communications SystemsCommand, Control, Communications, Computers and Intelligence Systems Engineering and Integration (JMAGTF C4I SE&I) subproject is a non-acquisition effort which provides centralized planning and execution MAGTF C4I systems; it also is used to develop test common hardware and software for use in MAGTF C4I systems; lastly, it funds USMC participation in joint planning and technical standards development. The Joint Interoperability of Tactical Command and Control Systems (JINTACCS) is a Joint Chiefs of Staff (JCS)-mandated program for joint testing of data links under the direction of the Joint Interoperability Engineering Organization (JIEO).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS: Funding ($8,680) is contained in PE 0206626M, Marine Corps Command/Control/Communications Systems: Project C0045 ($2,373), TACSIIP; Project C1079 ($1,015), JINTACCS; and Project C2150 ($5,292), MAGTF C4I SE&I.

2. (U) FY 1996 PLAN: Funding ($8,567) is contained in PE 0206626M, Marine Corps Command/Control/Communications Systems: Project C0045 ($1), TACSIIP; Project C1079 ($3,397), JINTACCS; and Project C2150 ($5,019), MAGTF C4I SE&I; and ($150) Portion of program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638(f)(1).

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROGRAM ELEMENT TITLE: Marine Corps Communications Systems PROJECT NUMBER: C2277 PROJECT TITLE: Systems Engineering and Integration

3. (U) FY 1997 PLAN:

- (U) ($1,367) Continue system engineering effort in development of change proposals to Variable Message Format (VMF), Tactical Air Data Information Link (TADIL) A, B, C and J, Army Tactical Data Link-1 (ATDL-1), NATO Link 1, Ship to Shore Ship Buffer (SSSB) and United States Message Text Format (USMTF) as evolving joint standards. Continue joint testing/certification of Command/Control/Communications (C3) Systems through the Joint Tactical Air Operations (JTAO) program. Participate in system engineering to provide integrated Theater Missile Defense (TMD).

- (U) ($867) Maintain/update MAGTF C4I Interoperability Assurance Tool (MIAT). Continue Systems engineering support/configuration management for maintenance/update of MAGTF C4I Technical Interface Design Plan (TIDP), Marine Corps Tactical Communications Architecture (MCTCA), MAGTF Interoperability Requirements Concepts (MIRC), and military communications standards.

- (U) ($1,354) Continue systems engineering services to support development of military telecommunications standards, NATO working group, DOD working/steering groups, and Marine Corps telecommunications modelling.

- (U) ($2,653) Transition Marine Corps Tactical Data Systems (TDSs) to the Joint Maritime Command Information System Unified Build (JMCIS UB)/Global Command and Control System (GCCS) Common Operating Environment (COE) hardware and software environments to ensure interoperability in Joint Operations. Ensure the Systems Integration Environment (SIE) is populated with the latest versions of fielded TDSs and developing MAGTF C4I systems to provide a development environment which accurately models the architecture of the Fleet Marine Forces.

- (U) (1,714) Provide Marine Corps' share of GCCS COE development and maintenance costs, systems engineering support to include implementation of the MAGTF C4I configuration management (CM) process and support of planned Joint Warrior Interoperability Demonstrations (JWIDS) or other Joint C4I demonstrations.

- (U) ($1,256) Continue interoperability testing/certification of C4I systems through SIE and systems engineering services to DOD working/steering groups.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROGRAM ELEMENT TITLE: Marine Corps Communications Systems PROJECT NUMBER: C2277 PROJECT TITLE: Systems Engineering and Integration

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	9,211
(U) FY 1997 Presbud Submit:	0	0	9,211

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1997 change is due to realignment of C4I programs within the Marine Corps in the amount of $9,483. FY 1997 includes an increase of $5 due to DBOF rate adjustments and a decrease of $277 for programmatic reductions and Nonpay Purchases Inflation.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

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

(U) RELATED RDT&E:
PE 0206625M (Marine Corps Intelligence/Electronic Warfare Systems)
PE 0604719M (Marine Corps Command/Control/Communications System

D. (U) SCHEDULE PROFILE: Not applicable.

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems

PROJECT NUMBER: C2277
PROJECT TITLE: Systems Engineering and Integration

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Software Development/ Integration Testing	0	0	1,900
b. Civilian Salaries	0	0	1,305
c. Travel	0	0	395
d. Development Hardware	0	0	1,018
e. Systems Engineering PM Support	0	0	4,015
f. Development Support Equipment Acquisition	0	0	217
g. Certification/Testing	0	0	361
Total	0	0	9,211

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems

PROJECT NUMBER: C2277
PROJECT TITLE: System Engineering and Integration

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										
INRI, Reston, VA	SS/CPFF	MAY 94			0	0	0	971	CONT.	CONT.
SPAWAR, Arlington, VA	WR	OCT 96	20	20	0	0	0	20	0	20
MITRE, Bedford, MA	C/CPFF	OCT 96			0	0	0	232	CONT.	CONT.
MARCORSYSCOM, Quantico, VA	WR	OCT 96			0	0	0	40	CONT.	CONT.
MCTSSA, Camp Pendleton, CA	WR	OCT 96			0	0	0	568	CONT.	CONT.
Hardware and Software (i.e. cables, computers, disk drives, documentation and software).	REQN	VARIOUS			0	0	0	71	CONT.	CONT.
TBD	C/CPFF	OCT 96			0	0	0	2,361	CONT.	CONT.
Support and Management										
TBD	C/CPFF	OCT 96			0	0	0	1,498	CONT.	CONT.
MITRE, Bedford, MA	C/CPFF	OCT 96			0	0	0	465	CONT.	CONT.
MARCORSYSCOM, Quantico, VA	WR	OCT 96			0	0	0	75	CONT.	CONT.
TBD	C/CPFF	OCT 96			0	0	0	485	CONT.	CONT.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2277
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems PROJECT TITLE: System Engineering and Integration

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.)										
MCTSSA, Camp Pendleton, CA	WR	OCT 96			0	0	0	1,473	CONT.	CONT.
Hardware and Software (i.e. cables, computers, disk drives, documentation and software).	REQN	VARIOUS			0	0	0	145	CONT.	CONT.
Test and Evaluation										
NCCOSC, San Diego, CA	WR	MAY 96			0	0	0	118	CONT.	CONT.
MCTSSA, Camp Pendleton, CA	WR	OCT 96			0	0	0	328	CONT.	CONT.
TBD	C/CPFF	JAN 97			0	0	0	361	CONT.	CONT.
GOVERNMENT FURNISHED PROPERTY: Not Applicable										
Subtotal Product Development					0	0	0	4,263	CONT.	CONT.
Subtotal Support and Management					0	0	0	4,141	CONT.	CONT.
Subtotal Test and Evaluation					0	0	0	807	CONT.	CONT.
Total					0	0	0	9,211	CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communication 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
C2278 Air Defense Weapons Systems	0	0	4,182	1,643	2,601	3,065	3,059	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project encompasses two sub-element programs which are part of the Integrated Air Defense System for the Marine Corps. (1) The HAWK system is the Marine Corps' low-to-medium altitude ground based air defense system. Upgrades include mobility enhancements, expeditionary air defense improvements, and Tactical Ballistic Missile (TBM) defense modifications which are in keeping with the marine Corps' plan to keep HAWK viable until the year 2007. (2) The Avenger provides low altitude air defense, day-night, adverse weather, shoot-on-the-move capability with gun/missile mix. Its eight ready-to-fire Stinger missiles and .50 caliber machine gun provides the Marine Corps Communications Systemswith an enhanced air defense capability beyond the year 2005.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS: Funding ($772) is contained in PE 0206623M, Marine Corps Ground Combat/Supporting Arms Systems, Project C1120, ADMS, Subprojects Avenger ($542) and HAWK ($230).

2. (U) FY 1996 PLAN: Funding ($2,600) is contained in PE 0206623M, Marine Corps Ground Combat/Supporting Arms Systems, Project C1120, ADMS, Subprojects Avenger ($2,367) and HAWK ($233).

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROGRAM ELEMENT TITLE: Marine Corps Communications Systems PROJECT NUMBER: C2278 PROJECT TITLE: Air Defense Weapons Systems

3. (U) FY 1997 PLAN:

- (U) ($242) HAWK: Continue pursuing Engineering Change Proposals (ECP) for correcting hardware and software deficiencies thereby maintaining system viability.
- (U) ($3,940) Avenger: Upgrade Passive Sensor (Acoustic) and further develop electronic support measures (ESM) Passive Sensor and Forward Looking Infrared Receiver (FLIR) target identification capability; Initially look toward integration of the Block I Upgrade Stinger Missile. Achieve MS III decision for Block I upgrade to Avenger.

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	4,182
(U) FY 1997 PRESBUD Submit:	0	0	4,182

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1997 is change due to realignment of Command, Control, Communications, Computers and Intelligence (C4I) programs within the Marine Corps in the amount of $4,327. FY 1997 includes a decrease of $15 due to DBOF Rate adjustments and a decrease of $130 for programmatic reductions and Nonpay Purchases Inflation.

(U) Schedule: The AN/VSX-2 Passive Sensor has been cancelled. Alternate sensors are being transitioned from Amphibious Warfare Technology Directorate to C4IAD to fulfill the Avenger Revised Operational Capabilities (ROC) passive sensor requirements.

(U) Technical: Not applicable.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROGRAM ELEMENT TITLE: Marine Corps Communications Systems PROJECT NUMBER: C2278 PROJECT TITLE: Air Defense Weapons Systems

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 25 (BLI# 300600) HAWK MOD	3,040	1,624	1,671	1,720	1,773	1,815	CONT.	CONT.	
(U) PMC Line 27 (BLI# 301300) Pedestal Mounted Stinger	41,112	19,200	10,562	15,854	35,248	460	379	CONT.	CONT.

(U) RELATED RDT&E:
PE 0603216C (Ballistic Missile Defense Organizations, Theater Missile Defense)

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				
Avenger			4Q MSIII (Block I Upgrade)	
Engineering Milestones				
HAWK			ECP	
Avenger			3Q Validation (Stinger Missile Eval)	
Contract Milestones				

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems

PROJECT NUMBER: C2278
PROJECT TITLE: Air Defense Weapons Systems

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. System Development	0	0	3,540
HAWK	0	0	160
Avenger	0	0	3,380
b. Engineering Support	0	0	550
HAWK	0	0	50
Avenger	0	0	500
c. Travel	0	0	92
HAWK	0	0	32
Avenger	0	0	60
Total	0	0	4,182

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROGRAM ELEMENT TITLE: Marine Corps Communications Systems PROJECT NUMBER: C2278 PROJECT TITLE: Air Defense Weapons 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										
NSWC, Crane, IN	MIPR	OCT 96			0	0	0	100	CONT.	CONT.
Raytheon, Bedford, MA	SS/CPAF	JAN 97			0	0	0	510	CONT.	CONT.
NSWC, Dahlgren, VA	MIPR	OCT 96			0	0	0	1,963	CONT.	CONT.
Magnavox, Mawah, NJ		JAN 97			0	0	0	467	CONT.	CONT.
US Army, Redstone Arsenal, Huntsville, AL	MICOM	OCT 96						500		

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2278
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems PROJECT TITLE: Air Defense Weapons

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										
NSWC, Crane, IN										
	MIPR	OCT 96			0	0	0	250	CONT.	CONT.
NSWC, Dahlgren, VA										
	MIPR	OCT 96			0	0	0	250	CONT.	CONT.
MICOM, Redstone Arsenal, Huntsville, AL										
	MIPR	OCT 96			0	0	0	50	CONT.	CONT.
MCCDC (TAD), Quantico, VA										
	MIPR	JAN 97			0	0	0	92	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: 7 PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C2278
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems PROJECT TITLE: Air Defense Weapons Systems

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	0	0	0	3,540	CONT.	CONT.
Subtotal Support and Management	0	0	0	642	CONT.	CONT.
Subtotal Test and Evaluation	0	0	0	0	CONT.	CONT.
Total Project	0	0	0	4,182	CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/Supporting Arms 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
C0021	Assault Amphibious Vehicle 7A1 (AAV7A1) Modification Kits Sustainment Program								
	1,494	964	1,021	1,053	1,077	1,101	1,127	CONT.	CONT.
C1120	Air Defense Missile System (ADMS)[1]								
	998	7,620	0	0	0	0	0	0	71,341
C1555	Light Armored Vehicle (LAV) Program								
	1,414	1,447	1,438	1,441	1,432	2,429	1,412	CONT.	CONT.
C1901	Marine Corps Ground Weaponry Product Improvement Program								
	1,708	1,591	1,653	2,957	3,422	3,612	3,873	CONT.	CONT.
C1960	Light Armored Vehicle-Air Defense (LAV-AD)								
	8,500	0	0	0	0	0	0	0	71,076
C2086	Soldier/Marine Enhancement								
	3,210	3,167	1,448	1,562	1,599	1,635	1,674	CONT.	CONT.
C2237	Amphibious Vehicle Test Branch (AVTB)[2]								
	0	0	1,720	1,723	1,712	1,699	1,688	CONT.	CONT.
TOTAL	17,324	14,789	7,280	8,736	9,242	10,476	9,774	CONT.	CONT.

1. FY 1997 and beyond funding is contained in PE 0206313M, Marine Air-Ground Task Force (MAGTF) Command, Control, Communications, Computers and Intelligence (C4I) Systems, Project C2273, Air Operations Command and Control Systems and Project C2278, Air Defense Weapons Systems.

2. FY 1995 through FY 1996 funding is contained in PE 0603611M, Project C2237, Amphibious Vehicle Test Branch (AVTB).

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/Supporting Arms Systems

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This PE provides modification to Marine Corps Expeditionary Ground Force Weapons Systems to increase lethality, range, survivability, and operational effectiveness. It also provides for the development of AAV7A1 reliability and safety modifications, improvements in command and control in the ADMS, product improvements to the family of LAVs, and the development effort for the LAV-AD variant. The AVTB provides facilities and personnel which perform a broad range of testing, repair and technical services to amphibious vehicles.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/Supporting Arms 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
C0021 Assault Amphibious Vehicle 7A1 (AAV7A1) Modification Kits Sustainment Program	1,494	964	1,021	1,053	1,077	1,101	1,127	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program was formerly titled AAV7A1 Program. The AAV7A1 Modification Kits Sustainment Program provides for the development and fielding of reliability and safety improvements to the AAV7A1 family of vehicles. In conjunction with this effort is the integration of the Single Channel Ground-Air Radio System (SINCGARS) radios, Improved Transmission/Improved Reliability and Maintainability (ITRANS/IRAM) transmissions, and upgraded engine and suspension efforts, providing direct improvements to the current fleet.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($463) Continued integration of Bradley Fighting Vehicle (BFV) 600 Horsepower (Hp) de-tuned engine to 525 Hp into the AAV7A1.
- (U) ($10) Completed Cost Benefit Analyses and Trade-off Analyses, comparing current 400 Hp engine and 525 Hp BFV engine. Also compared the current AAV7A1 suspension system with the BFV suspension system.
- (U) ($150) Began AAV7A1 antenna co-site interference testing and provided engineering support for problem resolution.
- (U) ($871) Provided engineering support for reliability and safety related improvements and modifications.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206623M PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems PROJECT NUMBER: C0021 PROJECT TITLE: AAV7A1 Modification Kits Sustainment Program

2. (U) FY 1996 PLAN:

- (U) ($250) Complete integration of the BFV 525 Hp de-tuned engine into the AAV7A1.
- (U) ($32) Complete AAV7A1 antenna co-site interference testing and continue providing engineering support for problem resolution.
- (U) ($588) Continue providing engineering support for reliability and safety related improvements and modifications.
- (U) ($75) Conduct operational validation/verificatin (V/V) of engine integration.
- (U) ($19) 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) ($1,021) Continue providing engineering support for reliability and safety related improvements and modifications.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	4,345	1,071	1,059
(U) Adjustments from FY 1996 PRESBUD:	-2,851	-107	-38
(U) FY 1997 President's Budget Submit:	1,494	964	1,021

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

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems
PROJECT NUMBER: C0021
PROJECT TITLE: AAV7A1 Modification Kits Sustainment Program

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995 funding/program was adjusted to reflect "fact of life" changes. Schedules have been adjusted to accommodate loss of funding.

(U) FY 1996 funding adjustments reflect "fact of life" changes and undistributed Congressional reductions.

(U) FY 1997 funding adjustments reflect revised economic reductions.

(U) Schedule: This project underwent a program re-definition. The AAV7A1 Program has been downgraded to the AAV7A1 Modification Kits Sustainment Program; a support program providing only minimal reliability and safety related improvements until the successor vehicle (AAAV) is fielded. Efforts were reduced in scope to eliminate formal Developmental Testing of subsystems and reduce engineering validation.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206623M PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems PROJECT NUMBER: C0021 PROJECT TITLE: AAV7A1 Modification Kits Sustainment Program

(U) As a result of the program re-definition and decreased FY 1995 funding: engineering support for test planning, data gathering, and report writing efforts as well as demonstration of the combined improvements of the integrated improved suspension (ISUSP) and engine upgrade (EUP) in the AAV7A1 have been rescheduled for FY 1998.

(U) The IRAM transmission has completed research and development phase and is currently being procured with Procurement, Marine Corps funds.

(U) Technical: The 600 Hp engine de-tuning to 500 Hp was changed to 525 Hp, providing a more accurate description of the engine to be utilized. The engine is still a 600 Hp engine, de-tuned to 525 vice 500, and is required to account for the parasitic loss from the generator; thereby providing only 500 Hp at the transmission flywheel. This effort is extended, and will complete in FY 1996 vice FY 1995 as previously scheduled.

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 19 (BLI# 202100) AAV7A1 Product Improvement Program	3,802	11,533	14,003	14,300	14,770	3,133	3,205	CONT.	CONT.
(U) PMC Line 21 (BLI# 206300) Modification Kits (Tracked Vehicles)	13,386	16,958	480	3,986	9,000	14,000	14,000	0	131,424

(U) RELATED RDT&E: PE 0603611M (Marine Corps Assault Vehicles)

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems

PROJECT NUMBER: C0021
PROJECT TITLE: AAV7A1 Modification Kits Sustainment Program

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				
Engineering Milestones		2Q INTEGRATE 525 Hp DE-TUNED ENGINE 3Q OPERATIONAL V/V OF 525 Hp ENGINE		1Q FY98 DEMOS (ISUSP/EUP)
T&E Milestones				
Contract Milestones				

000375

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems

PROJECT NUMBER: C0021
PROJECT TITLE: AAV7A1 Modification Kits Sustainment Program

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Contractor Engineering Support	784	536	862
b. Government Engineering Support	529	416	147
c. Ancillary Hardware Development	169	0	0
d. Product Development/Program Management Support	12	12	12
Total	1,494	964	1,021

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems

PROJECT NUMBER: C0021
PROJECT TITLE: AAV7A1 Modification Kits Sustainment 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										
JSC, Annapolis, MD	MIPR	1ST QTR	182	182	0	150	32	0	0	182
TACOM, Warren, MI	MIPR	VARIOUS			18,031	457	285	77	CONT.	CONT.
NOC PacDiv, Fallbrook, CA	RCP/WR	VARIOUS	42	42	0	42	0	0	0	42
MCLB, Albany, GA	WR	2ND QTR			1,475	30	99	20	CONT.	CONT.
MISC (Includes MCCDC, Quantico, VA and MCLB, Barstow, CA)	VARIOUS	VARIOUS			2,434	12	12	12	CONT.	CONT.
Total Product Development					21,940	691	428	109	CONT.	CONT.

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems

PROJECT NUMBER: C0021
PROJECT TITLE: AAV7A1 Modification Kits Sustainment Program

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										
VSE, Alexandria, VA	SS/CPFF	1ST QTR	26,585	26,585	26,285	300	0	0	0	26,585
AERA, Arlington, VA	C/CPFF	2ND QTR			0	484	536	862	CONT.	CONT.
Total Support and Management					26,285	784	536	862	CONT.	CONT.
Test and Evaluation										
MISC (Includes MCCDC, Quantico, VA)	VARIOUS	VARIOUS	6,396	6,396	6,383	13	0	0	0	6,396
TBD	MIPR	4TH QTR			0	6	0	50	CONT.	CONT.
Total Test and Evaluation					6,383	19	0	50	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

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

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems
PROJECT NUMBER: C0021
PROJECT TITLE: AAV7A1 Modification Kits Sustainment Program

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	21,940	691	428	109	CONT.	CONT.
Subtotal Support and Management	26,285	784	536	862	CONT.	CONT.
Subtotal Test and Evaluation	6,383	19	0	50	CONT.	CONT.
Total Project	67,695	1,494	964	1,021	CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/Supporting Arms 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
C1555 Light Armored Vehicle (LAV) Program	1,414	1,447	1,438	1,441	1,432	2,429	1,412	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The family of LAVs consists of six fielded configurations with operational capabilities providing significant enhancement to the mobility and firepower of the Marine Air-Ground Task Force (MAGTF). Since the original urgency of need dictated the fielding of essentially off-the-shelf vehicles, this project provides the resources to evaluate, develop, and test designated pre-planned product improvements. This program has the single goal of ensuring the maximum reliability/capability for the fielded family of LAVs.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($192) Provided Delco, Santa Barbara, California with contractor support funding to complete follow-on upgrade/analysis of LAV Day/Night Sights (LAV-DNS) to include low-voltage power protection and technical investigations. Completed re-test of the system after correcting deficiencies identified in OT II.
- (U) ($200) Conducted LAV DNS thermal imagery training system study.
- (U) ($60) Provided additional LAV Mobility Block Improvements Developmental Test support to the LAV - Test Directorate (TD), Yuma, Arizona.
- (U) ($962) Continued evaluation of LAV Mobility Block Improvements.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206623M PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems PROJECT NUMBER: C1555 PROJECT TITLE: Light Armored Vehicle (LAV) Program

2. (U) FY 1996 PLAN:

- (U) ($310) Complete Developmental Testing of LAV Mobility Block Improvements.
- (U) ($325) Conduct feasibility study for LAV Anti-Tank Improvements.
- (U) ($320) Continue evaluation of LAV Firepower Improvements.
- (U) ($280) Evaluate LAV Automatic Fire Suppresion System.
- (U) ($200) Continue Future Light Combat Venicle research.
- (U) ($12) 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) ($450) Complete LAV Firepower Improvement program.
- (U) ($988) Acquire and test prototype hardware for Anti-Tank Improvements.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	959	1,492	1,492
(U) Adjustments from FY 1996 PRESBUD:	+455	-45	-54
(U) FY 1997 President's Budget Submit:	1,414	1,447	1,438

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems

PROJECT NUMBER: C1555
PROJECT TITLE: Light Armored Vehicle (LAV) Program

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995 funding was increased by a total of $455 in support of the following LAV-DNS and Mobility Block Improvement efforts.

(U) The FY 1996 funding adjustments are due to undistributed Congressional reductions and revised economic adjustments.

(U) FY 1997 adjustment is due to revised economic adjustments.

(U) Schedule: The LAV-DNS was approved for production at Milestone II in December 1994. R&D efforts continue on a thermal imagery trainer to upgrade or replace the existing seven non-thermal capable LAV-25 Turret Trainers. FY 1996/1997 LAV Firepower Improvement plans have been adjusted to accommodate increased FY 1996 LAV Mobility Block Improvements.

(U) Technical: Not applicable.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems

PROJECT NUMBER: C1555
PROJECT TITLE: Light Armored Vehicle (LAV) Program

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 20 (BLI# 203800) LAV PIP	23,480	22,780	8,666	1,206	1,467	1,421	6,483	CONT.	CONT.
(U) PMC Line -- (BLI# 203900) LAV -- (LAV-AD)	0	0	0	6,485	0	0	0	0	79,350

(U) RELATED RDT&E: C1960, LAV-AD under this PE.

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	1Q MS III LAV-DNS	3Q MS III LAV MOBILITY BLOCK		
Engineering Milestones				
T&E Milestones		1Q DT LAV MOBILITY BLOCK IMPROVEMENT		
Contract Milestones				

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems
PROJECT NUMBER: C1555
PROJECT TITLE: Light Armored Vehicle (LAV) Program

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Product Development	248	650	340
b. Support Costs and Management	943	561	546
c. Test and Evaluation	223	236	552
Total	1,414	1,447	1,438

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems

PROJECT NUMBER: C1555
PROJECT TITLE: Light Armored Vehicle (LAV) 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										
Major Contracts	MIPR	2ND QTR			4,282	0	500	200	CONT.	CONT.
In-House Support										
LAB Activity										
Major Effort										
All Other	MIPR	1ST QTR								
NAWC, Orlando, FL (Thermal Sight)	C/IP	4TH QTR			3,939	248	150	140	CONT.	CONT.
Total Product Development					8,221	248	650	340	CONT.	CONT.

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems

PROJECT NUMBER: C1555
PROJECT TITLE: Light Armored Vehicle (LAV) Program

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										
In-House Support										
LAB Activity										
Major Effort										
All Other	WR	1ST QTR			18,826	943	561	546	CONT.	CONT.
Total Support and Management					18,826	943	561	546	CONT.	CONT.

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206623M PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems PROJECT NUMBER: C1555 PROJECT TITLE: Light Armored Vehicle (LAV) Program

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										
Major Contracts					2,704	126	97	197	CONT.	CONT.
Delco, Santa Barbara, CA (Thermal Sight)	SS/FP	2ND QTR 94								
Diesel Division General Motors, London, Ontario, Canada (Mobility Block)	SS/FP	4TH QTR 95								
Detroit Diesel, Emporia, KS (Mobility Block)	SS/FP	4TH QTR 95								
In-House Support										
LAB Activity										
Major Effort										
Yuma Proving Ground, Yuma, AZ (Mobility Block)	RCP/WR	4TH QTR			0	72	0	0	0	72
All Other					1,002	25	139	355	CONT.	CONT.
Total Test and Evaluation					**3,706**	**223**	**236**	**552**	**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: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems

PROJECT NUMBER: C1555
PROJECT TITLE: Light Armored Vehicle (LAV) Program

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	8,221	248	650	340	CONT.	CONT.
Subtotal Support and Management	18,826	943	561	546	CONT.	CONT.
Subtotal Test and Evaluation	3,706	223	236	552	CONT.	CONT.
Total Project	30,753	1,414	1,447	1,438	CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/Supporting Arms 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
C1901 Marine Corps Ground Weaponry Product Improvement Program (PIP)	1,708	1,591	1,653	2,957	3,422	3,612	3,873	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project develops joint and Marine Corps unique improvements to infantry weapons/artillery technology; Marine Corps unique Amphibious Armor Systems (AAS) improvements for the M1A1 Main Battle Tank and support systems; and monitors national/international weapons developments.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($811) Continued artillery technology evaluations and validation for Back-up Computer System (BUCS). Initiated effort to participate with the Army AN/TPQ-36 (Firefinder Radar upgrade) program. Continued joint participation in investigations to improve field survey equipment and M198 Howitzer improvements for sustainment.
- (U) ($95) Continued joint AAS modifications for Armament Enhancement Initiative (AEI), Self Cleaning Air Filter (SCAF) and CO^2 Modification.
- (U) ($802) Continued Marine Corps unique activities associated with joint service rifle/machine gun and night vision product improvement programs.

2. (U) FY 1996 PLAN:

- (U) ($741) Continue joint participation and Marine Corps unique activities for evaluation of safety, technology and lethality improvements for Marine Corps infantry/reconnaissance weapons and night vision enhancements. Pursue improvements in accuracy, reliability, and maintainability of the current service rifle, special operations and crew served weapons.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems
PROJECT NUMBER: C1901
PROJECT TITLE: Marine Corps Ground Weaponry PIP

- (U) ($725) Continue joint evaluation and Marine Corps activities for modifications of safety, software and technology improvements for artillery and fire support systems. These activities include a product improvement to the Firefinder AN/TPQ-36 radar, joint participation in the Meteorological Measuring Set (MMS), and evaluation of non-developmental item (NDI) hydrogen generators. Participate jointly with the Army in investigations to improve field survey equipment and M198 Howitzer improvements for sustainment.

- (U) ($108) Continue joint and Marine Corps unique evaluation of modifications for amphibious armor. This includes improvements to the M88 Improved Recovery Vehicle (IRV), the SCAF, wire race ring integration study (the turret turns on a wire race ring instead of bearings), AEI, Halon replacement, Armored Vehicle Launched Bridge (AVLB) upgrade and other technology improvements to the M1A1 tank, M88 IRV and the AVLB.

- (U) ($17) 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) ($885) Continue joint participation and Marine Corps unique activities for evaluation of safety, technology and lethality improvements for Marine Corps infantry/reconnaissance weapons and night vision enhancements. Pursue improvements in accuracy, reliability, and maintainability of the current service rifle, special operations and crew served weapons.

- (U) ($657) Continue joint participation for artillery and fire support improvements. Continue joint participation in Firefinder AN/TPQ-36 radar Follow-on Operational Test and Evaluation, M198 Howitzer sustainment, and field survey improvements.

- (U) ($111) Continue joint evaluation of modifications of amphibious armor including M88 IRV, SCAF, CO^2 and others.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206623M PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems PROJECT NUMBER: C1901 PROJECT TITLE: Marine Corps Ground Weaponry PIP

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	2,004	1,698	1,727
(U) Adjustments from FY 1996 PRESBUD:	-296	-107	-74
(U) FY 1997 President's Budget Submit:	1,708	1,591	1,653

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995 funding/program was adjusted to reflect "fact of life" changes. Schedules have been adjusted to accommodate funding changes. The FY 1996 decrease of $107 was due to undistributed Congressional reductions and revised economic adjustment. The FY 1997 decrease is due to Marine Corps Depots and Naval Surface Warfare Center Defense Business Operating Fund (DBOF) rate adjustments and revised economic adjustments.

(U) Schedule: This program is level of effort funded. Due to the overall FY 1995, FY 1996 and FY 1997 decreases, there are corresponding decreases in levels of effort; however, program schedules have been adjusted to accommodate funding changes.

(U) Technical: Not applicable.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems
PROJECT NUMBER: C1901
PROJECT TITLE: Marine Corps Ground Weaponry PIP

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 21 (BLI# 206300) Modification Kits (Tracked Vehicles)	13,386	16,958	480	3,986	9,000	14,000	14,000	0	93,834
(U) PMC (BLI# 209900) M188A2 IRV	0	0	0	41,821	47,566	56,073	21,584	CONT.	CONT.
(U) PMC Line 23 (BLI# 220900) Modification Kits (Artillery and Other)	532	489	1,114	2,859	2,397	0	466	CONT.	CONT.

(U) RELATED RDT&E:

(U) All ground weapons and ground ammunition systems: Army, Navy, Air Force, Coast Guard, and Commander in Chief, Special Operations Command.

(U) PE 0203735A (Combat Vehicle Improvement Programs)

D. (U) SCHEDULE PROFILE: Not applicable.

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems

PROJECT NUMBER: C1901
PROJECT TITLE: Marine Corps Ground Weaponry PIP

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. System Engineering	207	204	207
b. Development Test and Evaluation	166	171	174
c. Program Management Support	266	368	390
d. Integrated Logistics Support	166	171	174
e. Test Samples	166	171	174
f. Government Engineering Support	631	421	451
g. Miscellaneous	106	85	83
Total	1,708	1,591	1,653

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems

PROJECT NUMBER: C1901
PROJECT TITLE: Marine Corps Ground Weaponry PIP

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										
Radian Inc., Dumfries, VA	MIPR	1ST QTR			3,573	60	60	70	CONT.	CONT.
NSWC, Crane, IN	WR/RCP	1ST QTR			1,021	36	40	47	CONT.	CONT.
MICOM, Huntsville, AL	MIPR	1ST QTR			3,359	20	30	32	CONT.	CONT.
NSWC, Dahlgren, VA	WR/RCP	1ST QTR			3,062	75	80	83	CONT.	CONT.
NOC PacDiv, Fallbrook, CA	WR/RCP	1ST QTR			0	78	80	70	CONT.	CONT.
MCCDC, Quantico, VA	WR	1ST QTR			3,420	105	85	83	CONT.	CONT.
MISC	VARIOUS	VARIOUS			2,399	190	148	165	CONT.	CONT.
Total Product Development					16,834	564	523	550	CONT.	CONT.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206623M PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems PROJECT NUMBER: C1901 PROJECT TITLE: Marine Corps Ground Weaponry PIP

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										
Radian Inc., Dumfries, VA	MIPR	1ST QTR			18,837	139	250	260	CONT.	CONT.
Total Support and Management					**18,837**	**139**	**250**	**260**	**CONT.**	**CONT.**
Test and Evaluation										
Radian Inc., Dumfries, VA	MIPR	1ST QTR			5,359	90	90	105	CONT.	CONT.
NSWC, Crane, IN	WR/RCP	1ST QTR			1,531	55	60	71	CONT.	CONT.
MICOM, Huntsville, AL	MIPR	1ST QTR			5,037	30	45	48	CONT.	CONT.
NSWC, Dahlgren, VA	WR/RCP	1ST QTR			4,594	112	120	124	CONT.	CONT.
NOC PacDiv, Fallbrook, CA	WR/RCP	1ST QTR			0	116	120	105	CONT.	CONT.

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems

PROJECT NUMBER: C1901
PROJECT TITLE: Marine Corps Ground Weaponry PIP

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 (continued)										
MCCDC, Quantico, VA										
	WR	1ST QTR			5,129	158	128	125	CONT.	CONT.
MISC	VARIOUS	VARIOUS			3,599	444	255	265	CONT.	CONT.
Total Test and Evaluation					**25,249**	**1,005**	**818**	**843**	**CONT.**	**CONT.**

GOVERNMENT FURNISHED PROPERTY: Not applicable.

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems

PROJECT NUMBER: C1901
PROJECT TITLE: Marine Corps Ground Weaponry PIP

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	16,834	564	523	550	CONT.	CONT.
Subtotal Support and Management	18,837	139	250	260	CONT.	CONT.
Subtotal Test and Evaluation	25,249	1,005	818	843	CONT.	CONT.
Total Project	60,920	1,708	1,591	1,653	CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/Supporting Arms 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
C2086 Marine Enhancement Program (MEP)	3,210	3,167	1,448	1,562	1,599	1,635	1,674	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program was formerly titled Solder/Marine Enhancement. MEP is a Congressionally initiated program started in FY 1990 which provides Research, Development, Test and Evaluation funding for low visibility, low cost items. It focuses on items of equipment which will benefit the individual Marine by reducing the load, increasing survivability, enhancing safety and improving combat effectiveness. The emphasis of the program is on non-developmental/ commercially available items which can be quickly evaluated and fielded. This program is coordinated with the Army's Soldier Enhancement Program and the Special Operations Command.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($1,108) Continued to explore non-developmental items (NDI) equipment that will improve the combat effectiveness and enhance the safety and survivability of the individual Marine.
- (U) ($1,101) Continued to explore NDI categories including clothing and individual equipment.
- (U) ($1,001) Explored NDI categories including ground weapons, amphibious raid and ground reconnaissance items, communications, and command and control equipment.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems

PROJECT NUMBER: C2086
PROJECT TITLE: Marine Enhancement Program (MEP)

2. (U) FY 1996 PLAN:

- (U) ($1,138) Continue to explore NDI equipment that will improve the combat effectiveness and enhance the safety and survivability of the individual Marine.
- (U) ($1,000) Explore clothing and individual equipment NDI categories.
- (U) ($1,000) Explore ground weapons, communications, and command and control equipment NDI categories.
- (U) ($29) 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) ($548) Continue to explore NDI equipment that will improve the combat effectiveness and enhance the safety and survivability of the individual Marine.
- (U) ($450) Continue to explore clothing and individual equipment NDI categories.
- (U) ($450) Continue to explore ground weapons, communications, and command and control equipment NDI categories.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems

PROJECT NUMBER: C2086
PROJECT TITLE: Marine Enhancement Program (MEP)

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	3,176	3,298	3,290
(U) Adjustments from FY 1996 PRESBUD:	+34	-131	-1,842
(U) FY 1997 President's Budget Submit:	3,210	3,167	1,448

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995 funding/program was adjusted to reflect "fact of life" changes. FY 1996 decreases of $131 due to undistributed Congressional reductions and revised economic adjustments. FY 1997 funding ($1,710) was transferred to the Procurement, Marine Corps (PMC) appropriation for procurement of MEP items. This transfer provided a better balance between research and procurement of MEP items. The additional FY 1997 decrease of $132 was due to various Defense Business Operating Fund (DBOF) rate adjustments and revised economic adjustments. These rate adjustments caused no programmatic impact.

(U) Schedule: This program is level of effort funded. Due to the FY 1995 increase and FY 1996/1997 funding decreases, there are corresponding adjustments to levels of effort. Program schedules have been adjusted to accommodate funding changes and efforts remain on schedule.

(U) Technical: Not applicable.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206623M PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems PROJECT NUMBER: C2086 PROJECT TITLE: Marine Enhancement Program (MEP)

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 50 (BLI# 494000) MEP	0	3,330	7,695	3,256	11,855	11,872	4,890	CONT.	CONT.
(U) O&M,MC Line Initial Issue	21,125	29,501	23,629	14,346	14,776	15,219	15,675	CONT.	CONT.
(U) O&M,MC Expeditionary Forces	0	108	112	115	118	121	125	CONT.	CONT.

(U) RELATED RDT&E: PE 0604713A (Combat Feeding, Clothing, and Equipment)

D. (U) SCHEDULE PROFILE: Not applicable.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems
PROJECT NUMBER: C2086
PROJECT TITLE: Marine Enhancement Program (MEP)

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Systems Engineering	268	330	159
b. Development Test and Evaluation	374	495	199
c. Program Management Support	889	674	306
d. Integrated Logistics Support	745	624	303
e. Test Samples	158	165	79
f. Government Engineering Support	384	436	199
g. Miscellaneous	392	443	203
Total	3,210	3,167	1,448

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206623M PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems PROJECT NUMBER: C2086 PROJECT TITLE: Marine Enhancement Program (MEP)

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										
Lexington-Bluegrass, Lexington, KY	WR	1ST QTR			2,091	90	90	45	CONT.	CONT.
NOC PacDiv, Fallbrook, CA	WR	1ST QTR			0	42	45	45	CONT.	CONT.
MCTSSA, Camp Pendleton, CA	WR/RCP	1ST QTR			461	59	64	14	CONT.	CONT.
NCTRF, Aberdeen, MD	WR/RCP	1ST QTR			240	7	7	2	CONT.	CONT.
NATICK, Natick, MA	MIPR	2ND QTR			873	80	85	19	CONT.	CONT.
ARL/APG, Aberdeen, MD	MIPR	1ST QTR			235	0	0	3	CONT.	CONT.
PM MORTAR, Ft. Monmouth, NJ	MIPR	1ST QTR			542	0	0	2	CONT.	CONT.
PPSC, Philadelphia, PA	MIPR	3RD QTR			0	6	6	1	CONT.	CONT.
MCAGCC, Twenty-nine Palms, CA	WR/RCP	1ST QTR			74	13	14	3	CONT.	CONT.
NSMA, Washington, DC	MIPR	1ST QTR			0	68	73	16	CONT.	CONT.

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems

PROJECT NUMBER: C2086
PROJECT TITLE: Marine Enhancement Program (MEP)

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 (continued)										
TEXCOM, Warren, MI	MIPR	1ST QTR			2	23	25	5	CONT.	CONT.
NHRC, Crane, IN	MIPR	2ND QTR			74	126	135	30	CONT.	CONT.
2ND MARDIV, Camp Lejuene, NC	WR	1ST QTR			54	0	7	3	CONT.	CONT.
NCCOSC, San Diego, CA	WR	1ST QTR			157	12	12	12	CONT.	CONT.
NCSS, Panama City, FL	WR	1ST QTR			1,854	4	4	4	CONT.	CONT.
NSWC, Crane, IN	WR	1ST QTR			1,589	99	104	94	CONT.	CONT.
NAWC Air Division, Patuxent River, MD	WR	1ST QTR			14	62	65	59	CONT.	CONT.
II MEF, Camp Lejuene, NC	WR	1ST QTR			64	4	5	2	CONT.	CONT.
NFESC, San Diego, CA	MIPR	2ND QTR			340	0	0	4	CONT.	CONT.
NSWC IHD, Indian Head, MD	WR	4TH QTR			162	0	0	2	CONT.	CONT.
MISC	VARIOUS	VARIOUS			4,119	149	90	17	CONT.	CONT.
Total Product Development					12,945	844	831	382	CONT.	CONT.

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M

PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems

PROJECT NUMBER: C2086

PROJECT TITLE: Marine Enhancement Program (MEP)

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										
MCCDC, Quantico, VA	WR	1ST QTR			1,781	66	83	41	CONT.	CONT.
MISC	VARIOUS	VARIOUS			3,975	291	237	79	CONT.	CONT.
Total Support and Management					5,756	357	320	120	CONT.	CONT.
Test and Evaluation										
MCTSSA, Camp Pendleton, CA	WR/RCP	1ST QTR			1,334	191	201	48	CONT.	CONT.
NCTRF, Aberdeen, MD	WR/RCP	1ST QTR			793	23	25	5	CONT.	CONT.
NATICK, Natick, MA	MIPR	2ND QTR			1,361	297	271	64	CONT.	CONT.
ARL/APG, Aberdeen, MD	MIPR	1ST QTR			775	0	0	12	CONT.	CONT.
PM MORTAR, Ft. Monmouth, NJ	MIPR	1ST QTR			1,795	0	0	8	CONT.	CONT.
PPSC, Philadelphia, PA	MIPR	3RD QTR			0	18	19	5	CONT.	CONT.
MCAGCC, Twenty-nine Palms, CA	WR/RCP	1ST QTR			244	42	44	10	CONT.	CONT.
NSMA, Washington, DC	MIPR	1ST QTR			0	220	232	55	CONT.	CONT.

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems

PROJECT NUMBER: C2086
PROJECT TITLE: Marine Enhancement Program (MEP)

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 (continued)										
TEXCOM, Warren, MI	MIPR	1ST QTR			7	74	78	19	CONT.	CONT.
NHRC, Crane, IN	MIPR	2ND QTR			244	404	426	103	CONT.	CONT.
2ND MARDIV, Camp Lejuene, NC	WR	1ST QTR			177	0	23	12	CONT.	CONT.
NCCOSC, San Diego, CA	WR	1ST QTR			519	38	40	41	CONT.	CONT.
NCSS, Panama City, FL	WR	1ST QTR			6,136	13	14	14	CONT.	CONT.
NSWC, Crane, IN	WR	1ST QTR			5,256	317	328	328	CONT.	CONT.
NAWC Air Division, Patuxent River, MD	WR	1ST QTR			47	198	205	190	CONT.	CONT.
II MEF, Camp Lejuene, NC	WR	1ST QTR			5,470	14	14	8	CONT.	CONT.
NFESC, San Diego, CA	MIPR	2ND QTR			1,123	0	0	16	CONT.	CONT.
NSWC IHD, Indian Head, MD	WR	4TH QTR			538	0	0	8	CONT.	CONT.
MISC	VARIOUS	VARIOUS			8,370	160	96	0	CONT.	CONT.
Total Test and Evaluation					34,189	2,009	2,016	946	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems

PROJECT NUMBER: C2086
PROJECT TITLE: Marine Enhancement Program (MEP)

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	12,484	844	831	382	CONT.	CONT.
Subtotal Support and Management	5,756	357	320	120	CONT.	CONT.
Subtotal Test and Evaluation	29,125	2,009	2,016	946	CONT.	CONT.
Total Project	52,890	3,210	3,167	1,448	CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/Supporting Arms 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
C2237 Amphibious Vehicle Test Branch (AVTB)	0	0	1,720	1,723	1,712	1,699	1,688	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project was formerly titled Advanced Amphibious Test Directorate (AVTD). The AVTB is a one-of-a-kind Department of Defense Test Facility for amphibious vehicles and supports the requirements of all services. The AVTB conducts developmental, combined developmental/operational, and follow-on testing and evaluation of production hardware. It also conducts Product Assurance Testing and substitute or alternative parts and material testing for amphibious vehicles and associated equipments. Because of its year-round temperate climate, diverse terrain, and 17 miles of coastline, the AVTB is ideal for amphibious vehicle, as well as ship related testing. The AVTB is in close proximity to San Clemente island which is used frequently for live fire sea-to-shore testing and high-speed water testing. The AVTB is committed to testing product improvement programs, engineering change proposal design changes, and field change requests.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS: Funding ($1,457) was contained in PE 0603611M, Project C2237, AVTB.

2. (U) FY 1996 PLAN: Funding ($1,819) is contained in PE 0603611M, Project C2237, AVTB.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems

PROJECT NUMBER: C2237
PROJECT TITLE: Amphibious Vehicle Test Branch (AVTB)

3. (U) FY 1997 PLAN:

- (U) ($387) Provide for program support, supplies, and services at AVTB test site to support scheduled Assault Amphibious Vehicle 7A1 (AAV7A1) and Advanced Amphibious Assault Vehicle (AAAV) Developmental Testing. These funds provide organic supply support including management operations, general accounting, and a maintenance float of equipment. Provide intermediate maintenance (third echelon) of organic non-developmental communication electronic and ordnance equipment.

- (U) ($240) Provide funding for necessary services provided by Marine Corps Base, Camp Pendleton (MCB CAMPEN), California and off-station units for electricity, heating and other power charges; long distance telephone support; and calibration of laboratory test equipment and maintenance equipment. Inter-service Support Agreement (ISSA) funding at MCB CAMPEN also pays for janitorial and grounds care through contracts administered by Purchasing and Contracting (P&C) CAMPEN.

- (U) ($1,093) Provide AVTB personnel civilian salaries to support scheduled AAV7A1 and AAAV Developmental Testing. Plan and conduct Developmental Tests and report results, identifying any unresolved test issues in accordance with approved test plans and procedures. Prepare analysis of field-reported problems as received. Provide recommendations pertaining to design requirements which affect both operational effectiveness and operation suitability. Perform all echelons of maintenance on developmental items, including all on-hand assets of assault amphibious vehicles, within the capabilities of on-hand personnel, tools, test, and measuring equipment and facilities. Provide technical assistance and recommendations in the test of substitute or alternate parts and materials. Prepare technical analysis of proposed product improvements as requested. Prepare analysis of proposed engineering changes. Conduct hardware testing and evaluation of design changes, including verification of both the design and the technical data in accordance with approved test plans and procedures. Provide technical assistance in writing and revision of Technical Manuals. Provide technical reviews and recommendations regarding proposed Modification, Technical, Retrofit Instructions, and Retofit Kit Hardware.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems

PROJECT NUMBER: C2237
PROJECT TITLE: Amphibious Vehicle Test Branch (AVTB)

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 PRESBUD:	0	0	+1,720
(U) FY 1997 President's Budget Submit:	0	0	1,720

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: Because the AVTB is a Department of Defense test facility that supports tracked and wheeled amphibious vehicle testing in salt water, FY 1997 and beyond funding was transferred to this PE from PE 0603611M. This transfer also separates the AVTB facility funding from the AAAV Acquisition Category I program funding.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

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

(U) RELATED RDT&E:

(U) PE 0603611M (Marine Corps Assault Vehicles)

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems

PROJECT NUMBER: C2237
PROJECT TITLE: Amphibious Vehicle Test Branch (AVTB)

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				
Engineering Milestones				
T&E Milestones			AAV7A1 AND AAAV DT	
Contract Milestones				

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems

PROJECT NUMBER: C2237
PROJECT TITLE: Amphibious Vehicle Test Branch (AVTB)

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Program Support, Supplies, and Services	0	0	387
b. Civilian Personnel	0	0	240
c. Developmental Test	0	0	1,093
Total	0	0	1,720

1. FY 1995 funding ($1,457) is contained in PE 0603611M, Project C2237, AVTB.

2. FY 1996 funding ($1,819) is contained in PE 0603611M, Project C2237, AVTB.

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION: Not applicable.

C. (U) FUNDING PROFILE: Not applicable.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206624M
PROGRAM ELEMENT TITLE: Marine Corps Combat Services Support

(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
C0076 Combat Service Support Product Improvement Program	1,736	7,249	5,211	6,205	4,411	8,459	1,834	CONT.	CONT.
C0079 Combat Clothing and Equipment	102	0	0	0	0	0	0	0	1,703
C0085 Amphibious Reconnaissance Equipment	1,160	0	0	0	0	0	0	0	9,118
TOTAL	2,998	7,249	5,211	6,205	4,411	8,459	1,834	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element (PE) provides funding for Marine Air-Ground Task Force requirements for Combat Service Support equipment improvements, completes the developmental portion of field feeding systems, and completes research and development efforts for fielding medical equipment. It also provides for evaluation of non-developmental items to support Marine Corps amphibious raid, reconnaissance and special operations as well as improvements in Tactical Fuel Systems equipment, utilities systems items, and bridging.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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UNCLASSIFIED

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206624M
PROGRAM ELEMENT TITLE: Marine Corps Combat Service Support

(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
C0076 Combat Service Support Product Improvement Program	1,736	7,249	5,211	6,205	4,411	8,459	1,834	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project includes improvements in all areas of Combat Service Support Equipment. The Medium Tactical Vehicle Remanufacture (MTVR) Program and Vehicle Fleet Improvements will determine the replacement vehicle for the Medium 5-ton fleet of 8,600 vehicles and provide improvements to the rest of the fleet. This project also includes improvements in all areas of motor transportation which will increase mobility, maintainability and reliability. The Tactical Fleet Extended Service Program (TFESP) provides research, development and testing of enhanced tactical vehicle components and systems in order to extend the service life of the currently fielded wheeled vehicles. The Army developed Combat Breacher Vehicle (CBV) will be a fully tracked, armored vehicle capable of keeping pace with the maneuver force. It will breach minefields with a full width mine plow, (14 feet wide), equipped with automatic depth control while maintaining speeds of 4 to 5 miles per hour. The CBV will contain an automatic marking system and will be equipped with a powered telescopic excavating arm capable of extending 30 feet. The CBV will be used against all types of obstacles, tanks, ditches, minefields, and wire emplacements. The Marine Corps is coordinating with the Army to establish a joint program prior to Milestone II in FY 1996. The Enhanced Reverse Osmosis Water Purification Unit (EROWPU) is capable of providing potable water from any available raw water source. The EROWPU is "state-of-the-art" technology producing 1,200/1,500 gallons per hour (GPH). This system will replace the aging 600 GPH ROWPUs at a 2 to 1 ratio. The EROWPU will reduce support personnel, logistics, maintenance, and transportation requirements saving millions of dollars in support costs. The EROWPU is a joint Marine Corps program with the Army as the lead service. The Third Echelon Test Set (TETS) is a portable, highly mobile general purpose automatic tester designed for use by technicians both in garrison and at the forward edge of the battlefield.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206624M
PROGRAM ELEMENT TITLE: Marine Corps Combat Service Support

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($140) MTVR: Developed Operational Assessment Test Plan and published Final Test reports.
- (U) ($70) TFESP: Tactical Fleet Extended Service Program. Funded program support. Participated in related technology conventions, Army Tank-Automotive Command (TACOM), Warren, Michigan planning meetings, and various test/evaluation events.
- (U) ($50) CBV: Continued program with the Army, working towards joint application. Continued development of contract acquisition plan and engineer trade studies.
- (U) ($500) TETS: Test program set development for Formal Qualification Test (FQT) user tests. Started FQT development in support of User tests scheduled in FY 1997.
- (U) ($250) TETS: Procured Lasar Digital Test Program Set (TPS) Development Software. Software to be used with TPS development.
- (U) ($270) TETS: Initiated development of Bid Sample Test Procedures. Initiated development test plans, procedures and routines required to test Bid Sample Units.
- (U) ($162) TETS: Developed and refined contractual documents.
- (U) ($294) EROWPU: FY 1995 funding increased by 94K (PE 063612M/C2106) to complete the evaluation and compile data for the pre-treatment systems for the EROWPU and Reverse Osmosis Membrane Preservation Study.

2. (U) FY 1996 PLAN:

- (U) ($5,827) MTVR: Award Engineering and Manufacturing Development (EMD) contracts for prototype truck fabrications and initiate Developmental Testing (DT) on EMD vehicle. Provide for Army TACOM program support activities.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206624M
PROGRAM ELEMENT TITLE: Marine Corps Combat Service Support

- (U) ($788) TFESP: Initiate engineering research and explore component improvements in support of the TFESP program. Provide for Army TACOM program support activities.
- (U) ($519) TETS: Initiate Electro-Optics (EO) test instrumentation. Develop Radio Frequency (RF) test instrumentation with follow-on bid sample testing by the Naval Research Laboratory, Washington D.C.
- (U) ($0) CBV: Funded with FY 1995 funds. USMC MS I first quarter and USMC/Army MS II second quarter.
- (U) ($115) SBIR: 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) ($4,225) MTVR: Complete EMD DT and initiate and complete OT&E.
- (U) ($499) TFESP: Continue engineering research and evaluation of component improvements. Initiate studies for prototype and modernization development.
- (U) ($469) TETS: Complete EO test instrumentation with follow-on bid sample testing by the Naval Research Laboratory, Washington D.C. Develop new technology testing applications in support of emerging weapon systems testing applications. Conduct formal Qualification Test.
- (U) ($18) CBV: Initiate comparability assessments with Army prototype.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget Submit:	1,249	3,915	6,153
(U) Adjustments from FY 1996 PRESBUD:	+487	3,334	-942
(U) FY 1997 President's Budget Submit	1,736	7,249	5,211

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206624M
PROGRAM ELEMENT TITLE: Marine Corps Combat Service Support

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY95 funds increased due to development phase transition of TETS from Marine Corps Advanced Technology Demonstration to advance development. CBV program was decreased to accommodate an Army slippage of MS II and III. The funds were transfered to PE 060612M C1969 for APOBS Program Deficiency and to PE 0206624M C0076B for EROWPU. FY1995 EROWPU increased +94 from PE 0603612M C2106, Advanced Countermeasures Systems. Funds became available because the Advanced Countermeasures Systems demonstration/validation contract was awarded for less than initial anticipated costs. Army program delays in CBV made funds available. FY 1996 funds include an increase of $3,500 for additional truck variants and development of simulation models and testing and a decrease of $136 for undistributed Congressional reductions.. FY 1997 adjustments were: -942 funding adjustment to reflect execution information and Inflation adjustment.

(U) Schedule: CBV: MS II/III rescheduled due to Army program delays. TETS: TETS Testing pertains to three independent but related subsystems: Basic, RF, and EO. This required DOD approval which was received in May 1995. Contract award was subsequently delayed to 4QTR FY 96, FQT was delayed to 2Q FY 1997.

(U) Technical: The FY 1997 NAVCOMPT funding reduction increases reliability risk by limiting mileage of prototype testing. All eight prototypes cannot be driven the 20,000 miles of scheduled testing.

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

	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) PMC Line (BLI# 508800) MTVR	0	0	0	0	158,628	243,959	251,481	CONT.	CONT.
(U) PMC Line (BLI# 613300) CBV	0	0	0	0	0	22,301	51,102	CONT.	CONT.
(U) PMC Line 33 (BLI# 440200) TETS	2,119	11,960	12,174	21,774	22,934	0	o	0	70,961
(U) PMC LINE (BLI# 627400) EROWPU	0	0	0	0	0	0	31,929	CONT.	CONT.

(U) RELATED RDT&E:
- (U) PE 0206623M Marine Corps Ground Combat Supporting Arms Systems
- (U) PE 0603640M Marine Corps Advanced Technology Demonstration
- (U) PE 0604804A Logistics and Engineering Equipt/Engr Development
- (U) PE 0206313M Marine Corps Communications

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BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206624M
PROGRAM ELEMENT TITLE: Marine Corps Combat Service Support

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				
TETS	TETS 3Q MS I/II		TETS 2Q MS III	
CBV		CBV MSI 1Q (USMC) CBV MS II 4Q (ALL)		MSIII 4Q FY2000
MTVR			MSI/II 2Q	MSIII 1Q FY 2001
TFESP		TFESP 2Q MSI		
EROWPU		EROWPU 1Q MSI	EROWPU 4Q MSII	EROWPU MSIII 3Q FY 2000
Engineering Milestone				
TETS		TETS 2Q DT BASIC/RF	TETS 1Q DT (EO)	
CBV	CBV PROTOTYPE BUILT		CBV EMD FY 97	
MTVR				LRIP 1Q FY1999
EROWPU		EROWPU DT&E 4Q		
T&E Milestone				
TETS			TETS 2Q FQT	
CBV		CBV 1Q-4Q EO		
MTVR			DT 4Q FY 1997	OT 3Q FY 2000
Contract Milestone				
TETS		TETS CONT (4Q) AWARD (BASIC/RF)	TETS (4Q) CONT AWARD (EO)	
CBV				
MTVR		EMD 4Q		
TFESP				

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206624M
PROGRAM ELEMENT TITLE: Marine Corps Combat Service Support

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Test and Evaluation			
TETS	270	200	200
CBV	0	0	0
MTVR	120	108	2,157
TFESP	0	0	0
EROWPU	264	0	0
SUBTOTAL	654	308	2,357
b. Contractor Engineering & Support			
TETS	0	0	0
CBV	50	0	18
MTVR	0	70	712
TFESP	0	125	75
EROWPU	0	0	0
SUBTOTAL	50	195	805
c. Systems Dev			
TETS	882	319	269
CBV	0	0	0
MTVR	0	4,962	105
TFESP	0	563	95
EROWPU	0	0	0
SBIR	0	115	0
SUBTOTAL	882	5,959	469

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206624M
PROGRAM ELEMENT TITLE: Marine Corps Combat Service Support

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
d. Engineering Support			
TETS	30	0	0
CBV	0	0	0
MTVR	0	0	339
TFESP	0	0	194
EROWPU	0	0	0
SUBTOTAL	30	0	533
e. Program Mgmt Support			
TETS	0	0	0
CBV	0	0	0
MTVR	20	687	338
TFESP	70	100	135
EROWPU	0	0	0
SUBTOTAL	90	787	473

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206624M
PROGRAM ELEMENT TITLE: Marine Corps Combat Service Support

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
g. Transportation			
TETS	0	0	0
CBV	0	0	0
MTVR		0	574
TFESP	0	0	0
EROWPU	0	0	0
SUBTOTAL	0	0	574
h. Primary Hardware Development			
TETS	0	0	0
CBV	0	0	0
MTVR	0	0	0
TFESP	0	0	0
EROWPU	30	0	0
SUBTOTAL	30	0	0
TOTAL	1,736	7,249	5,211

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206624M
PROGRAM ELEMENT TITLE: Marine Corps Combat Service Support

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

PERFORMING ORGANIZATIONS Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development									
MTVR					140	2,250	841	CONT.	CONT.
MISCP	FP/MIPR	1ST QTR	N/A	N/A	0	2,077	0	CONT.	CONT.
TBD	CPFF/CONTRACT	4TH QTR	N/A	N/A	20	300	499	CONT.	CONT.
TFESP	MISC	1ST QTR	N/A	N/A	882	319	269	CONT.	CONT.
TETS	MISC	1ST QTR	115	115	0	115	0	0	115
SBIR	TBD	TBD							
TOTAL PRODUCT DEVELOPMENT					**1,042**	**5,061**	**1,609**	**0**	**115**
Support and Management									
MTVR		3RD QTR	-	-	0	1,500	0	CONT.	CONT.
TACOM	CPFF/CONTRACT	1ST QTR	N/A	N/A	0	0	1,272	CONT.	CONT.
	MISC TETS		MISC	1SR QTR	30	0	0		
CBV	MCSCFP	1ST QTR	-	-	50	0	18	CONT.	CONT.
TFESP	TBD	VARIOUS	N/A	N/A	0	488	0	CONT.	CONT.
TOTAL SUPPORT AND MANAGEMENT					**80**	**1,988**	**1,290**	**CONT.**	**CONT.**

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206624M
PROGRAM ELEMENT TITLE: Marine Corps Combat Service Support

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Test and Evaluation									
MTVR	CPFF/CONTRACT	1ST QTR	2,640	2,640	0	0	2,112	CONT.	CONT.
TETS	MISC	1ST QTR	N/A	N/A	270	200	200	CONT.	CONT.
EROWPU	MISC	1ST QTR	-	-	294	0	0	CONT.	CONT.
TFESP		1ST QTR	-	-	50	0	0	CONT.	CONT.
TOTAL TEST AND EVALUATION					**614**	**200**	**2,312**	**CONT.**	**CONT.**
TOTAL					**1,736**	**7,249**	**5,211**		

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206624M
PROGRAM ELEMENT TITLE: Marine Corps Combat Service Support

	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	1,042	5,061	1,609	CONT.	CONT.
Subtotal Support and Management	80	1,988	1,290	CONT.	CONT.
Subtotal Test and Evaluation	614	200	2,312	CONT.	CONT.
Total Project	1,736	7,249	5,211	CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable.

FY1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEETDATE: March 1996

BUDGET ACTIVITY: 7 | PROGRAM ELEMENT: 0207161N | PROGRAM ELEMENT TITLE: TACTICAL AIR INTERCEPT | PROJECT NUMBER: E0457 | PROJECT TITLE: AIM-9X

(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
E0457 AIM-9X	0*	28,787	58,415	63,348	82,916	61,060	27,361	10,350	332,237

* FY 1995 funding executed under OSD consolidated P.E. 0603715D.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The AIM-9 Sidewinder program is a joint USN/USAF effort to continue the evolutionary development of the AIM-9 missile. The AIM-9X is a long term evolution of the AIM-9 that will provide a series of modifications to the AIM-9 including seeker/guidance and kinematics that will be fielded in post-2000 timeframe. Funding for AIM-9X activities beyond FY 1994 will be provided equally in the aggregate by the USN and USAF.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for modifying existing, operational systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS: (Funded under P.E. 0603715D. Actual authorization was $49.3M (USN $22.4M and USAF $26.9M)).

   - (U) ($28,400) Initiated all-up-round (AUR) design studies for engineering and manufacturing development (EMD), awarded two DEMVAL contracts to Hughes and Raytheon, to conduct systems requirements review (SRR).Conducted MS IV/I review for approval.
   - (U) ($ 1,372) Provided aircraft interface information to DEMVAL contractors.
   - (U) ($13,263) Engineering support (NAWC China Lake and other agencies) validating DEMVAL contractors' efforts, prepare for EMD RFP release, and began government DT-I.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0207161N PROJECT NUMBER: E0457
PROGRAM ELEMENT TITLE: TACTICAL AIR INTERCEPT PROJECT TITLE: AIM-9X

- (U) ($ 1,300) Continued development of BOXOFFICE airframe.
- (U) ($ 2,379) Headquarters/field travel and BOXOFFICE airframe efforts.
- (U) ($ 2,606) Consulting services support.

2. (U) FY 1996 PLAN: (Navy Share Only)

- (U) ($20,557) Continue AUR design studies and conduct Systems Design Review (SDR).
- (U) ($ 2,370) Provide aircraft interface information to DEMVAL contractors.
- (U) ($ 3,413) Continue engineering support validating DEMVAL contractors' efforts, support EMD source selection, and release EMD RFP.
- (U) ($ 906) Headquarters/field travel in support of EMD source selection.
- (U) ($ 890) Consulting services support.
- (U) ($ 651) Portion of program reserved for Small Busines 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

UDGET ACTIVITY: 7

PROGRAM ELEMENT: 0207161N
PROGRAM ELEMENT TITLE: TACTICAL AIR INTERCEPT

PROJECT NUMBER: E0457
PROJECT TITLE: AIM-9X

3. (U) FY 1997 PLAN: (Navy Share Only)

- (U) ($38,887) Obtain MS-II approval, award EMD contract, fly captive seeker hardware, and conduct Preliminary Design Review (PDR).
- (U) ($ 4,550) Provide aircraft interface information to EMD contractor.
- (U) ($12,711) Monitor EMD contract and begin government DT-IIA.
- (U) ($ 1,194) Headquarters/field travel.
- (U) ($ 1,073) Consulting services support.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0207161N
PROGRAM ELEMENT TITLE: TACTICAL AIR INTERCEPT

PROJECT NUMBER: E0457
PROJECT TITLE: AIM-9X

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	0	29,721	60,304
(U) Adjustments from PRESBUDG:	0	-934	-1,889
(U) FY 1997 President's Budget Submit:	0	28,787	58,415

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The net decrease in FY 1996 reflects Congressional undistributed general and inflation reductions ($-585 thousand); and revised inflation rates and other minor pricing adjustments ($-349 thousand). FY 1997 net adjustments reflect Major Range and Test Facility Bases ($-130 thousand); and revised inflation estimates and other pricing adjustments ($-1,759 thousand).

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

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

(U) RELATED RDT&E:

(U) RDT&E,DA PE 0603715D (AIM-9 CONSOLIDATED PROGRAM)

(U) RDT&E,AF PE 0207161F (TACTICAL AIM MISSILE)

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

UDGET ACTIVITY: 7

PROGRAM ELEMENT: 0207161N
PROGRAM ELEMENT TITLE: TACTICAL AIR INTERCEPT

PROJECT NUMBER: E0457
PROJECT TITLE: AIM-9X

). (U) SCHEDULE PROFILE:

		FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones		1Q MS-IV/I		1Q MS-II	4Q/01 LRIP
Engineering Milestones		3Q SRR	2Q SDR	4Q PDR	3Q/98 CDR 2Q/00 TRR for TECHEVAL
T&E Milestones		2Q Begin DT-I		2Q Begin DT-IIA 2Q Fly captive seeker hardware	4Q/98 DT-IIB 3Q/99 DT-IIC 2Q/00 DT-IID 1Q/00 OT-IIA 2Q/01 OT-IIB
Contract Milestones	1Q Award	1Q Release DEMVAL contracts	2Q Award EMD RFP	4Q/01 Award EMD contract	LRIP Contract

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

DATE: March 1996

UDGET ACTIVITY: 7 PROGRAM ELEMENT: 0207161N PROJECT NUMBER: E0457
PROGRAM ELEMENT TITLE: TACTICAL AIR INTERCEPT PROJECT TITLE: AIM-9X

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Primary Hardware Development	N/A	20,557	38,887
b. Government Engineering Support	N/A	3,199	10,206
c. Contractor Engineering Support	N/A	2,370	4,550
d. Miscellaneous	N/A	881	1,838
e. Development Test & Evaluation	N/A	890	2,505
f. Headquarters Travel	N/A	239	429
g. SBIR Assessment	N/A	651	
Total	N/A	28,787	58,415

UNCLASSIFIED

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

DATE: March 1996

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0207161N PROJECT NUMBER: E0457
PROGRAM ELEMENT TITLE: TACTICAL AIR INTERCEPT PROJECT TITLE: AIM-9X

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

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Method/ Fund Type	Award/Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1995* & Prior	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program	
Product Development										
Hughes										
Tucson AZ	C/CPIF	DEC 94		13,779	13,779	0	10,279	3,500	0	13,779
Raytheon										
Bedford MAC/CPIF		DEC 94		13,778	13,778	0	10,278	3,500	0	13,778
Contractor(EMD)	C/CPIF	JAN 97		TBD	195,688	0	0	31,887	163,801	195,688
McDonnell-Douglas										
St Louis MO	C/CPFF	JAN 95		28,502	28,502	0	2,370	4,550	21,582	28,502
NAWC CL	WR	OCT 96		69,589	69,589	0	3,413	12,711	53,465	69,589
MISC I/H (Efforts < $1.0M)										
	VARIOUS	VARIOUS		6,615	6,615	0	906	1,244	4,465	6,615
Support and Management										
Various Contracts	TBD	OCT 96		TBD	3,635	0	890	1,023	1,722	3,635

Test and Evaluation (Included in Product Development.)

* Funded under P.E. 0603715D.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0207161N PROJECT NUMBER: E0457
PROGRAM ELEMENT TITLE: TACTICAL AIR INTERCEPT PROJECT TITLE: AIM-9X

GOVERNMENT FURNISHED PROPERTY (Not applicable.)	Total FY 1995* & Prior	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	N/A	27,246	57,392	243,313	327,951
Subtotal Support and Management	N/A	890	1,023	1,722	3,635
Subtotal Test and Evaluation	N/A	0	0	0	0
SBIR Assessment	N/A	651			651
Total Project Funded under P.E. 0603715D.	N/A	28,787	58,415	245,035	332,237

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0207163N
PROGRAM ELEMENT TITLE: AMRAAM

(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
E0981 AMRAAM	15,703	4,330	2,274	5,836	4,776	4,632	4,424	Cont.	Cont.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This joint Navy/Air Force program is structured in response to the Joint Service Operational Requirement and Mission Element Need Statement to develop an air superiority air-to-air missile with significant improvements in operational utility and combat effectiveness. This program supports the integration of the AMRAAM into Navy aircraft with analysis of Navy unique applications, simulation capability development, aircraft missile integration tasks, pre-planned product improvement (P3I) efforts, and procurement of hardware to support Navy test and evaluation tasks.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0207163N
PROGRAM ELEMENT TITLE: AMRAAM

PROJECT NUMBER: E0981
PROJECT TITLE: AMRAAM

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($8,071) Continued Navy technical participation in AMRAAM P3I Phase 1 and 2 program including Physical Configuration Audit (PCA), Functional Configuration Audit (FCA) and Preliminary Design Review (PDR) with emphasis on Navy unique design and test requirements and aircraft integration compatibility. Effort included in-house technical support engineering and test tasks including contract technical support from Johns Hopkins University/Applied Physics Laboratory.

- (U) ($7,632) Initiated propulsion system upgrade to address Navy's top priority for AMRAAM modernization. Program is to qualify, integrate, and flight test an extended length (+5") rocket motor.

2. (U) FY 1996 PLAN:

- (U) ($2,555) Complete P3I Phase I. Continue Navy technical efforts in AMRAAM P3I Phase 2 and 3 program including Critical Design Review (CDR), flight test activities and development, qualification and flight test of the extended length rocket motor. Emphasis on technical requirements including in-house engineering support and flight test activity (live and captive) and Johns Hopkins University/Applied Physics Laboratory efforts in support of Electronic Counter-CounterMeasures (ECCM) P3I tasks. Efforts will ensure that Navy unique shipboard and aircraft integration requirements are met.

- (U) ($1,756) Provide in-house engineering support and aircraft integration efforts.

- (U) ($19) 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: 7

PROGRAM ELEMENT: 0207163N
PROGRAM ELEMENT TITLE: AMRAAM

PROJECT NUMBER: E0981
PROJECT TITLE: AMRAAM

3. (U) FY 1997 PLAN:

- (U) ($2,274) Continue participation in AMRAAM P3I Phase 2 and 3 programs with emphasis on Navy unique requirements and aircraft integration compatibility requirements. Participate in technical planning for post Phase 2 RDT&E activities to support Cost Operational Effectiveness Analysis results. Complete flight testing of the extended length rocket motor.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	15,648	4,491	4,915
(U) Adjustments from PRESBUDG:	+55	-161	-2,641
(U) FY 1997 President's Budget Submit:	15,703	4,330	2,274

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 1995 net adjustment of +$55 thousand reflects minor pricing adjustments. The FY 1996 decrease of -$161 thousand reflects -$110 thousand for Congressional undistributed general and inflation reductions and -$51 thousand for revised inflation rates. The FY 1997 net adjustment of -$2,641 thousand reflects -$1,756 thousand for rephasing of requirements; -$806 thousand for Defense Business Operating Fund adjustments; -$300 thousand for Major Range Test Facility Base adjustments; -$68 thousand for revised inflation rates and +$289 thousand for minor pricing 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: 7 PROGRAM ELEMENT: 0207163N PROGRAM ELEMENT TITLE: AMRAAM PROJECT NUMBER: E0981 PROJECT TITLE: AMRAAM

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

WPN/P1#6	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
Qty	106	115	37	84	82	84	80	1,006	2,436
$	74,102	73,636	36,091	61,450	62,369	63,996	62,294	727,362	1,877,700

(U) RELATED RDT&E:

(U) PE 0207130F, F-15
(U) PE 0205667N, F-14 Upgrade
(U) PE 0207163F, AMRAAM P3I
(U) PE 0207133F, F-16
(U) PE 0604239F, F-22
(U) PE 0204136N, F/A-18 Squadrons
(U) PE 0207134F, F-15E

(U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones			1Q MS IV	
Engineering Milestones	4Q P3I-1/2 FCA/PDR	2Q P3I-2 CDR		
T&E Milestones		1Q P3I-1 FLT TEST	1Q P3I-2 FLT TEST	
Contract Milestones	4Q P3I-STAGE 1 AWARD			

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0207163N
PROGRAM ELEMENT TITLE: AMRAAM
PROJECT NUMBER: E0981
PROJECT TITLE: AMRAAM

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. System Integration	2,880	330	330
b. Pre-Planned Product Improvement	9,047	2,213	966
c. Systems Engineering	3,536	1,493	703
d. Travel	240	275	275
e. SBIR Assessment		19	
Total	15,703	4,330	2,274

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0207163N PROGRAM ELEMENT TITLE: AMRAAM PROJECT NUMBER: E0981 PROJECT TITLE: AMRAAM

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										
JHU/APL Laurel,MD	C/FFP	Jun 95	Cont.	Cont.	0	445	175	225	Cont.	Cont.
ALLIANT TECH	C/FFP	Sep 95	3,549	3,549	0	3,549	0	0	0	3,549
Contract TBD	C/FFP	TBD	4,500	4,500	0	4,500	0	0	0	4,500
NAWC WD Various	WX	Oct 96	Cont.	Cont.	25,510	6,049	3,102	1,511	Cont.	Cont.
Misc	WX	Oct 96	Cont.	Cont.	1,739	420	314	133	Cont.	Cont.
Support and Management										
Misc	WX/TO	Oct 96	Cont.	Cont.	6,378	740	720	405	Cont.	Cont.
Test and Evaluation										
NAWC WD Pt Mugu,CA	WX	TBD	Cont.	Cont.	12,755	0	0	0	Cont.	Cont.

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

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0207163N
PROGRAM ELEMENT TITLE: AMRAAM

PROJECT NUMBER: E0981
PROJECT TITLE: AMRAAM

GOVERNMENT FURNISHED PROPERTY: NOT APPLICABLE

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									

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	27,249	14,963	3,591	1,869	Cont.	Cont.
Subtotal Support and Management	6,378	740	720	405	Cont.	Cont.
Subtotal Test and Evaluation	12,755	0	0	0	Cont.	Cont.
SBIR Assessment			19			19
Total Project	46,382	15,703	4,330	2,274	Cont.	Cont.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303109N
PROGRAM ELEMENT TITLE: Satellite Communications

(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
X1880 Joint Terminal Project Office	2,888	2,921	3,060	3,106	4,642	4,758	4,895	CONT.	CONT.
X0728 EHF SATCOM Terminals	19,750	13,877	15,184	23,627	25,522	24,264	22,286	CONT.	CONT.
X0731 Fleet Satellite Communications	20,665	19,543	20,013	13,783	4,797	4,610	2,335	CONT.	CONT.
TOTAL	43,303	36,341	38,257	40,516	34,961	33,632	29,516	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program supports development of shipboard and shore based equipment operating through six communication satellite systems: Fleet Satellite (FLTSAT) Communications, Leased Satellite (LEASAT) Communications, Defense Satellite Communications System (DSCS), Ultra High Frequency Follow-On Program (UFO), NATO Allied, and Air Force Satellite Communications (AFSATCOM). The Navy Extremely High Frequency (EHF) Satellite Communications (SATCOM) Program (NESP) provides for the development and production of terminals to provide anti-jam, low probability of intercept communications capability for Command and Control of the fleet. NESP operates with FLTSAT EHF packages and UFO EHF Satellite packages and is the Navy's portion of Milstar. The Milstar program is comprised of satellites, control stations, and aircraft, ship, and ground terminals to provide assured worldwide, secure, anti-jam, survivable communications for the National Command Authority, CINCs, and operational commanders. The Joint Terminal Project Office (JTPO) chartered by tri-service Memorandum of Understanding (MOU) coordinates and directs cross-service interoperability engineering in the individual Service development of EHF satellite terminals; oversees cross-service logistics and infrastructure supportability planning and execution; provides technical support to the Joint Chiefs and Service Staffs, CINCS, and operational commanders; and coordinates MILSATCOM terminal technology transfer among the Services and agencies.

FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303109N
PROGRAM ELEMENT TITLE: Satellite Communications

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303109N PROGRAM ELEMENT TITLE: Satellite Communications PROJECT NUMBER: X1880 PROJECT TITLE: Joint Terminal Project Office

(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
X1880 Joint Terminal Project Office	2,888	2,921	3,060	3,106	4,642	4,758	4,895	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Milstar program is comprised of satellites, control stations, and aircraft, ship, and ground terminals to provide assured worldwide, secure, anti-jam, survivable communications for the National Command Authority, CINCs, and operational commanders. The Joint Terminal Program Office (JTPO) chartered by tri-service Memorandum of Understanding (MOU) coordinates individual Service development of MILSATCOM terminals in four areas: (1) cross service terminal interoperability engineering; (2) joint integrated logistics and C3 infrastructure support planning; (3) technical support to the Office of the Secretary of Defense (OSD), the Office of Joint Chiefs of Staff (OJCS), the Commanders in Chief (CINCs), and users and developers; and (4) identification, application and transfer of advanced technology into MILSATCOM terminals. The first Milstar satellite was placed into orbit in February 1994; the second satellite (of six) in November 1995.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS: The JTPO coordinates and directs the development of Milstar and MILSATCOM terminals in four areas.

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($1,713) Resolved interoperability issues, identified and tested new user interface devices to ensure MILSATCOM interoperability, planned joint interoperability testing for cross-linked satellites, and evaluated and recommended interoperability certification of Milstar terminals to support acquisition and production decisions.
- (U) ($ 280) Coordinated the cross-service training of Milstar terminal operators and identified opportunities for logistics and infrastructure cost savings.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303109N PROJECT NUMBER: X1880
PROGRAM ELEMENT TITLE: Satellite Communications PROJECT TITLE: Joint Terminal Project Office

- (U) ($ 795) Supported AFSPC, the OJCS, the CINCs, and users in early network planning and operation; coordinated resolution of system technical problems and issues, refined Milstar I communications management system, and supported engineering of Milstar II communications management system.

- (U) ($ 100) Facilitated and exploited opportunities for technology transfer, identified emerging technologies, maintained technology database and recommended appropriate insertion points for technology transfer, and the application of COTS/NDI/GOTS in future equipment acquisitions.

2. (U) FY 1996 PLAN:

- (U) ($1,492) Resolve emergent interoperability issues as additional user devices and equipment are identified for use with Service EHF terminals, identify and test user devices to ensure interoperability through MILSATCOM systems, provide leadership and coordination between Service terminal developers and the Joint Interoperability Test Command (JITC) in executing CJCS interoperability certification policy; plan for and conduct joint interoperability testing with crosslinked satellites on-orbit, and evaluate and recommend interoperability certification of terminals to support acquisition and/or production decisions.

- (U) ($ 422) Lead inter-service EHF SATCOM terminal installation planning, maintain the EHF SATCOM terminal Joint Training Plan and Joint ILSP, and identify and resolve joint logistic and infrastructure support issues within MILSATCOM terminal segments.

- (U) ($ 519) Support AFSPC, the OJCS, the CINCs, and users in technical network planning, and assist in resolution of system technical issues. Support engineering of Milstar communications management systems.

- (U) ($ 430) Maximize opportunities for MILSATCOM terminal technology transfer by identifying emerging technologies, maintaining MILSATCOM technology database, and recommending appropriate technology insertion points for using NDI/COTS. Participate in design of follow-on advanced EHF system, providing appropriate terminal segment systems engineering to ensure user-to-user interoperability and use of emerging terminal technologies.

- (U) ($ 58) 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: 7 PROGRAM ELEMENT: 0303109N PROJECT NUMBER: X1880
PROGRAM ELEMENT TITLE: Satellite Communications PROJECT TITLE: Joint Terminal Project Office

3. (U) FY 1997 PLAN:

- (U) ($1,650) Conduct interoperability engineering for additional user interface devices and equipment identified for use with Service MILSATCOM terminals, identify and test user devices to ensure interoperability through MILSATCOM systems, provide leadership and coordination between Service terminal developers and the Joint Interoperability Test Command (JITC) in executing CJCS interoperability certification policy, plan for and conduct joint interoperability testing in conjunction with pre-launch testing of Milstar II payloads, and evaluate interoperability and terminal segment specification compliance of MILSATCOM terminals prior to acquisition and/or production decisions.

- (U) ($ 455) Coordinate cross-service EHF terminal installation planning, maintain Joint Training Plan and Joint ILSP for Low Data Rate (LDR) and Medium Data Rate (MDR) EHF terminals, participate in logistics and infrastructure integrated product teams for emerging multiband MILSATCOM terminals, and identify and resolve joint logistics and infrastructure support issues for MILSATCOM terminals.

- (U) ($ 463) Support AFSPC, the OJCS, the CINCs, and users in technical network planning and assist in refining system technical appllications and expanding operational use of Milstar.

- (U) ($ 492) Finalize advanced EHF system documentation, with focus on user-to-user interoperability system engineering in the terminal segments. Maximize opportunities for MILSATCOM terminal technology transfer by identifying emerging technologies, maintaining MILSATCOM technology database and recommending appropriate technology insertion points for NDI/COTS. Participate in international efforts to achieve user-to-user interoperability standardization in MILSATCOM.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303109N PROJECT NUMBER: X1880
PROGRAM ELEMENT TITLE: Satellite Communications PROJECT TITLE: Joint Terminal Project Office

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	2,888	3,018	3,173
(U) Adjustments PRESBUDG:		-97	-113
(U) FY 1997 Presidents Budget:	2,888	2,933	3,060

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1996: Congressional undistributed general and inflation reductions(-$62K); and revised DoD inflation rates and other minor pricing adjustments (-$35K).

FY 1997: Revised inflation estimates and other minor pricing adjustments (-$113K).

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

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

D. (U) SCHEDULE PROFILE: Not applicable.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303109N PROJECT NUMBER: X0728
PROGRAM ELEMENT TITLE: Satellite Communications PROJECT TITLE: EHF SATCOM Terminals

(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
X0728 EHF SATCOM Terminals	19,750	13,877	15,184	23,627	25,522	24,264	22,286	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Navy Extremely High Frequency (EHF) Satellite Communications (SATCOM) Program provides for the development and production of terminals to provide anti-jam, low probability of intercept communications capability for Command and Control of the fleet. The terminals will provide physical and electromagnetically survivable, worldwide communications in the current and projected electromagnetic and nuclear threat. Navy EHF terminals are interoperable with Army and Air Force terminals and will operate with Milstar as well as EHF packages on-board Ultra High Frequency (UHF) Follow-On (UFO) Satellites 4 through 10 and FLTSATCOM Satellites 7 and 8. Navy terminals operated during Desert Storm with EHF packages on-board Fleet Satellite 8 and supported fleet operations in Haiti. The increased capability provided by EHF terminals is accomplished by use of the wider bandwidths available at extremely high frequencies, narrow antenna beamwidths, spread spectrum techniques, on-board satellite processing, and advanced signal processing technology.

(U) The Navy EHF Communications Controller (NECC) provides automated, netted tactical data Information Exchange Subsystems (IXS) over jam resistant EHF satellite links. The NECC will provide for load and channel sharing, resource management, communications management and planning, network control and monitoring and services including networking, circuit switching, packet switching, and backward compatibility to UHF SATCOM.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($12,081) Continued P^3I Developments, including commencing development of a Medium Data Rate (MDR) upgrade to NESP terminals to allow operations with Milstar Satellites DFS 3M and beyond as well as with Army and Air Force MDR terminals.

- (U) ($ 3,584) Completed NECC Build I/II development.
- (U) ($ 3,219) Continued Milstar terminal P^{3}I and MDR development engineering analysis and management.
- (U) ($ 866) Conducted and supported terminal testing including:
  - (U) Completed Developmental Testing (DT) for NECC Build I and II
  - (U) Completed DT/OT for initial terminal P3I upgrades.

2. (U) FY 1996 PLAN:

- (U) ($ 7,552) Begin integration of MDR EDMs and continue software development. Begin prototype testing MDR Units with the Milstar MDR satellite simulator on-ground (MST-3500).
- (U) ($ 2,792) Correct deficiencies identified during NECC development testing and early operations on the George Washington Battlegroup. Conduct NECC OT. Develop additional functionality.
- (U) ($ 3,303) Continue Milstar terminal P^{3}I and MDR development engineering analysis and management.
- (U) ($ 230) 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) ($ 9,974) Continue MDR development, conduct development testing with the Navy MDR terminal, Army MDR terminals and the Milstar MDR satellite design verification model (MST 4000). Commence ILS development for MDR.
- (U) ($ 2,000) Commence development of MDR mods to NECC.
- (U) ($ 3,210) Continue Milstar terminal P^{3}I and MDR development engineering analysis and management.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303109N PROJECT NUMBER: X0728
PROGRAM ELEMENT TITLE: Satellite Communications PROJECT TITLE: EHF SATCOM Terminals

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	19,850	14,422	17,979
(U) Adjustments from PRESBUDG:	-100	-545	-2,795
(U) FY 1997 President's Budget Submit:	19,750	13,934	15,184

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995 was reduced $100K to cover fact of life adjustments in other Navy programs.

FY 1996: Congressional undistributed general and inflation reductions(-$360K); and revised DoD inflation rates and other minor pricing adjustments (-$185K).

FY 1997: Revised inflation estimates and other minor pricing adjustments (-$2,795K).

(U) Schedule: The FY97 adjustment of -$2,795K will delay Milstar system software upgrades until FY98 and FY99.

(U) Technical: Not applicable.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303109N PROJECT NUMBER: X0728
PROGRAM ELEMENT TITLE: Satellite Communications PROJECT TITLE: EHF SATCOM Terminals

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 SHIP* 3321000	47,414	43,222	57,004	43,460	83,453	49,389	53,613	CONT.	CONT.
OPN Shore* 3322000	6,144	8,185	20,989	2,523	15,761	38,495	19,255	CONT.	CONT.

*Includes EHF terminal installation costs.

(U) Related RDT&E:
(U) PE 0303603F, Milstar
(U) PE 0303601F, Air Force Satellite Communications
(U) PE 0303142A, Army Extremely High Frequency Communications Terminal

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones				CONT.
Engineering Milestones	MDR DVLP 10/94		Deliver MDR EDMs 5/97 Commence NECC MDR development 7/97	CONT.
T&E Milestones	P^3I DT&E 10/94 NECC DT 8/95	MDR MST3500 6/96 NECC OT 6/96	MDR MST4000 3/97	CONT.
Contract Milestones				CONT.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303109N PROJECT NUMBER: X0728
PROGRAM ELEMENT TITLE: Satellite Communications PROJECT TITLE: EHF SATCOM Terminals

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Project Management	548	388	490
b. Systems Engineering	3,299	2,302	2,492
c. Prime Mission Equipment	12,859	9,017	9,780
e. System Test & Evaluation	1,421	950	1,000
f. Integrated Logistics Support	761	575	702
g. Site/Platform Integration	862	645	720
Total	19,750	13,877	15,184

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303109N PROJECT NUMBER: X0728
PROGRAM ELEMENT TITLE: Satellite Communications PROJECT TITLE: EHF SATCOM Terminals

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	SS/CPFF	1/94	53,943	53,943	N/A	8,313	7,346	7,678	CONT.	CONT.
F/O EHF Studies/Upgrades										
NRaD	WR	10/93	N/A	N/A	N/A	3,866	1,772	2,418	CONT.	CONT.
Other	Var	Var	Var	Var	N/A	2,289	624	829	CONT.	CONT.
Support and Management										
NRaD	WR	10/93	N/A	N/A	N/A	1,552	1,228	1,452	CONT.	CONT.
NUWC	WR	10/93	N/A	N/A	N/A	1,350	1,250	1,149	CONT.	CONT.
Other	Var	Var	Var	Var	N/A	1,056	814	957	CONT.	CONT.
Test and Evaluation										
Other	Var	Var	Var	Var	N/A	1,267	843	701	CONT.	CONT.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303109N PROGRAM ELEMENT TITLE: Satellite Communications PROJECT NUMBER: X0728 PROJECT TITLE: EHF SATCOM Terminals

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	NONE								
Support and Management	NONE								
Test and Evaluation	NONE								
Subtotal Product Development				N/A	14,525	9,742	10,925	CONT.	CONT.
Subtotal Support and Management				N/A	3,958	3,292	3,558	CONT.	CONT.
Subtotal Test and Evaluation				N/A	1,267	843	701	CONT.	CONT.
Total Project				N/A	19,750	13,934	15,184	CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303109N PROJECT NUMBER: X0731
PROGRAM ELEMENT TITLE: Satellite Communications PROJECT TITLE: Fleet SATCOM

(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
X0731 Fleet SATCOM	20,665	19,543	20,013	13,783	4,797	4,610	2,335	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Fleet Satellite Communications is the principle carrier of Naval communications for Fleet operations worldwide. The project supports development of shipboard and shore based equipment operating through six communication satellite systems: Fleet Satellite (FLTSAT) Communications, Leased Satellite (LEASAT) Communications, Defense Satellite Communication System (DSCS), Ultra High Frequency (UHF) Follow-On Program (UFO), NATO Allied, and Air Force Satellite Communications (AFSATCOM). The principal mission is to provide global, continuous, secure communications between U.S. and Allied Forces via UHF and DSCS satellites and to provide secure anti-jam communications between joint command centers and Fleet commanders using DSCS satellites and Extremely High Frequency (EHF) capable satellites. A secondary mission is to provide rapid transfer of administrative and logistics messages over commercial and military satellites.

(U) Specifically, the efforts of this program develop UHF and Super High Frequency (SHF) communications, network controllers, time division multiplexers, and tactical applications. The FLTSAT Communications System provides Fleet broadcast service to all Navy Ships, Over-the-Horizon Targeting data for TOMAHAWK and Flag configured ships, submarine communications intelligence data, and various other battle group and joint task force communications services.

(U) The Miniature Demand Assigned Multiple Access (Mini-DAMA (M-D) AN/USC-42(V)) system will provide a similar satellite channel utilization efficiency for aircraft and submarines that are now enjoyed by surface ship and shore stations equipped with the larger TD-1271 DAMA Multiplexer and AN/WSC-3. M-D, however, provides greater capacity (8 half duplex networks) vice 4 provided by TD-1271s. M-D will also embed many encryption and data transfer functions which currently require separate equipment. M-D is being developed in two variants: the (V)1 is the submarine ship/shore application and the (V)3 is the airborne version.

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(U) Closely aligned with the fielding of M-D is the transition of DAMA operations from the Distributed Control (DC) mode to the Automatic Control (AC) mode. Originally identified as "Auto-DAMA," the control system for the AC mode will provide for dynamic assignment of DAMA slots and will result in an estimated four-fold increase in satellite channel utilization efficiency. Auto-DAMA has become a joint program (within the Mini-DAMA funding line) referred to as the Joint (UHF) MILSATCOM Network Integrated (JMINI) controller. The Semi-Automatic Control (SAC) program is a stepping stone in this process and will provide an estimated two-fold increase; SAC controllers will be installed during FY 95 with cutover to AC mode in FY 96. JMINI controller is targeted for fielding in FY 00.

(U) The Tactical Intelligence Information Exchange Subsystem Phase II+ (TACINTEL II+) implements the Integrated Special Intelligence Communications portion of the Copernicus architecture to provide services for transfer of Special Intelligence (SI) information between ships, aircraft, and shore activities in support of joint and combined operations. TACINTEL II+ will support real time indications and warning support to joint and component commanders through reliable high speed transfer of sensor data and intelligence information. Enhanced interoperability with other services, agencies, and allies will permit a level of integration of SI operations not achievable with current systems.

(U) The SHF terminals operate within the DSCS. SHF provides high capacity communications for principle Navy ship types and provides Navy connectivity to Allied and Joint Force Command Networks via the DSCS. The Universal Modem is a joint U.S./U.K. development to provide U.S. force and Allied interoperability for command and control networks.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($3,437) Continued development of Mini-DAMA SECVOX/KG84.
- (U) ($ 687) Obtained Mini-DAMA (V)1 and (V)3 production decision approval (Program Review).
- (U) ($4,161) Performed Development Engineering Analysis and Management for Mini-DAMA.
- (U) ($1,863) Commenced Design and Development of JMINI.
- (U) ($2,518) Conducted Functional Configuration Audit (FCA) for TACINTEL II+ Build 1.

- (U) ($2,323) Commenced Physical Configuration Audit (PCA) for TACINTEL II+ Build 1.
- (U) ($1,389) Performed TACINTEL II+ Build 1 TECHEVAL (DT).
- (U) ($2,020) Conducted TACINTEL II+ Build 1 Preliminary Design Review (PDR) and Critical Design Review (CDR).
- (U) ($1,355) Began development of INTELNET (Build 2), and Multiple User Special Intelligence Communications (Build 3) (MUSIC) II, and INTELDATA (Build 4).
- (U) ($ 912) Continued SHF demonstration.

2. (U) FY 1996 PLAN:

- (U) ($1,068) Integrate, test, and deliver Mini-DAMA (V)1 systems for DT/OT II for subsequent production options.
- (U) ($2,142) Conduct Mini-DAMA (V)1 testing (DT/OT II).
- (U) ($7,482) Continue development of an JMINI Controller Capability.
- (U) ($ 757) Obtain Mini-DAMA approval for subsequent production options.
- (U) ($2,593) Conduct FCA/PCA for TACINTEL II+ Software Builds 2-4.
- (U) ($ 942) Conduct TACINTEL II+ Build 1 OPEVAL .
- (U) ($3,564) Continue software development and test & evaluation of INTELNET & MUSIC II, and commence software development and test & evaluation of INTELDATA and SSA IV&V.
- (U) ($ 645) Commence development of SHF SATCOM Architecture for MILSATCOM, COPERNICUS, and CSS.

- (U) ($ 350) 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) ($ 2,285) Complete testing of Mini-DAMA (V)3 (DT/OT II) systems.
- (U) ($11,871) Continue development of JMINI (Auto-DAMA) Controller and conduct DT/OT II.
- (U) ($ 1,562) Commence development of JMINI backup systems.
- (U) ($ 1,460) Commence software development and test & evaluation of INTELCAST.
- (U) ($ 1,339) Complete SSA IV&V for INTELDATA and software development and test & evaluation for INTELNET.
- (U) ($ 878) Complete FCA/PCA for TACINTEL II+ (Builds 2-4).
- (U) ($ 618) Continue development of SHF SATCOM Architecture for MILSATCOM, COPERNICUS, and CSS.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/1997 President's Budget:	20,607	21,032	16,779
(U) Adjustments from PRESBUDG:	+58	-1,489	+3,234
(U) FY 1997 President's Budget Submit:	20,665	19,624	20,013

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995 was increased $58K: Adjustments included +$97K reprogrammed to cover fact of life adjustments, and -$39K for Navy reprogramming to cover the Major Range Test Facility Base shortfall.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303109N PROJECT NUMBER: X0731
PROGRAM ELEMENT TITLE: Satellite Communications PROJECT TITLE: Fleet SATCOM

FY 1996: Congressional undistributed general and inflation reductions(-$423K); and revised DoD inflation rates and other minor pricing adjustments (-$1,066K).

FY 1997: Revised inflation estimates and other minor pricing adjustments (-$3,234K).

(U) Schedule: The program increase in FY 1997 funding ($1,700) will accelerate the JMINI program.

(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 SHIP* 3321000	61,971	47,151	58,775	43,040	115,663	96,735	97,945	CONT.	CONT.
OPN SHORE* 3322000	2,715	3,596	3,664	37,148	57,375	14,164	5,983	CONT.	CONT.

*Includes terminal installation costs.

(U) RELATED RDT&E:

(U) PE 0303142A, Satellite Communications Ground Environment
(U) PE 0204163N, Communications Automation
(U) PE NSA 0301055, Project Embroidery

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303109N PROJECT NUMBER: X0731
PROGRAM ELEMENT TITLE: Satellite Communications PROJECT TITLE: Fleet SATCOM

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones			TAC II+ 1 MS III 12/96 TAC II+ 2-4 MS III 7/97	CONT.
	M-D Prog Rvw 1/95	M-D Prog Rvw 3/96	M-D(V)1 IOC 3/97 M-D(V)3 IOC 3/97 JMINI DT/OTII 9/97	
Engineering Milestones	TAC II+ 1 PDR 12/94 TAC II+ 1 CDR 3/95 TAC II+ 1 FCA/PCA 8/95	TAC II+ 2-4 PCA 10/95		CONT.
T&E Milestones	TAC II+ 1 DT 9/95	TAC II+ 1 OT 3/96 M-D(V)1 DT/OTII 3/96	M-D(V)3 DT/OTII 8/97	CONT.
Contract Milestones	P^{3}I Dev Opt 10/94 Emb. SECVOX	Contract Award JMINI 10/95		CONT.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303109N PROGRAM ELEMENT TITLE: Satellite Communications PROJECT NUMBER: X0731 PROJECT TITLE: Fleet SATCOM

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Project Management	450	335	387
b. Systems Engineering	4,475	5,087	3,395
c. Prime Mission Equipment	7,449	11,053	9,469
d. System Test & Evaluation	5,754	2,003	4,798
e. Integrated Logistics Support	1,709	1,065	1,964
f. Site/Platform Integration	828	0	0
Total	20,665	19,543	20,013

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303109N PROJECT NUMBER: X0731
PROGRAM ELEMENT TITLE: Satellite Communications PROJECT TITLE: Fleet SATCOM

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										
Titan	FPI	07/89	N/A	N/A	N/A	1,252	8,437	7,364	CONT.	CONT.
SRC	FFP	10/94	6,305	6,305	N/A	4,500	1,805	0	CONT.	CONT.
NAVSUP	PD	10/94	N/A	N/A	N/A	1,023	2,189	520	CONT.	CONT.
VJO	WX	10/93	N/A	N/A	N/A	1,107	112	146	CONT.	CONT.
Other	Various	Various				2,378	1,193	2,979	CONT.	CONT.
Support and Management										
CSC	CPFF	Various	N/A	N/A	N/A	1,582	1,817	600	CONT.	CONT.
NAVAIR	PD		N/A	N/A	N/A	1,176	0	0	CONT.	CONT.
Other	Various	Various	N/A	N/A	N/A	2,909	2,622	4,596	CONT.	CONT.
Test and Evaluation										
Other	Various	Various	N/A	N/A	N/A	4,738	1,368	3,808	CONT.	CONT.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303109N PROJECT NUMBER: X0731
PROGRAM ELEMENT TITLE: Satellite Communications PROJECT TITLE: Fleet SATCOM

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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		N/A							
Support and Management		N/A							
Test and Evaluation		N/A							

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	N/A	10,260	13,736	11,009	CONT.	CONT.
Subtotal Support and Management	N/A	5,667	4,439	5,196	CONT.	CONT.
Subtotal Test and Evaluation	N/A	4,738	1,368	3,808	CONT.	CONT.
Total Project	N/A	20,665	19,543	20,013	CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N
PROGRAM ELEMENT TITLE: Information Systems Security Program
PROJECT NUMBER: X0734
PROJECT NAME: Information Systems Security (INFOSEC)

(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
X0734	Information Systems Security (formerly Communications Security R&D)								
	18,065	24,036	26,936	20,848	25,146	24,883	25,192	CONT.	CONT.
TOTAL	18,065	24,036	26,936	20,848	25,146	24,883	25,192	CONT.	CONT.

Note 1: The Communications Security R&D (COMSEC) and Computer Security (COMPUSEC) Projects were combined into one project, Information Systems Security (X0734), starting in FY95.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The goal of the Navy Information Systems Security (INFOSEC) Program is to ensure the continued protection of Navy and Joint communications and computing systems from hostile exploitation. With the advent of the information age, the network environment, and the proliferation of distributed systems, the Navy is making profound changes in the way it has traditionally approached communications and computer security. The current operating environment has virtually eliminated the traditional distinction between telecommunications and information systems. Contributing factors to the new systems-oriented approach to security are: the development of more complex systems; the networking of systems; and rapid technological advances. The RDT&E program accomplishes this systems-oriented approach by: developing a technical strategy and framework to guide and integrate Navy efforts with DOD and NSA efforts; evaluating and tailoring standards, processes, and tools for Navy application; assessing available technology and products; developing missing technology and integrating the available technology with the newly developed technology into prototype products and systems; providing INFOSEC expertise and engineering/certification support to Department of the Navy (DON) development programs; developing standard INFOSEC products and systems to meet DON and, by agreement, Joint requirements. Because INFOSEC is a cradle-to-grave discipline, this program develops the technology and methodology to protect the confidentiality, integrity, and availability of systems in development, production and operation. It also develops the

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PROJECT TITLE: Information Systems Security (INFOSEC)

infra-structure needed to support and evaluate the security of deployed systems. These objectives are pursued for equipments/systems focusing on cryptographic technology and its use and impact on secure systems. Another focus is on providing security for tactical and non-tactical computer-based systems with emphasis on multilevel security and the use and impact of trusted computer technology (both hardware and software) on the security of systems.

The COMSEC and COMPUSEC Projects were funded separately through FY-94. With today's proliferation of information processing networks, and the need to take a systems view of these network security requirements, the COMSEC and COMPUSEC projects are combined under the Information Systems Security Project starting in FY95.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N PROGRAM ELEMENT TITLE: Information Systems Security Program PROJECT NUMBER: X0734 PROJECT TITLE: Information Systems Security (INFOSEC)

(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	PROGRAM
X0734 Information Systems Security (formerly Communications Security R&D)	18,065	24,036	26,936	20,848	25,146	24,883	25,192	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The INFOSEC project analyzes existing COMSEC/COMPUSEC equipments and develops improved, interoperable communications security equipment and methods to protect classified communications from exploitation. The project is a continuing effort to modernize obsolete cryptographic equipment and ancillaries with state-of-the-art replacements in order to meet the evolving threat. Replacement COMSEC, in most cases, will be implemented using embedded modules (using National Security Agency (NSA) approved crypto engines). The technical strategy and framework efforts are focused on the use of COMSEC technology to counter a wide variety of INFOSEC threats in a Navy environment. Processes and tools are being developed and tested to design and evaluate the security of systems that integrate COMSEC products. Technology base efforts are: developing new secure voice prototypes; developing technology for a new family of programmable COMSEC modules (Programmable Embeddable INFOSEC Product (PEIP)); and assessing a variety of potentially high pay-off NSA and industry products. The resulting expertise is applied to a wide variety of Navy development programs that must integrate COMSEC technology. The expertise is also applied to the development of Navy INFOSEC products and systems. Under the Navy Key Distribution System (NKDS) program, the Navy COMSEC program will revolutionize the Navy's COMSEC Material Control System. The overall objectives of NKDS are to: (1) increase security for all on-line and off-line crypto systems and (2) eliminate most of the manual custodian workload. The NKDS program provides for the electronic distribution of cryptographic keying material and includes the development of the NKDS and supporting efforts for benign key fill with the eventual goal of end-to-end encrypted key to eliminate the Walker-Whitworth type insider threat. The NKDS Program will satisfy the Joint Key Management System (JKMS) requirements. Another specific product under development is the Embeddable INFOSEC Product (EIP), designed to meet the COMSEC requirements for several Navy programs implementing the Copernicus architecture. Starting in FY95, this project also included those efforts previously funded under X0911 (Computer Security) for a total Information Systems Security approach. These efforts are focused on the integration of computer processes into DON systems and their impact on systems security. The objectives are similar to those described above for

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COMSEC and equally applicable to secure computer technology (i.e., threat assessment, development of missing technology (i.e., Multilevel Security (MLS) and certification methods), development of standards, processes and tools, etc).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($1,112) Refined INFOSEC Universe Description Report (IUDR) and INFOSEC Master Plan to reflect latest operational requirements, new technology and threat information. Evaluated overall DON INFOSEC risks against programs. Refined technical strategy. Continued to tailor INFOSEC threat information relevant to Navy systems.

- (U) ($691) Investigated DOD and industry sources for new (secure voice and data) INFOSEC products. Developed procurement information to support acquisition.

- (U) ($299) Refined INFOSEC engineering templates using lessons learned from their application. Evaluated success of certification and risk assessment tools. Published lessons learned and guides.

- (U) ($2,037) Continued to support secure voice and biometric access consortiums. Evaluated latest NSA and industry COMSEC technology for application to DON systems. Developed and demonstrated prototype INFOSEC products in both laboratory and operational environments. Analyzed optical technology in TEMPEST role.

- (U) ($4,517) Provided systems security engineering, certification, and accreditation support to Navy information system programs including: Multifunctional Information Distribution System (MIDS), Miniature Demand Assigned Multiple Access (Mini-DAMA), Cooperative Engagement Capability (CEC), Navy EHF Communications Controller (NECC), Submarine Low Frequency (LF)/Very Low Frequency (VLF) Versa Module Eurocard (VME) Receiver (SLVR), Next Generation Satellite Terminal (NGST), and SSQ-33 program.

- (U) ($6,564) Continued development and testing of Navy implementation of EKMS, including joint Common Tier I and NKDS Phase II.

- (U) ($2,670) Continued EIP development effort.
- (U) ($175) Began development of the PEIP acquisition package. Investigated joint applications.

2. (U) FY 1996 Plan:

- (U) ($676) Continue development of PEIP specification/prototype. This crypto on a chip will support a number of algorithms for use in tactical systems deployed throughout the Navy, Marine Corps, and Coast Guard.
- (U) ($3,650) Complete development of the EIP.
- (U) ($8,553) Continue development of Electronic Key Management System (EKMS) including Common Tier 1, to provide for Joint interoperability and electronic key distribution and management. Begin investigation of new keying techniques (benign fill).
- (U) ($4,607) Provide systems security engineering, certification, and accreditation support to Navy information systems such as the Defense Message System (DMS) and the Multilevel Information Systems Security Initiative (MISSI). This will include systems security engineering support to Navy tactical and non-tactical systems (such as the Navy Tactical Command System (NTCS)), shipboard local area networks (LANs), and Fleet Commander-in-Chief (CINC)/Type Commander (TYCOM) Command Headquarters systems, that are performing systems engineering required to incorporate DMS and MISSI evolving security technology.
- (U) ($2,906) Develop/test network security solutions for Navy information systems such as MISSI.
- (U) ($112) Refine INFOSEC Master Plans to reflect latest operational requirements, technological opportunities and new threat information. Refine technical strategy.
- (U) ($1,448) Develop integrated security architectures for Naval INFOSEC systems for C4I and non-C4I systems. This will include development of interim, incremental security architectures that display how MISSI,

EKMS, and Secure Terminal Equipment (STE) security technology will be integrated into Navy systems over a period of time, as the technology becomes available. The architecture will include analysis of all technical issues and related concepts of operations associated with the architectures. Develop requirements for mid-term INFOSEC products that may be required. Begin to analyze achieved INFOSEC performance in operational systems.

- (U) ($203) Continue to participate in revising/refining INFOSEC standards to reflect evolving capabilities. Refine INFOSEC engineering guideline documents as directed by the CNO/Marine Corps co-chaired Navy INFOSEC Steering Group, with focus on providing a guideline for Navy designated Approving Authorities. In coordination with NSA, continue refinements to NSA INFOSEC Systems Engineering Automated Tool. In coordination with NSA, develop automated tool to accomplish systems certification and accreditation, using the NSA Certification and Accreditation Handbook for Certifiers as a foundation.

- (U) ($1,533) Continue to support secure voice and biometric access consortia. Continue laboratory assessments of the latest NSA and industry INFOSEC technology and demonstrations of prototype systems. Continue research into new INFOSEC technology.

- (U) ($348) 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) ($2,500) Award Engineering and Manufacturing Development Contract (E&MD) for development of the PEIP.

- (U) ($13,144) Continue development of EKMS. Perform development demonstrations, software design reviews, and development testing. Continue investigation of new keying techniques (benign fill).

- (U) ($6,627) Provide systems security engineering, certification, and accreditation support to Navy information systems such as the DMS and the MISSI. This will include systems security engineering support to

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Navy tactical and non-tactical systems, that are performing systems engineering required to incorporate DMS and MISSI evolving technology. Particular emphasis will be directed to systems engineering associated with implementation of DMS and MISSI technology into tactical systems, to also include systems engineering associated with Top Secret and SCI systems.

- (U) ($1,639) Develop and test network security solutions for Navy information systems such as the MISSI. This will include the high assurance components associated with Top Secret and SCI system solutions.
- (U) ($150) Refine INFOSEC Master Plans to reflect latest operational requirements, technical opportunities and new threat information. Refine technical strategy.
- (U) ($866) Continue development of integrated security architectures for Naval INFOSEC systems, both for C4I systems and non-C4I systems. This will include refinements of interim, incremental security architectures that display how MISSI, EKMS, and STE security technology will be integrated into Navy systems over a period of time, as the technology becomes available. The architectures will include analysis of all technical issues and related concept of operations associated with the architectures. Develop requirements for mid-term INFOSEC products that may be required. Continue to analyze achieved INFOSEC performance in operational systems.
- (U) ($280) Continue to participate in revising/refining INFOSEC standards to reflect evolving capabilities. Refine INFOSEC engineering guideline documents as directed by the CNO/Marine Corps co-chaired Navy INFOSEC Steering Group. In coordination with NSA, continue refinements to Systems Engineering Automated Tools. In coordination with NSA, continue refinements to automated tools to accomplish systems certification and accreditation.
- (U) ($1,730) Continue to support secure voice and biometric access consortia. Continue laboratory assessments of the latest NSA and industry INFOSEC technology and demonstrations of prototype systems. Continue research into new INFOSEC technology.

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DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303140N
PROGRAM ELEMENT TITLE: Information Systems Security Program

PROJECT NUMBER: X0734
PROJECT TITLE: Information Systems Security (INFOSEC)

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/97 President's Budget:	18,514	25,848	29,521
(U) Adjustments from PRESBUDG:	(449)	(1,812)	(2,585)
(U) FY 1997 President's Budget:	18,065	24,036	26,936

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY95 was reduced by $449K: -$404K FY95 to reflect actual execution and -$45K for a Navy reprogramming to cover the Major Range Test Facility Base (MRTFB) shortfall. FY96 was reduced by -$1,812K: -$816K Congressional undistributed general and inflation reductions; and -$996 revised DOD inflation rates and other minor pricing adjustments. FY97 was reduced by $2,585K for revised inflation estimates and other minor pricing adjustments.

(U) Schedule: Incorporation of MISSI requirements into EKMS Common Tier I architecture and development of new keying techniques, including Single Point Keying (SPK), will be delayed approximately one year.

(U) Technical: Not Applicable

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DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303140N
PROGRAM ELEMENT TITLE: Information Systems Security Program

PROJECT NUMBER: X0734
PROJECT TITLE: Information Systems Security (INFOSEC)

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 3410 Secure Voice Systems	12,475	4,075	15,494	16,437	21,143	25,567	27,323	CONT.	CONT.
(U) OPN 3412 Secure Data Systems	10,389	5,828	14,532	20,553	26,122	28,445	28,231	CONT.	CONT.
(U) OPN 3486 Key Management Systems	15,022	12,512	12,580	15,409	19,646	14,450	13,966	CONT.	CONT.
(U) OPN 3493 Items Under 2M	3,017	0	0	0	0	0	0		18,902
(U) O&MN 4A6M	13,405	15,892	16,699	17,055	17,124	17,652	18,415	CONT.	CONT.

(U) RELATED RDT&E:

(U) PE 0303140G (Cryptographic Equipments)

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303140N
PROGRAM ELEMENT TITLE: Information Systems Security Program

PROJECT NUMBER: X0734
PROJECT TITLE: Information Systems Security (INFOSEC)

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
EKMS				
Program Milestones				
Engineering Milestones		1Q-SDR 4Q-PDR	2Q-CDR	3Q/98-IOC
T&E Milestones				1Q-In plant test 2Q-GAT
Contract Milestones	4Q-Contract Award			
EIP				
Program Milestones				
Engineering Milestones	2Q-SSR 2Q-H/W PDR 4Q-H/W CDR 4Q-S/W DES REV			
T&E Milestones	4Q-CONTR TEST	1Q-GOVT TEST 3Q-CONTR TEST	1Q-GOVT TEST	
Contract Milestones		1Q-EMDM DEL		

UNCLASSIFIED

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303140N
PROGRAM ELEMENT TITLE: Information Systems Security Program

PROJECT NUMBER: X0734
PROJECT TITLE: Information Systems Security (INFOSEC)

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Security Science & Technology	2,631	3,742	3,816
b. System Security Engineering	4,924	6,607	6,935
c. Security Guidance & Assessments	1,276	1,484	1,520
d. INFOSEC Products & Subsystems	9,234	12,203	14,665
Total	18,065	24,036	26,936

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										
SAIC	CPAF	VARIOUS	23626	23626	22621	1005	0	0	0	23626
VIASAT	CPFF	9/93	6239	6239	1953	1506	2780	0	0	6239
SAIC	CPAF	9/95	25258	25258	4000	2600	5100	8650	4908	25258

UNCLASSIFIED

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N PROGRAM ELEMENT TITLE: Information Systems Security Program PROJECT NUMBER: X0734 PROJECT TITLE: Information Systems Security (INFOSEC)

PERFORMING ORGANIZATIONS (con't)

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 (con't)										
Various	Various	Various	Various	Various		10,353	13,141	13,834	CONT.	CONT.
Support and Management										
Various	Various	Various	Various	Various		2,601	3,015	4,452	CONT.	CONT.
Test and Evaluation			Not applicable							
Government Furnished Property			Not Applicable							
Subtotal Product Development						15,464	21,021	22,484	Cont.	Cont.
Subtotal Support and Management						2,601	3,015	4,452	Cont.	Cont.
Subtotal Test and Evaluation										
Total Project						18,065	24,036	26,936	Cont.	Cont.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Defense Meteorological Satellite Program

(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
X0524 DMSP - Navy Support	328	784	807	10,832	17,447	19,083	20,553	CONT.	CONT.
X1452 GEOSAT	15,369	16,994	388	377	392	380	378	CONT.	CONT.
TOTAL	15,697	17,778	1,195	11,209	17,839	19,463	20,931	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This Program Element (PE) includes two projects - the DMSP Navy Support project and the Geodetic/Geophysical Satellite (GEOSAT) project. The Defense Meteorological Satellite Program (DMSP) is a Joint Service use program which supports sensor and satellite engineering and technology. The DMSP Navy Support project provides for Navy participation in current DMSP and future Navy unique sensor development efforts in support of the Fleet operational requirements on the converged National Polar-orbiting Operational Environmental Satellite System (NPOESS). These efforts are not funded within the AF PE for DMSP/NPOESS, and are in accordance with current inter-service agreements. The GEOSAT satellite provided ocean topography information from 1985 until it failed in January 1990. In FY 1991, the Navy began the development of a follow-on capability to continue providing this required ocean topography information via the GEOSAT follow-on (GFO) project.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N PROJECT NUMBER: X0524
PROGRAM ELEMENT TITLE: Defense Meteorological Satellite Program PROJECT TITLE: DMSP - NAVY SUPPORT

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
X0524 DMSP - Navy Support	328	784	807	10,832	17,447	19,083	20,553	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The DMSP Navy Support project provides for Navy participation in current DMSP and future Navy unique sensor development efforts in support of the Fleet operational requirements on the converged National Polar-orbiting Operational Environmental Satellite System (NPOESS). These efforts are not funded within the AF PE for DMSP/NPOESS, and are in accordance with current inter-service agreements. The project also acquires the information necessary to keep Navy ground receiving equipment compatible with future satellite data formats and data transfer rates. The project also provides for Navy participation as a voting member of the DMSP Configuration Control Board (CCB).

(U) PROGRAM ACCOMPLISMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($153) Continued participation on the DMSP CCB and monitored proposed technical changes and assessed impacts.
- (U) ($175) Calibration/validation of new sensor.

2. (U) FY 1996 PLAN:

- (U) ($130) Continue participation on the DMSP CCB.
- (U) ($150) Monitor sensor and program developments.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N PROJECT NUMBER: X0524
PROGRAM ELEMENT TITLE: Defense Meteorological Satellite Program PROJECT TITLE: DMSP - NAVY SUPPORT

- (U) ($14) Portion of extramural program reserved for Small Business Innovation Research Assessment in accordance with 15 U.S.C.638.
- (U) ($160) Participate in convergence system studies.
- (U) ($330) Assess Navy-unique sensor requirements and begin systems engineering of recommended sensors.

3. (U) FY 1997 PLAN:

- (U) ($180) Continue systems engineering of Navy-unique sensor requirements.
- (U) ($144) Continue participation on the DMSP CCB.
- (U) ($174) Continue to monitor sensor and program developments.
- (U) ($309) Participate in convergence system studies and systems engineering trade-off evaluations for the overall operational requirements.

B.(U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/97 President's Budget:	154	817	832
(U) Adjustments from PRESBUDG:	+174	-33	-25
(U) FY 1997 President's Budget Submit:	328	784	807

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N PROJECT NUMBER: X0524
PROGRAM ELEMENT TITLE: Defense Meteorological Satellite Program PROJECT TITLE: DMSP - NAVY SUPPORT

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995: Reprogramming increase of $175K allows for calibration and validation of newly launched Special Sensor Microwave Imager (SSMI) and a decrease of $1K is for Major Range Test Facility Base (MRTFB) shortfall. FY 1996: Congressional undistributed general and inflation reductions (-$23K); and revised DOD inflation rates and other minor pricing adjustments (-$10K). FY 1997: Revised inflation estimates and other minor pricing adjustments (-$25K).

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

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

(U) RELATED RDT&E: PE 0305160F, Air Force DMSP - provides AF program management for DMSP
PE 0604218N, Air/Ocean Equipment Engineering - AN/SMQ-11 satellite receiver/recorder system engineering to receive data from DMSP onboard selected ships and shore sites.

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: 7 PROGRAM ELEMENT: 0305160N PROJECT NUMBER: X0524
PROGRAM ELEMENT TITLE: Defense Meteorological Satellite Program PROJECT TITLE: DMSP - NAVY SUPPORT

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Sensor Engineering	175	453	491
b. Contractor Engineering	153	331	316
Total	328	784	807

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		CONT.	CONT.	6,420	328	784	807	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: 7 PROGRAM ELEMENT: 0305160N PROJECT NUMBER: X0524
PROGRAM ELEMENT TITLE: Defense Meteorological Satellite Program PROJECT TITLE: DMSP - NAVY SUPPORT

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									

	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	6,420	328	784	807	CONT.	CONT.
Subtotal Support and Management						
Subtotal Test and Evaluation						
Total Project	6,420	328	784	807	CONT.	CONT.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N PROJECT NUMBER: X1452
PROGRAM ELEMENT TITLE: Defense Meteorological Satellite Program PROJECT TITLE: GEOSAT

(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
X1452 GEOSAT	15,369	16,994	388	377	392	380	378	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project provides a satellite-borne radar altimeter sensor to obtain ocean topography measurements from which tactically significant features such as ocean fronts, eddies, and sea-ice edges are derived. Topography provides a unique and important data source in support of a number of Naval warfare areas such as anti-submarine and undersea warfare, as well as providing other agencies such as NOAA and NASA with valuable inputs to studies involving global warming and climate change. The data was previously provided by GEOSAT from 1985 until that satellite failed in January 1990. The GEOSAT Follow-On (GFO) satellite is intended to provide interim altimetry data until altimetry data becomes available on a future environmental satellite.

(U) PROGRAM ACCOMPLISMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:

- (U) ($11,177) Continued GFO satellite development.
- (U) ($4,042) Completed radar altimeter sensor development.
- (U) ($150) Continued development of launch vehicle interfaces.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N PROJECT NUMBER: X1452
PROGRAM ELEMENT TITLE: Defense Meteorological Satellite Program PROJECT TITLE: GEOSAT

2. (U) FY 1996 PLAN:

- (U) ($381) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C.638.
- (U) ($14,449) Procure launch vehicle and complete launch vehicle interfaces.
- (U) ($2,164) Complete GFO satellite development.

3. (U) FY 1997 PLAN:

- (U) ($388) Fund on-orbit performance incentive.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996/97 President's Budget:	13,370	17,599	399
(U) Adjustments from PRESBUDG:	+1,999	-605	-11
(U) FY 1997 President's Budget Submit:	15,369	16,994	388

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995: Reprogramming increase of $1,999K provides for maintaining the schedule of ongoing GEOSAT engineering efforts. FY 1996: Congressional undistributed general and inflation reductions (-$379K); and revised DOD inflation rates and other minor pricing adjustments (-$226K). FY 1997: Revised inflation estimates and other minor pricing adjustments (-$11K).

(U) Schedule: Not applicable.

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N PROJECT NUMBER: X1452
PROGRAM ELEMENT TITLE: Defense Meteorological Satellite Program PROJECT TITLE: GEOSAT

(U) Technical: Not applicable.

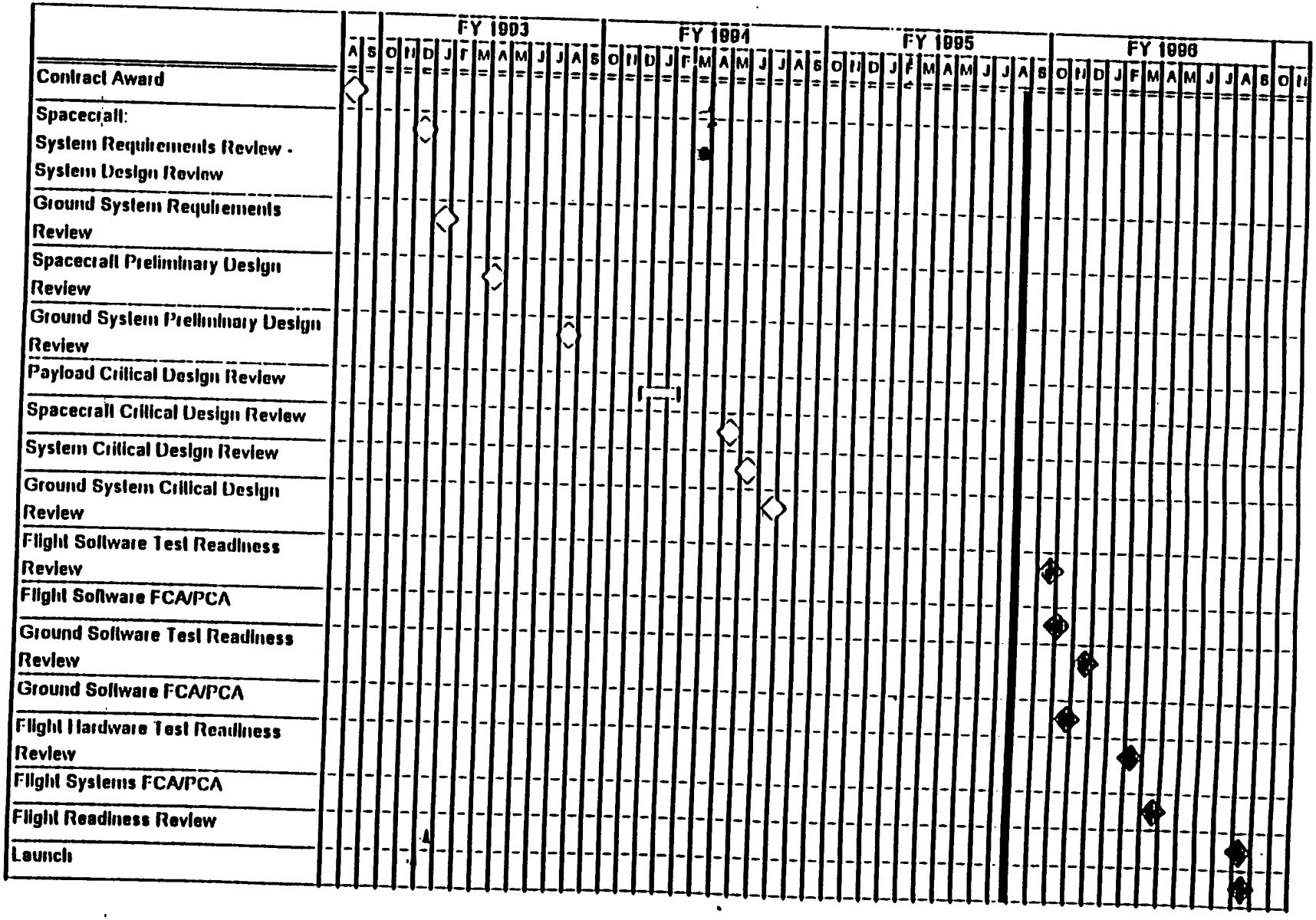
C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E: PE 0604218N, Air/Ocean Equipment Engineering AN/SMQ-11 satellite receiver/recorder system engineering to receive altimetry from GFO.

D. (U) SCHEDULE PROFILE:

	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones		Launch Sat #1 4Q		
Engineering Milestones		FRR 4Q		
T&E Milestones				
Contract Milestones				

GFO PROGRAM MILESTONES



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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N PROJECT NUMBER: X1452
PROGRAM ELEMENT TITLE: Defense Meteorological Satellite Program PROJECT TITLE: GEOSAT

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Satellite Development	14,199	15,804	388
b. Sensor Development	820	840	0
c. Contractor Engineering Support	350	350	0
Total	15,369	16,994	388

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										
Ball Aerospace	CPIF w/Options	8/92	63,185	63,185	32,944	14,124	15,729	388	0	63,185
Various	Various	N/A	CONT.	CONT.	4,646	895	915	0	CONT.	CONT.
Support and Management										
Various					1,853	350	350	0	CONT.	CONT.
Test and Evaluation										

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

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N PROJECT NUMBER: X1452
PROGRAM ELEMENT TITLE: Defense Meteorological Satellite Program PROJECT TITLE: GEOSAT

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				37,590	15,019	16,644	388	0	69,641
Subtotal Support and Management				1,853	350	350	0	0	2,553
Subtotal Test and Evaluation									
Total Project				39,443	15,369	16,994	388	0	72,194

C. (U) FUNDING PROFILE: Not applicable

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305927N
PROGRAM ELEMENT TITLE: Naval Space Surveillance

(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
R0125 Naval Space Surveillance	805	729	706	707	860	859	878	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Naval Space Surveillance Fence is an integral component of the U.S. Space Command Space Surveillance Network. This system provides continuous surveillance and unalerted detection of space objects crossing the continental U.S. The Fence is also the only space surveillance system which provides satellite vulnerability and space control data to the Fleet units. It is a multistatic continuous-wave radar fence consisting of three transmitter sites, six receiver sites, and a computation/communication center. The transmitter and receiver sites are located on a great circle across the southern CONUS, and the computation/communication center is located at Naval Space Command in Dahlgren, Virginia.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

* Program Element (PE) number changed from 0102427N to 0305927N in FY 1996.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS:
   - (U) ($805) Completed studies for evolutionary technical improvements: e.g., communications transmission and other improvements to make use of additional target data available from FY 1994 upgrade; completed replacement design for transmitter solid state modules; and continued research for processing algorithm improvements to improve system performance.

2. (U) FY 1996 PLAN:
   - (U) ($717) Development funding to evaluate FY 1995 results; continue study to analyze sensor augmentation options

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305927N
PROGRAM ELEMENT TITLE: Naval Space Surveillance

and next generation system design study to provide response to emergent requirements.

- (U) ($12) 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) ($706) Develop next generation fence concept to implementable specifications; continue to apply evolutionary performance improvements; study data processing and develop algorithms to improve processing efficiency and fully exploit improved data.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	805	752	724
(U) Adjustments from FY 1996 PRESBUDG:	0	-23	-18
(U) FY 1997 PRESBUDG Submit:	805	729	706

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1996 adjustment is due to the following: Congressional undistributed reductions (-15), revised economic assumptions (-5) and rescission (-3). FY 1997 adjustment is due to the following: DBOF rate adjustment (-1), DBOF adjustment (+4), and inflation (-21).

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

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

(U) RELATED RDT&E: Not applicable.

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FY 1997 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: March 1996

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305927N
PROGRAM ELEMENT TITLE: Navy Space Surveillance

PROJECT NUMBER: R0125
PROJECT TITLE: Navy Space Surveillance

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: 7 PROGRAM ELEMENT: 0305927N
PROGRAM ELEMENT TITLE: Navy Space Surveillance
PROJECT NUMBER: R0125
PROJECT TITLE: Navy Space Surveillance

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Project Management	25	25	25
b. Product Development	780	704	681
Total	805	729	706

3. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION: ($ in thousands) Not applicable.

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

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0708011N
PROGRAM ELEMENT TITLE: Industrial Preparedness Manufacturing Technology

(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
R1050 Manufacturing Technology	79,628	85,228	35,526	31,771	27,539	27,986	28,951	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Manufacturing Science and Technology (MS&T) Program is intended to improve the productivity and responsiveness of the U.S. defense industrial base by funding the development of manufacturing technologies. The MS&T program, by providing seed funding for the development of moderate to high risk process and equipment technology, permits contractors to upgrade their manufacturing capabilities. Ultimately, the program aims to produce high-quality weapon systems with shorter lead times and reduced acquisition costs. Major areas of endeavor both underway and planned include: advanced manufacturing technology for electronics assembly, laser metalworking, flexible computer manufacturing, composites, metalworking and welding technology. The MS&T program is being integrated into the Joint Mission Area/Support Area and Joint Warfare Operational Capability process and will utilize the results of these initiatives as appropriate in the program planning process.

The MS&T program is aimed at achieving affordability in the acquisition of weapons systems by inserting manufacturing process solutions early into the design phase to reduce lifecycle costs, improve schedules and ensure quality.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1995 ACCOMPLISHMENTS: The Navy MS&T program executes a significant amount of its projects through its Centers of Excellence. The technical efforts performed are reflected throughout the taxonomy.

   - (U) ($18,411) Manufacturing and Engineering Systems: Continued efforts in factory engineering, precision machining, and development of pilot work cells. Continued efforts in simulation-based design and manufacturing

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for a variety of metallic, composites, and electronics processes used in the fabrication of airframe, engine, missile, and ship components. Continued efforts in Integrated Product and Process Design (IPPD) relating to composites, electronic, and metallic components for a variety of weapon systems.

- (U) ($14,419) Composites Processing and Fabrication: Continued efforts in advanced fabrication processes such as resin transfer molding as applied to aircraft and marine structures and electronic enclosures; non-destructive evaluation of damaged structures; and recycling of scrap materials.

- (U) ($11,519) Electronics Processing and Fabrication: Continued efforts in fine pitch surface mount assembly, test and repair, environmentally compliant processes for soldering, cleaning and conformal coating; initiated effort for Power Electronic Building Blocks; completed prototype workcell for Fiber Optic Acoustic Sensors.

- (U) ($14,083) Metals Processing and Fabrication: Continued efforts in advanced fabrication techniques such as semi-solid processing, powder consolidation, and welding in support of ship and submarine applications; continued development of processes for employing cast ductile iron in major caliber ammunition.

- (U) ($17,153) Advanced Industrial Practices: Continued efforts related to the Best Manufacturing Practices Program including industry surveys, development of technical guidelines, the Program Managers' Workstation, and technology transfer. Continued cooperative support to shipbuilding research program to identify shipbuilding improvement opportunities, develop technology and disseminate results to the U.S. shipbuilding industry. Continued work with Department of Commerce Manufacturing Extension Partnerships to transfer technology to supplier base. Commenced effort to develop teaching factories to address the manufacturing and fabrication of metals, composites, and electronics components. Drove the transfer of developed technology to defense industry by establishing rotational skills programs, hands-on training/education, demonstrations, and easily accessible thrust-specific databases.

- (U) (4,043) Other: Continued technical engineering in support of manufacturing engineering tools, surface and gear engineering; and transmit/receive modules for Cooperative Engagement Capabilities (CEC) Program. Continued efforts in support for continuous processing of energetic materials.

2. (U) FY 1996 PLAN: The Navy MS&T program executes a significant amount of its projects through its Centers of Excellence. The technical efforts performed are reflected throughout the taxonomy.

- (U) ($4,273) Manufacturing and Engineering Systems: Continue efforts in development of standards and engineering tools. Continue efforts in simulation-based design and manufacturing for a variety of metallic, composite, and electronics manufacturing processes used in the fabrication of airframe, engine, missile, and ship components. Continue efforts in IPPD relating to composites, electronic, and metallic components for a variety of weapon systems. Continue work on Product One Payload for Surface Ship Torpedo Defense Program.

- (U) ($17,411) Composites Processing and Fabrication: Continue efforts in affordable low-rate assembly and inspection techniques for composite structure in support aircraft, marine and electronics applications; continue development of material recycling processes; and complete development of high thermal conductivity fibers for electronics. Complete Carbon Rocket Nozzle effort. Complete Composite PrePreg Scrap Reclamation program. Complete Manufacturing Technology for Composite Marine Control Surfaces project. Complete Composites Electronics Housing project. Continue Topside Structures; Z-Direction Reinforcement for Composite Laminates; In Situ Fiber Placement; Composite Shipboard Electronic Cabinets; Injection Molded Bearing Cages; and Autoclave Knowledge Based Processing Science. Start F414 Demonstration.

- (U) ($20,539) Electronics Processing and Fabrication: Continue efforts in support of the Power Electronic Building Blocks program; electronic material characterization, automated assembly of fine pitch devices; and environmentally compliant manufacturing. Continue Electro-Optics efforts in Reducing Fabrication Costs of Diode-Pumped Erbium Glass Laser Range Finders; Replicated Hybrid Optics in Durable Materials; and Low Cost Manufacture of Focal Plane Arrays. Several new efforts in electro-optics are being selected and prioritized by a newly established Technical Advisory Board governed by the Space and Naval Warfare Systems Command. Complete the CEC (Multi-Function Self Aligned Gate) project.

- (U) ($28,474) Metals Processing and Fabrication: Continue efforts in metal fabrication processes including powder injection and semi-solid forming; continue development of advanced welding techniques and materials for ships and submarines; complete efforts in automated deburring and chamerfing, and electroslag surfacing; continue development of cast ductile iron processing for projectiles and award Phase II of Bombs contract. Complete the Extended Application of Electroslag Surfacing Technology initiative; Semi-Solid Metalworking Process; Advanced Refurbishing of Engine Parts; Tungsten Alloy Penetrators; Material Standards for Powder Metallurgy Alloys. Continue efforts for Laser processing of Nickel Aluminum; Laser Processing Techniques for Naval Materials; Laser Applications Research Administration; Surface Engineering thrusts; Micro and Nano Fabrication; Electron Beam Physical Vapor Deposition; Spray Metal Forming; Modeling of Clamping Distortions and

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Prediction of Gear Accuracy in Gear Grinding, Conditioned Based Maintenance; Rapid Response for Drivetrains; and Navy Meteorology Lab.

- (U) (9,473) Advanced Industrial Practices: Continue efforts related to the Best Manufacturing Practices Program including industry surveys, development of technical guidelines, the Program Managers' Workstation, and technology transfer. Initiate the development of advanced process technologies though pilot factory demonstrations, both at the factory floor and enterprise levels, for composites, electronics, and metalworking. Concentration will be on advanced business practices to meet new benchmarks for cost, cycle-time, and quality in industrial sectors that are critical to defense products. Technology emphasis and specific goals depend upon the products, but examples include reducing costs and cycle-times while maintaining quality for small lot production of signal processors, composite aircraft structures, precision guided weapons and flexible processing capabilities for infrared focal plane arrays. Continue establishment of teaching factories in the composite, electronics, and metalworking fields to deploy process technologies and assembly techniques developed to support the manufacture and maintenance of weapons systems at both DoD contractors and military installations. Specific areas of endeavor include composite, electronics, and metalworking initiatives underway to support weapons such as the F/A-18E/F, V-22, AEGIS Destroyer, New Attack Submarine, and the AIM-9X missile. Continue working with the National Shipbuilding Research Council to identify shipbuilding improvement opportunities, develop technology, and disseminate results to the U.S. shipbuilding industry.

- (U) ($3,664) Other: Continue efforts in developing continuous processing of propellants, co-extrusion, and the production of ammonium dinitramide. Restart the Lifecycle In-Service Repair initiative to address Repair Technology. Projects to be restarted include Supercritical parts cleaning; Ball Valve Repair; Shearography; Chemical Paint Strippers; Turbine Blade Stripping; Lubes Replacement; and Reverse Engineering.

- (U) ($1,394) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 U.S.C. 638.

3. (U) FY 1997 PLAN: The Navy MS&T program executes a significant amount of its projects through its Centers of Excellence. The technical efforts performed are reflected throughout the taxonomy.

- (U) ($250) Manufacturing and Engineering Systems: Continue efforts in development of standards and engineering tools, and initiate a Concept 1 automated workstation for the Surface Ship Torpedo Defense.

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- (U) ($4,295) Composites Processing and Fabrication: Continue efforts to improve fit-up and assembly with application to V-22 and F/A-18; continue efforts in field repair of low observable structures; initiate efforts in composite missile structure and carbon-carbon nozzles; continue process maturation for resin transfer molding.

- (U) ($6,955) Electronics Processing and Fabrication: Continue process development to address the affordability of transmit/receive modules for AEGIS and CEC. Initiate effort on fabrication and coating of infrared domes for Standard Missile and AIM-9X.

- (U) ($15,337) Metals Processing and Fabrication: Continue efforts to develop process for tungsten powder consolidation for Standard Missile warhead. Initiate efforts for thermal barrier coatings and translational friction welding for engines. Initiate efforts in high speed machining for airframe and engine components. Continue efforts in laser joining and gears processing.

- (U) ($6,287) Advanced Industrial Practices: Continue efforts related to the Best Manufacturing Practices Program including industry surveys, development of technical guidelines, the Program Managers' Workstation, and technology transfer. Continue efforts in pilot factory demonstrations of advanced composites, electronics, and metalworking manufacturing. Continue efforts relating to teaching factories for composites, electronics, and metalworking manufacturing technology. Continue working with the National Shipbuilding Research Council to identify shipbuilding improvement opportunities, develop technology and disseminate results to the U.S. shipbuilding industry.

- (U) ($2,402) Other: Continue process development for continuous processing of propellants; continue process development for ammonium dinitramide; continue efforts in co-extrusion. Continue Lifecycle In-Service Repair program - specifically Ball Valve Repair, Chemical Paint Stripping, Turbine Blade Stripping, Composite Repair and Manufacture for Submarine Mast Fairings, Paint Transfer Efficiency and Lubes Replacement.

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B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1996 President's Budget:	86,118	41,251	37,609
(U) Adjustments from FY 1996 PRESBUDG:	-6,490	+43,977	-2,083
(U) FY 1997 PRESBUDG Submit:	79,628	85,228	35,526

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The funding reduction in FY 1995 is due to a rescission (-6,490). The funding increase in FY 1996 is due to a Congressional plus-up (+46,700). Reductions include Congressional undistributed general and inflation reductions (-1,734); and revised DOD inflation rates and other minor pricing reductions (-1,038). FY 1997 reduction is due revised DOD inflation estimates and other minor pricing adjustments (-2,083).

(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.

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

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Process Development	72,261	79,038	31,976
b. Program Management Support	7,367	6,190	3,550
Total	79,628	85,228	35,526

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:										
GLCC	C/BAA	1995	CONT.	CONT.	47,000	20,928	TBD*	TBD*	CONT.	CONT.
CTC	SS/CPFF	1988	CONT.	CONT.	110,000	18,495	TBD*	TBD*	CONT.	CONT.
EWI	C/BAA	1993	CONT.	CONT.	3,000	2,000	TBD*	TBD*	CONT.	CONT.
NAS	C/BAA	1995	CONT.	CONT.	0	100	TBD*	TBD*	CONT.	CONT.
ACI	C/BAA	1995	CONT.	CONT.	0	2,000	TBD*	TBD*	CONT.	CONT.
BFTC	C/BAA	1995	CONT.	CONT.	0	681	10,000	TBD*	CONT.	CONT.
TBD	C	1996	TBD	TBD	0	0	2,000	0	0	2,000
UNO	C/BAA	1994	CONT.	CONT.	14,000	5,252	TBD*	TBD*	CONT.	CONT.
NIST	GO	1994	CONT.	CONT.	20,000	1,070	TBD*	TBD*	CONT.	CONT.

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FEMA	GO	1995	CONT.	CONT.	0	25	TBD*	TBD*	CONT.	CONT.
LOCK-MART	C/CPFF	1994	CONT.	CONT.	100	140	TBD*	TBD*	160	400
ARL/PSU	C/CPFF	1992	CONT.	CONT.	35,000	820	TBD*	TBD*	CONT.	CONT.
PTI	C/IDIQ	1992	CONT.	CONT.	11,000	6,541	TBD*	TBD*	CONT.	CONT.
NAWC-ADI	WX				UNK	4,080	TBD*	TBD*	CONT.	CONT.
NSWC-Crane	WX				UNK	417	TBD*	TBD*	CONT.	CONT.
NSWC-CD	WX				UNK	1,321	TBD*	TBD*	CONT.	CONT.
NAWC-Pt.Mugu	WX				UNK	1,317	TBD*	TBD*	CONT.	CONT.
NCCOSC	WX				UNK	1,046	TBD*	TBD*	CONT.	CONT.
NSWC-IN	WX				1,590	820	TBD*	TBD*	CONT.	CONT.
NAWC-CL	WX				UNK	90	TBD*	TBD*	CONT.	CONT.
NAWC-Pax	WX				UNK	260	TBD*	TBD*	CONT.	CONT.
NSWC-D	WX				UNK	3,709	TBD*	TBD*	CONT.	CONT.
IUPUI	C/BAA	1995	0	3,022	300	2,722	TBD*	TBD*	0	3,022
OSD Deferral		TBD	TBD	TBD		5,794				

*NOTE: The Navy does not budget for MANTECH by Center of Excellence or single projects. The budget is broken into five technical categories (composites, metals, electronics, manufacturing engineering, and industrial issues). We are in the process of expanding our strategic planning process to ensure that scheduled projects have a stakeholder in the weapons systems arenas. The Systems Commands and N-04 (requirements) are evaluating projected MANTECH plans at this time.

Support and Management: Not applicable.

Test and Evaluation: Not applicable.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

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	Total FY 1994 & Prior	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Process Development	241,990	79,628	85,228	35,526	CONT.	CONT.
Subtotal Support and Management	0	0	0	0	0	0
Subtotal Test and Evaluation	0	0	0	0	0	0
Total Project	241,990	79,628	85,228	35,526	CONT.	CONT.

RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: March 1996

BUDGET ACTIVITY: 7

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