DEPARTMENT OF THE NAVY
FISCAL YEAR (FY) 2002
AMENDED BUDGET SUBMISSION

JUSTIFICATION OF ESTIMATES
JUNE 2001

RESEARCH, DEVELOPMENT, TEST & EVALUATION, NAVY
BUDGET ACTIVITY 7

DEPARTMENT OF DEFENSE

FY 2002 RDT&E PROGRAM

SUMMARY
($ IN THOUSANDS)

JUNE 2001

APPROPRIATION	FY 2000	FY 2001	FY 2002
Research, Development, Test & Eval, Navy	9,064,511	9,458,007	11,123,389
Total Research, Development, Test & Evaluation	9,064,511	9,458,007	11,123,389

DEPARTMENT OF DEFENSE

FY 2002 RDT&E PROGRAM

SUMMARY
($ IN THOUSANDS)

JUNE 2001

Summary Recap of Budget Activities	FY 2000	FY 2001	FY 2002
Basic Research	367,129	393,835	406,120
Applied Research	610,404	659,154	626,550
Advanced Technology Development	739,492	786,425	680,500
Demonstration and Validation	2,353,009	2,557,636	2,414,880
Engineering and Manufacturing Development	2,225,926	2,214,621	4,122,698
RDT&E Management Support	810,339	651,178	738,841
Operational Systems Development	1,958,212	2,195,158	2,133,800
Total Research, Development, Test & Evaluation	9,064,511	9,458,007	11,123,389

Summary Recap of FYDP Programs			
Strategic Forces	92,729	84,953	82,614
General Purpose Forces	964,735	885,771	829,774
Intelligence and Communications	736,160	867,632	824,611
Guard and Reserve Forces		5,863	13,082
Research and Development	7,129,776	7,495,719	9,269,069
Central Supply and Maintenance	132,808	118,069	104,239
Administration and Associated Activities	8,303		
Total Research, Development, Test & Evaluation	9,064,511	9,458,007	11,123,389

DEPARTMENT OF THE NAVY

FY 2002 RDT&E PROGRAM

SUMMARY
($ IN THOUSANDS)

JUNE 2001

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DEPARTMENT OF THE NAVY
FY 2002 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: JUNE 2001

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 2000	FY 2001	FY 2002	SEC
1	0601152N	In-House Laboratory Independent Research	1	15,262	16,193	16,291	U
2	0601153N	Defense Research Sciences	1	351,867	377,642	389,829	U
	Basic Research			367,129	393,835	406,120	
3	0602111N	Air and Surface Launched Weapons Technology	2	54,629	54,957		U
4	0602114N	Power Projection Applied Research	2			66,322	U
5	0602121N	Ship, Submarine & Logistics Technology	2	60,710	56,291		U
6	0602122N	Aircraft Technology	2	21,759	20,864		U
7	0602123N	Force Protection Applied Research	2			117,072	U
8	0602131M	Marine Corps Landing Force Technology	2	17,233	12,180	31,248	U
9	0602232N	Communications, Command and Control, Intelligence, Surveilla	2	83,113	113,851		U
10	0602233N	Human Systems Technology	2	33,717	40,068		U
11	0602234N	Materials, Electronics and Computer Technology	2	101,725	102,377		U
12	0602235N	Common Picture Applied Research	2			83,557	U
13	0602236N	Warfighter Sustainment Applied Research	2			71,294	U
14	0602270N	Electronic Warfare Technology	2	34,412	25,804		U
15	0602271N	RF Systems Applied Research	2			62,141	U
16	0602314N	Undersea Warfare Surveillance Technology	2	47,540	52,898		U
17	0602315N	Mine Countermeasures, Mining and Special Warfare	2	44,159	50,397		U

DEPARTMENT OF THE NAVY
FY 2002 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: JUNE 2001

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 2000	FY 2001	FY 2002	SEC
18	0602435N	Ocean Warfighting Environment Applied Research	2	66,642	76,363	50,738	U
19	0602633N	Undersea Warfare Weaponry Technology	2	37,127	40,652		U
20	0602747N	Undersea Warfare Applied Research	2			76,510	U
21	0602782N	Mine and Expeditionary Warfare Applied Research	2			57,668	U
22	0602805N	Dual Use Science and Technology Program	2	7,638	12,452	10,000	U
	Applied Research			610,404	659,154	626,550	
23	0603114N	Power Projection Advanced Technology	3			76,410	U
24	0603123N	Force Protection Advanced Technology	3			85,297	U
25	0603217N	Air Systems and Weapons Advanced Technology	3	47,825	60,592		U
26	0603235N	Common Picture Advanced Technology	3			48,583	U
27	0603236N	Warfighter Sustainment Advanced Technology	3			57,685	U
28	0603238N	Precision Strike and Air Defense Technology	3	84,946	86,752		U
29	0603270N	Advanced Electronic Warfare Technology	3	20,361	17,361		U
30	0603271N	RF Systems Advanced Technology	3			76,876	U
31	0603508N	Surface Ship & Submarine HM&E Advanced Technology	3	78,230	72,758		U
32	0603640M	Marine Corps Advanced Technology Demonstration (ATD)	3	66,432	60,687	51,310	U
33	0603706N	Medical Development	3	73,821	84,823		U

DEPARTMENT OF THE NAVY
FY 2002 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: JUNE 2001

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 2000	FY 2001	FY 2002	SEC
34	0603707N	Manpower, Personnel and Training Adv Tech Dev	3	38,370	45,566		U
35	0603712N	Environmental Quality and Logistics Advanced Technology	3	24,682	48,129		U
36	0603727N	Navy Technical Information Presentation System	3	42,300	51,033	118,802	U
37	0603729N	Warfighter Protection Advanced Technology	3			17,678	U
38	0603747N	Undersea Warfare Advanced Technology	3	56,535	66,182	56,303	U
39	0603758N	Navy Warfighting Experiments and Demonstrations	3			43,277	U
40	0603782N	Mine and Expeditionary Warfare Advanced Technology	3	57,077	48,172	48,279	U
41	0603792N	Advanced Technology Transition	3	106,018	99,116		U
42	0603794N	C3 Advanced Technology	3	42,895	45,254		U
		Advanced Technology Development		739,492	786,425	680,500	
43	0603207N	Air/Ocean Tactical Applications	4	28,441	32,536	32,332	U
44	0603216N	Aviation Survivability	4	13,622	7,458	25,572	U
45	0603237N	Stall/Spin Inhibitors (H)	4			50,000	U
46	0603254N	ASW Systems Development	4	19,657	27,409	12,922	U
47	0603261N	Tactical Airborne Reconnaissance	4	1,956	2,332	1,934	U
48	0603382N	Advanced Combat Systems Technology	4	6,547	6,879	3,458	U
49	0603502N	Surface and Shallow Water Mine Countermeasures	4	107,938	101,984	135,284	U
50	0603506N	Surface Ship Torpedo Defense	4	6,092	15,853	4,818	U
51	0603512N	Carrier Systems Development	4	134,194	149,549	165,150	U

DEPARTMENT OF THE NAVY
FY 2002 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: JUNE 2001

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 2000	FY 2001	FY 2002	SEC
52	0603513N	Shipboard System Component Development	4	108,548	256,065	288,382	U
53	0603525N	PILOT FISH	4	96,019	106,611	99,600	U
54	0603527N	RETRACT LARCH	4	7,568	11,786	50,441	U
55	0603536N	RETRACT JUNIPER	4	5,980			U
56	0603542N	Radiological Control	4	585	567	1,056	U
57	0603553N	Surface ASW	4	6,723	6,690	3,724	U
58	0603559N	SSGN Coversion	4		37,416	30,000	U
59	0603561N	Advanced Submarine System Development	4	127,615	128,082	110,766	U
60	0603562N	Submarine Tactical Warfare Systems	4	4,352	4,317	5,405	U
61	0603563N	Ship Concept Advanced Design	4	31,995	5,115	1,949	U
62	0603564N	Ship Preliminary Design & Feasibility Studies	4	9,969	56,374	14,922	U
63	0603570N	Advanced Nuclear Power Systems	4	145,355	166,938	175,176	U
64	0603573N	Advanced Surface Machinery Systems	4	25,685	9,547	3,921	U
65	0603576N	CHALK EAGLE	4	89,512	64,176	35,313	U
66	0603582N	Combat System Integration	4	76,800	54,461	42,915	U
67	0603609N	Conventional Munitions	4	37,665	33,310	22,299	U
68	0603611M	Marine Corps Assault Vehicles	4	110,937	147,100	263,066	U
69	0603635M	Marine Corps Ground Combat/Support System	4	47,331	32,416	25,957	U
70	0603654N	Joint Service Explosive Ordnance Development	4	10,821	14,546	12,918	U
71	0603658N	Cooperative Engagement	4	182,307	177,612	74,231	U

DEPARTMENT OF THE NAVY
FY 2002 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: JUNE 2001

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 2000	FY 2001	FY 2002	SEC
72	0603713N	Ocean Engineering Technology Development	4	15,058	15,230	16,077	U
73	0603721N	Environmental Protection	4	79,565	65,506	46,117	U
74	0603724N	Navy Energy Program	4	6,719	7,869	5,025	U
75	0603725N	Facilities Improvement	4	1,927	1,807	1,728	U
76	0603734N	CHALK CORAL	4	39,402	52,401	48,187	U
77	0603739N	Navy Logistic Productivity	4	17,428	12,880	11,735	U
78	0603746N	RETRACT MAPLE	4	118,066	122,572	148,856	U
79	0603748N	LINK PLUMERIA	4	47,924	41,983	62,601	U
80	0603751N	RETRACT ELM	4	21,233	13,417	22,200	U
81	0603755N	Ship Self Defense - Dem/Val	4	9,628	6,550	8,353	U
82	0603764N	LINK EVERGREEN	4	7,812	9,623	26,151	U
83	0603787N	Special Processes	4	68,013	61,936	58,858	U
84	0603790N	NATO Research and Development	4	5,118	8,909	11,551	U
85	0603795N	Land Attack Technology	4	129,300	138,956	130,993	U
86	0603800N	Joint Strike Fighter (JSF) - Dem/ Val	4	238,420	240,820		U
87	0603851M	Nonlethal Weapons - Dem/Val	4	25,827	29,309	34,008	U
88	0603857N	All Service Combat Identification Evaluation Team (ASCIET)	4	13,898	12,989	13,530	U
89	0603879N	Single Integrated Air Picture (SIAP) System Engineer (SE)	4		20,000	43,140	U
90	0603889N	Counterdrug RDT&E Projects	4	24,091			U
91	0604327N	Hard and Deeply Buried Target Defeat System (HDBTDS) Program	4	4,591			U

DEPARTMENT OF THE NAVY
FY 2002 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: JUNE 2001

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 2000	FY 2001	FY 2002	SEC
92	0604707N	Space and Electronic Warfare (SEW) Architecture/Engineering Support	4	34,775	37,750	32,259	U
		Demonstration and Validation		2,353,009	2,557,636	2,414,880	
93	0603208N	Training System Aircraft	5	295			U
94							
95	0604212N	Other Helo Development	5	72,173	36,024	64,392	U
96	0604214N	AV-8B Aircraft - Eng Dev	5	36,410	28,654	32,897	U
97	0604215N	Standards Development	5	74,391	100,740	120,552	U
98	0604216N	Multi-Mission Helicopter Upgrade Development	5	110,097	83,115	149,418	U
99	0604217N	S-3 Weapon System Improvement	5	4,918	450	428	U
100	0604218N	Air/Ocean Equipment Engineering	5	5,733	5,995	6,346	U
101	0604221N	P-3 Modernization Program	5	10,531	7,333	3,220	U
102	0604231N	Tactical Command System	5	44,510	59,242	64,832	U
103	0604234N	Common Strategic Rotary Launcher (H)	5			96,000	U
104	0604235N	Cruise Missile Surveillance Sensors (H)	5			388,496	U
105	0604245N	H-1 Upgrades	5	178,524	138,189	170,068	U
106	0604261N	Acoustic Search Sensors	5	24,782	20,545	16,825	U
107	0604262N	V-22A	5	175,919	146,589	546,735	U
108	0604264N	Air Crew Systems Development	5	17,412	28,672	7,717	U
109	0604270N	EW Development	5	208,163	133,399	112,473	U
110	0604300N	SC-21 Total Ship System Engineering	5	160,894	289,591	355,093	U

DEPARTMENT OF THE NAVY
FY 2002 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: JUNE 2001

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 2000	FY 2001	FY 2002	SEC
111	0604307N	Surface Combatant Combat System Engineering	5	240,898	200,330	262,037	U
112	0604311N	LPD-17 Class Systems Integration	5	2,387	270	1,001	U
113	0604312N	Tri-Service Standoff Attack Missile	5	1,913	3,503	1,946	U
114	0604366N	Standard Missile Improvements	5	625	1,183	1,309	U
115	0604373N	Airborne MCM	5	51,103	50,842	52,041	U
116	0604503N	SSN-688 and Trident Modernization	5	70,764	72,132	43,706	U
117	0604504N	Air Control	5	14,537	13,394	12,821	U
118	0604507N	Enhanced Modular Signal Processor	5	871	867	1,013	U
119	0604512N	Shipboard Aviation Systems	5	8,675	9,627	16,375	U
120	0604518N	Combat Information Center Conversion	5	7,715	3,686	5,392	U
121	0604524N	Submarine Combat System	5	9,184	3,609		U
122	0604528N	SWATH (Small Waterplane Area Twin Hull) Oceanographic Ship	5	8,690			U
123	0604558N	New Design SSN	5	236,660	212,127	201,596	U
124	0604561N	SSN-21 Developments	5	30,505	6,557	5,770	U
125	0604562N	Submarine Tactical Warfare System	5	12,556	26,249	29,246	U
126	0604567N	Ship Contract Design/ Live Fire T&E	5	57,901	77,488	130,388	U
127	0604574N	Navy Tactical Computer Resources	5	56,160	30,608	3,836	U
128	0604601N	Mine Development	5	3,276	1,635		U
129	0604603N	Unguided Conventional Air-Launched Weapons	5	2,836	2,553	12,890	U
130	0604610N	Lightweight Torpedo Development	5	8,984	9,262	10,310	U

DEPARTMENT OF THE NAVY
FY 2002 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: JUNE 2001

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 2000	FY 2001	FY 2002	SEC
131	0604618N	Joint Direct Attack Munition	5	10,800	28,845	56,285	U
132	0604654N	Joint Service Explosive Ordnance Development	5	6,870	7,037	8,123	U
133	0604703N	Personnel, Training, Simulation, and Human Factors	5	1,240	1,259	1,300	U
134	0604710N	Navy Energy Program	5	5,236	5,480	3,157	U
135	0604721N	Battle Group Passive Horizon Extension System	5	1,663	2,211	8,130	U
136	0604727N	Joint Standoff Weapon Systems	5	28,920	27,694	26,852	U
137	0604755N	Ship Self Defense - EMD	5	129,872	114,514	52,163	U
138	0604756N	Advanced Distributed Learning	5			33,530	U
139	0604757N	Medical Chemical Defense Life Material (H)	5			41,670	U
140	0604771N	Medical Development	5	15,274	27,519	5,455	U
141	0604777N	Navigation/ID System	5	16,395	18,314	23,884	U
142	0604784N	Distributed Surveillance System	5	39,077	30,924	34,711	U
143	0604800N	Joint Strike Fighter (JSF) - EMD	5		100,344	767,259	U
144	0604805N	Commercial Operations and Support Savings Initiative	5	19,587			U
145	0604910N	Smart Card	5		1,228	896	U
146	0605013M	Information Technology Development	5		6,770	11,031	U
147	0605013N	Information Technology Development	5		32,159	49,333	U
148	0605014N	Defense Integrated Military Human Resources System (DIMHRS) - RDT&E	5			47,184	U
149	0605015N	Joint Counter-Intelligence Assessment Group (JCAG) - RDT&E	5			6,000	U

DEPARTMENT OF THE NAVY
FY 2002 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: JUNE 2001

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 2000	FY 2001	FY 2002	SEC
150	0508713N	Navy Standard Integrated Personnel System (NSIPS)	5		5,863	13,082	U
		Engineering and Manufacturing Development		2,225,926	2,214,621	4,122,698	
151	0604256N	Threat Simulator Development	6	27,702	25,934	30,110	U
152	0604258N	Target Systems Development	6	51,592	40,699	49,511	U
153	0604759N	Major T&E Investment	6	45,267	45,227	41,804	U
154	0605152N	Studies and Analysis Support - Navy	6	6,114	5,997	6,679	U
155	0605154N	Center for Naval Analyses	6	42,521	43,487	44,891	U
156	0605155N	Fleet Tactical Development	6	2,948	2,715	2,912	U
157	0605502N	Small Business Innovative Research	6	143,492			U
158	0605804N	Technical Information Services	6	10,047	10,848	951	U
159	0605853N	Management, Technical & International Support	6	16,646	17,481	21,628	U
160	0605856N	Strategic Technical Support	6	2,302	2,381	2,391	U
161	0605861N	RDT&E Science and Technology Management	6	54,851	52,877	54,825	U
162	0605862N	RDT&E Instrumentation Modernization	6	9,218	11,935	11,601	U
163	0605863N	RDT&E Ship and Aircraft Support	6	72,181	75,341	71,735	U
164	0605864N	Test and Evaluation Support	6	264,958	270,214	277,414	U
165	0605865N	Operational Test and Evaluation Capability	6	9,344	8,874	11,649	U
166	0605866N	Navy Space and Electronic Warfare (SEW) Support	6	1,955	3,232	3,433	U
167	0605867N	SEW Surveillance/Reconaissance Support	6	10,975	11,586	12,693	U

DEPARTMENT OF THE NAVY
FY 2002 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: JUNE 2001

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 2000	FY 2001	FY 2002	SEC
168	0605873M	Marine Corps Program Wide Support	6	29,923	17,727	9,614	U
169	0305885N	Tactical Cryptologic Activities	6		4,623	85,000	U
170	0909999N	Financing for Cancelled Account Adjustments	6	8,303			U
		RDT&E Management Support		810,339	651,178	738,841	
171							
172							
173							
174	0604227N	HARPOON Modifications	7	300			U
175	0604805N	Commercial Operations and Support Savings Initiative	7		8,372		U
176	0101221N	Strategic Sub & Weapons System Support	7	57,292	53,195	43,322	U
177	0101224N	SSBN Security Technology Program	7	31,580	30,887	34,091	U
178	0101226N	Submarine Acoustic Warfare Development	7	3,857	871	996	U
179	0101402N	Navy Strategic Communications	7			4,205	U
180	0204136N	F/A-18 Squadrons	7	307,589	234,490	253,257	U
181	0204152N	E-2 Squadrons	7	38,694	44,890	20,583	U
182	0204163N	Fleet Telecommunications (Tactical)	7	11,790	11,902	21,136	U
183	0204229N	Tomahawk and Tomahawk Mission Planning Center (TMPC)	7	137,445	90,461	76,036	U
184	0204311N	Integrated Surveillance System	7	16,908	37,084	20,041	U
185	0204413N	Amphibious Tactical Support Units	7		11,837	24,387	U

DEPARTMENT OF THE NAVY
FY 2002 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: JUNE 2001

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 2000	FY 2001	FY 2002	SEC
186	0204571N	Consolidated Training Systems Development	7	36,853	36,774	22,407	U
187	0204575N	Electronic Warfare (EW) Readiness Support	7	8,678	9,833	7,659	U
188	0205601N	HARM Improvement	7	36,773	39,409	13,630	U
189	0205604N	Tactical Data Links	7	42,706	26,005	39,362	U
190	0205620N	Surface ASW Combat System Integration	7	22,544	29,314	28,119	U
191	0205632N	MK-48 ADCAP	7	19,400	15,707	17,130	U
192	0205633N	Aviation Improvements	7	48,959	50,475	41,430	U
193	0205658N	Navy Science Assistance Program	7			4,945	U
194	0205667N	F-14 Upgrade	7	1,354	11,122		U
195	0205675N	Operational Nuclear Power Systems	7	52,880	52,945	55,202	U
196	0206313M	Marine Corps Communications Systems	7	89,355	107,102	104,835	U
197	0206623M	Marine Corps Ground Combat/ Supporting Arms Systems	7	29,020	39,061	43,935	U
198	0206624M	Marine Corps Combat Services Support	7	11,852	3,876	8,483	U
199	0207161N	Tactical AIM Missiles	7	38,872	21,473	16,402	U
200	0207163N	Advanced Medium Range Air-to-Air Missile (AMRAAM)	7	13,063	12,011	10,795	U
201							
202							
203	0303109N	Satellite Communications (SPACE)	7	40,015	39,413	54,230	U
204	0303140N	Information Systems Security Program	7	20,105	31,835	20,942	U

DEPARTMENT OF THE NAVY
FY 2002 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: JUNE 2001

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 2000	FY 2001	FY 2002	SEC
205							
206	0305160N	Navy Meteorological and Ocean Sensors-Space (METOC)	7	18,202	19,549	23,492	U
207	0305188N	Joint C4ISR Battle Center (JBC)	7	8,045	9,705	13,618	U
208	0305192N	Joint Military Intelligence Programs	7	1,994	6,936	7,179	U
209	0305204N	Tactical Unmanned Aerial Vehicles	7	75,029	121,753	66,349	U
210	0305206N	Airborne Reconnaissance Systems	7	18,779	26,135	5,736	U
211	0305207N	Manned Reconnaissance Systems	7	39,582	46,014	29,232	U
212	0305208N	Distributed Common Ground Systems	7	5,530	4,434	4,467	U
213	0305927N	Naval Space Surveillance	7	1,685	1,425	4,237	U
214	0308601N	Modeling and Simulation Support	7	10,920	13,976	7,828	U
215	0702207N	Depot Maintenance (Non-IF)	7	42,822	39,802	13,569	U
216	0708011N	Industrial Preparedness	7	69,474	68,987	70,605	U
217	0708730N	Maritime Technology (MARITECH)	7	20,512	9,280	20,065	U
		Operational Systems Development		1,958,212	2,195,158	2,133,800	
		Total Research, Development, Test & Eval, Navy		9,064,511	9,458,007	11,123,389	

EXHIBIT R-2, FY 2002 PRESIDENT'S BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0604227N
PROGRAM ELEMENT TITLE: Harpoon Modifications

(U) COST: (Dollars in Thousands)

Project Number & Title	FY 2000 Actual	FY 2001 Budget	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	To Complete	Total Program
A1843 HARPOON	300	0	0	0	0	0	0	0	0	0
TOTAL	**300**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

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

(U) A1843/HARPOON MODIFICATIONS Description: The Harpoon Block II Weapon System program was intended to upgrade and expand the capabilities of the U.S. Navy's only anti-ship missile to improve its precision in a congested littoral environment. The Navy funding for the program was cancelled during POM-00 resulting in the Navy's withdrawal from further direct participation. FY-99 RDT&E funding was utilized to conduct an operational cost analysis of available ship attack weaponry for application as a possible successor to Harpoon Block IC. FY-00 RDT&E funding was utilized to provide technical comments/cost assessment on the Light Defender Missile Systems (LDMS) Feasibility Studies as a possible successor to the Harpoon Block IC.

(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.

DATE: June 2001

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0604227N**
PROGRAM ELEMENT TITLE: Harpoon Modifications

1. FY 2000 PLAN:
   - (U) ($ 300) Light Defender Feasibility Studies which include warhead characterization analysis, Data Link Feasibility analysis, Range Safety analysis, and Cost analysis.

2. FY 2001 PLAN:
   - (U) ($ 0)

3. FY 2002 PLAN:

   - (U) ($ 0)

DATE: June 2001

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0604227N**
PROGRAM ELEMENT TITLE: Harpoon Modifications

(U) B. PROGRAM CHANGE SUMMARY

	FY 2000	FY 2001	FY 2002
(U) FY 2001 President's Budget:	0	0	0
(U) Adjustments from President's Budget:	300	0	0
(U) FY 2002 President's Budget Submit:	300	0	0

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net increase of $300K reflects a reprogramming from the Tomahawk program (A0545) to Hapoon Modifications(A1843) for the Light Defender Missile Systems feasibility studies.

(U) Schedule: N/A

(U) Technical: N/A

(U) C. OTHER PROGRAM FUNDING SUMMARY: N/A

Related RDT&E: N/A

(U) D. ACQUISITION STRATEGY: This is a non-ACAT program with no specific acquisition strategies.

(U) E. SCHEDULE PROFILE: N/A

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA 7**					R-1 ITEM NOMENCLATURE Strategic Submarine & Weapons System Support - 0101221N					
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Total PE Cost	**57.292**	**53.195**	**43.322**						**Cont.**	**Cont.**
J0951 TRIDENT II	**8.763**	**8.670**	**8.778**						**Cont.**	**Cont.**
S0004 TRIDENT Submarine System Improvement	**2.116**	**0.590**	**0.566**						**Cont.**	**Cont.**
J2228 Technology Applications Program	**46.413**	**43.935**	**33.978**						**Cont.**	**Cont.**
Quantity of RDT&E Articles										

A. Mission Description and budget Item Justification: This Navy unique program addresses all technology areas associated with Navy/Marine Corps aircraft operations aboard ships. The program includes:
- (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 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 System Applications efforts. 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 lifecycle 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 operational systems.

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA 7**	R-1 ITEM NOMENCLATURE Strategic Submarine & Weapons System Support - 0101221N

B. Program Change Summary:

	FY 2000	FY 2001	FY 2002
(U) FY 2001 President's Budget:	59.600	42.700	43.600
(U) Appropriated Value:	59.600	53.312	
(U) Adjustment to FY00/01 Appropriated Value	-2.179	10.600	-0.260
(U) FY 2002 President'sBudget:	57.421	53.300	43.340

Funding:

Explanation: Changes from FY 2001 President's Budget to FY 2002 President's Budget submission: The decrease of -$2.2M in FY 2000 is a result of: a Below Threshold Reprogramming (-$0.7), SBIR reduction (-$1.0), and minor pricing adjustment ($-0.5). The increase in FY 2001 is a result of three Congressional adjustments: $2.0M for Reentry Systems Application Program, $2.0M for Accelerometer and Hemispherical Resonator Gyro Development, and $7.0M for Radiation Hardened Tech Computer Aided Design program. These additions were partially offset by a Congressional pro rata reduction (-$0.4). The decrease in FY 2002 (-$0.2) is an NWCF rate adjustment.

C. (U) Other Program Funding Summary: See enclosed R-2a for each individual project data.
D. (U) Acquisition Strategy: See enclosed R-2a for each individual project data.
E. (U) Schedule Profile: Not Applicable.

EXHIBIT R-2a, RDT&E Project Justification							DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA 7**	PROGRAM ELEMENT NAME AND NUMBER **Strat Sub & Wpns Sys Suppt - 0101221N**				PROJECT NAME AND NUMBER TRIDENT II J0951					
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost	**8.763**	**8.670**	**8.778**						**Cont.**	**Cont.**
RDT&E Articles Qty										

A. 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 investigations into new technologies which would help mitigate the program impact due to component obsolescence and a rapidly decreasing manufacturing support base.

- (U) PROGRAM ACCOMPLISHMENTS AND PLANS:

FY 2000 ACCOMPLISHMENTS:
(U) ($8.8) SRS: Effort continued in support of phase three development of the SLBM Retargeting System.
2. (U) FY 2001 PLAN: · (U) ($8.7) SRS: Effort continues in support of phase three development and Fleet alterations for the SLBM Retargeting System.
3. (U) FY 2002 PLAN: · (U) ($8.8) SRS: Effort continues to completion of phase three development required for deployment and final implementation of the SLBM Retargeting System Program in October 2003.

B. (U) Other Program Funding Summary: (Dollars in Thousands)
N/A
(U) Related RDT&E: N/A

C. (U) Acquisition Strategy: Contracts will continue to be awarded to those sources who were engaged in the TRIDENT II (D5) development program and are currently engaged in the production and/or operational support of the deployed D5/C4 Strategic Weapons Systems on the basis of Other Than Full and Open Competition pursuant to the authority of 10 U.S.C. 2304 ©(1) and (3) implemented by FAR 6.302.-1, 3 4.

D. (U) Schedule Profile: Not Applicable.

Exhibit R-3 Cost Analysis (page 1) | DATE: **June 2001**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA 7** | PROGRAM ELEMENT: **Strat Sub & Wpns Sys Suppt - 0101221N** | PROJECT NAME AND NUMBER: TRIDENT II J0951

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Ancillary Hardware Development	SS/CPFF	GDDS/MA.	28.000	3.200	10/99	0.000	N/A	0.000	N/A			
Ancillary Hardware Development	WR	NSWC/VA.	45.800	5.600	10/99	8.700	10/00	8.800	10/00			
Subtotal Product Development			73.800	8.800		8.700		8.800		Cont.	Cont.	Cont.

Remarks:

											0.000	
Total Cost			73.800	8.800		8.700		8.800		0.000	100.100	

Remarks:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA 7**	PROGRAM ELEMENT NAME AND NUMBER **Strat Sub & Wpns Sys Suppt - 0101221N**				PROJECT NAME AND NUMBER TRIDENT Submarine System Improvement - S0004					
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost	**2.116**	**0.590**	**0.566**						**Cont.**	**Cont.**
RDT&E Articles Qty										

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 operations 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) Program Accomplishments and Plans:

1. (U) FY 2000 Accomplishments:

- (U) ($.506) Completed development of TRIDENT CCS MK2 Block 1C DWS Program.
- (U) ($1.610) Continued Architecture Model Maintenance and COTS Technical Refresher.

2. (U) FY 2001 Plan:
- (U) ($.5910 Continue Architecture Model Maintenance and COTS Technical Refresher.

3. (U) FY 2002 Plan:
- (U) ($.566) Continue Architecture Model Maintenance and COTS Technical Refresher.

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA 7**	PROGRAM ELEMENT NAME AND NUMBER **Strat Sub & Wpns Sys Suppt - 0101221N**	PROJECT NAME AND NUMBER TRIDENT Submarine System Improvement - S0004	

B. Other Program Funding Summary

Related OPN:	FY 2000	FY 2001	FY 2002	Complete	Total Cost
267600 (BA-2) Strategic Platform Suppt Equip	24.1	15.2	11.4	Cont.	Cont.
535500 (BA-4) Strategic Platform Suppt Equip	9.2	2.9	9.8	Cont.	Cont.

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E, N / BA 7	**Strat Sub & Wpns Sys Suppt - 0101221N**	TRIDENT Submarine System Improvement - S0004

(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) Acquisition Strategy:

The TRIDENT operational systems development program results in improvements to the baseline TRIDENT Combat System. Current TRIDENT Combat Systems were first developed in the early 1970s and are becoming increasingly difficult to maintain and offer comparatively less performance than more recently designed systems. Previous efforts to upgrade portions of the TRIDENT Combat System include improvements via sonar and combat control hardware and software (e.g., QE2 programs), feasibility of increased countermeasure capability and a concept evaluation of a Submarine Force Mission Program Library (SFMPL) interface. Due to the sensitivity of TRIDENT programs it is assessed that international technology will not have a major impact or be a recipient of the benefits derived from this effort. Development strategies will significantly enhance the sustainability and operability of the sonar, communications and Combat Control Systems on TRIDENTs by evaluating both OER possibilities and potential improvements.

E. (U) Schedule Profile:

Successful program development will lead to the submission and approval of system and subsystem Engineering Changes for installation during SSBN 726 class submarine backfits. Specific deliverable dates for the RDT&E,N and OP,N programs are:

Adv Rapid COTS Insertion (ARCI) Phase I/II - FY97 (2nd Qtr) – Program Inception
FY00 (4th Qtr) – Install and Test Prototype
FY02 (1st Qtr) – ARCI Certification/IOC

Combat Control System (CCS) MK2 Block 1C - FY98 (2nd Qtr) – Program Inception
FY00 (4th Qtr) – Install and Test Prototype
FY02 (1st Qtr) – Certification/IOC

Architecture Model Maint. & COTS Technology Refresh - FY98 (2nd Qtr) – Program Inception
FY00 – CONT. – COTS Supportability, Architecture Maintenance and COTS Management Processes

Q6 to Q5 Translator - FY98 (2nd Qtr) – Program Inception; Installation and Test; Certification/IOC

Exhibit R-3 Cost Analysis (page 1)

DATE: **June 2001**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA 4**

PROGRAM ELEMENT: **Strat Sub & Wpns Sys Suppt - 0101221N**

PROJECT NAME AND NUMBER: TRIDENT Submarine System Improvement - S0004

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Design/Development Engineering	SS-CPIF	Raytheon, Portsmouth, RI	5.910	0.000	N/A	0.000	N/A	0.000	N/A	0.000	5.910	5.910
Software Development			0.600	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.600	0.600
Design/Development Engineering	SS-CPFF	Lockheed Matin, Manassas, VA.	4.984	0.506	12/98	0.000	N/A	0.000	N/A	0.000	5.490	5.490
Design/Development Engineering	Various	Various	11.700	0.000	N/A	0.000	N/A	0.000	N/A	0.000	11.700	11.700
Subtotal Product Development			23.194	0.506	N/A	0.000	N/A	0.000	N/A	0.000	23.700	23.700
Remarks:												
Development Support Equipment											0.000	
Support & Management			0.020	0.000		0.000		0.000		0.000	0.020	
Subtotal Support			0.020	0.000		0.000		0.000		0.000	0.020	

Remarks:

Exhibit R-3 Cost Analysis (page 2)								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-7**			PROGRAM ELEMENT **Strategic Sub & Wpns Sys Spt 0101221N**			PROJECT NAME AND NUMBER TRIDENT Submarine System Improvement/S0004						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Test and Certification	WR	NUWC, Newport RI	0.854	1.610	10/99	0.590	10/00	0.566	10/00	0.000	3.629	3.629
Test and Certification	Various	Various	0.700	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.700	0.700
Operational Test & Evaluation											0.000	
Tooling											0.000	
GFE											0.000	
Subtotal T&E			1.554	1.610		0.590		0.566		0.000	4.329	4.329
Remarks: After transition to Commercial Off-The-Shelf (COTS) based systems, obsolescence becomes a major issue. To keep current, it is necessary to support the development and maintenance of a RDT&E process to maintain TRIDENT subsystems using commercial technology and parts. This model will continue the evaluation and implementation of COTS Technology.												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks: Government Furnished Property - not applicable.												
Total Cost			24.768	2.116		0.590		0.566		CONT.	CONT.	CONT.
Remarks:												

EXHIBIT R-2a, RDT&E Project Justification							DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA 7**	PROGRAM ELEMENT NAME AND NUMBER **Strat Sub & Wpns Sys Suppt - 0101221N**				PROJECT NAME AND NUMBER Technology Applications - J2228					
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost	**46.413**	**43.935**	**33.978**						**Cont.**	**Cont.**
RDT&E Articles Qty										

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 phenomena and future requirements.
• 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 have been defined and will be maintained to insure a functioning readiness application technical capability in reentry is preserved. Working closely with the Air Force, Navy requirements have been integrated with the Air Force requirements into a comprehensive program.
• This program provides a minimum strategic guidance core technology development capability consistent with the Strategic Advisory Group (SAG) recommendations to CINCSTRAT. The SAG recommended that SSP 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 are integrated and needs prioritized. Efforts are 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.
• Funding is included in FY 2003 and outyears to support D-5 Life Extension program requirements.

- (U) PROGRAM ACCOMPLISHMENTS AND PLANS:
FY 2000 ACOMPLISHMENTS:
- (U) ($18.6) Continued Reentry System Applications Program (RSAP). FY 2000 efforts included:
(U) Continued development and ground testing of reentry vehicle candidate heatshield, nosetip, and aft closure including those available from Science & Technology (S&T).
(U) Continued down-select process of low-cost candidate replacement materials.
(U) Initiated planning and procurement of required hardware and instrumentation for demonstration of low-cost replacement heatshield.
(U) Initiated build-up of heavily instrumented flight unit for aged hardware evaluation.
(U) Continued ground testing of reentry components exposed to operational environments beyond their design life, and evaluated FY 1999 ground testing data.
(U) Maintained RSAP technical program plan, conducted system assessments and initiated vulnerability & hardening certification process in absence of nuclear under ground testing (UGT) facilities.
(U) Evaluated Arming, Fuzing & Firing (AF&F) flight data.

• (U) ($27.8) Continued Strategic Guidance Applications Programs (GAP). FY 2000 efforts included:
(U) Completed and more fully utilized the Integrated Engineering Environment (IEE) virtual system capability. Continued with IEE/Strategic Inertial Guidance Hardware Technology Synthesizer (SIGHTS) towards a “real time” hardware-in-loop simulation capability targeted for completion in late FY 2001. Began to utilize the IEE/SIGHTS capability to perform system architecture/design tradeoffs. Initiated prototype alternate PIGA fabrication and subassembly testing.
(U) Continued Interferometic Fiber Optic Gyro (IFOG) work started in FY 1999. Initiated stellar subsystem prototype using English Electric Valve (EEV) or alternate sensor technology. (U) Developed unique integrated circuits (IC) using Radiation Hard Technology (RHT) to be infused into Computer Aided Design (CAD) tools. These RHTCAD tools will provide the Navy with a capability to replace and develop new RADHARD components as required for strategic missiles and satellites.

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E, N / BA 7	**Strat Sub & Wpns Sys Suppt - 0101221N**	Technology Applications - J2228

FY 2001 PLAN:
-(U) ($20.5) Continue Reentry System Applications Program (RSAP).
(U) Continue development and ground testing of reentry vehicle candidate heatshield, nosetip and aft closure materials including those available from Science & Technology (S&T).
(U) Conduct low-cost replacement heatshield flight test demonstration.
(U) Evaluate aged hardware flight data and observed ground test anomalies; develop risk mitigation concepts for known aging mechanisms.
(U) Identify and evaluate low-cost design approaches and components (including COTS) for arming and fuzing applications.
(U) Identify and evaluate low-cost inertial sensor technology for reentry body flight test instrumentation.
(U) Maintain RSAP technical program plan, conduct system assessments and continue vulnerability & hardening certification process in absence of nuclear under ground testing (UGT) facilities.
• (U) ($23.4) Continue Strategic Guidance Applications Programs (GAP). FY 2001 efforts include:
(U) Continue initial IEE/SIGHTS integration to provide a "real time" hardware-in-the-loop simulation capability for FY 2002. Initiate development of alternative models for incorporation in IEE.
(U) Complete the prototype accelerometer fabrication and initiate testing. Continue IFOG fabrication and test the stellar subsystem prototype technology task initiated in FY 2000. Evaluate alternate steller sensor technology. Evaluate circumvention methodology using SIGHTS hardware.
(U) Pursue alternate strategies in order to attain strategic performance from the Hemispherical Resonator Gyro (HRG). Assess producibility for various Alternate PIGA technologies.
(U) Provide Chemical Mechanical Planarization (CMP) capability to the SPAWAR micro-electronic fabrication facility. This metal interconnect technology enhancement allows SPAWAR to manufacture electronic devices using methods compatible with the latest commercial practices. This equipment is required for the development and validation of Radiation Hardened Technology Computer Aided Design (RHTCAD) dose rate response modeling.

FY 2002 PLAN:
(U) ($19.0) Continue Reentry System Applications Program. FY 2002 efforts include:
(U) Continue development and ground testing of reentry vehicle candidate heatshield, nosetip, and aft closure materials including those available from Science & Technology (S&T).
(U) Evaluate low-cost replacement heatshield flight test demonstration data.
(U) Conduct updated ground and flight test program to assess performance of reentry components exposed to operational environments beyond their design life; develop risk mitigation concepts for known aging mechanisms.
(U) Identify and evaluate low-cost design approaches and components (including COTS) for arming and fuzing applications.
(U) Continue evaluation of low-cost inertial sensor technology for reentry body flight test instrumentation.
(U) Maintain RSAP technical program plan, conduct system assessments and continue vulnerability & hardening certification process in absence of nuclear under ground testing (UGT) facilities.
• (U) ($15.0) Continue Strategic Guidance Applications Programs (GAP). FY 2002 efforts include:
(U) Initiate IEE virtual implementation validation. Complete IEE/SIGHTS integration to evaluate alternate system architectures. Initiate incorporation of alternate sensor technologies, PIGA and system circumvention metholology into SIGHTS.
(U) Complete the prototype IFOG fabrication and initiate testing. Initiate alternate stellar subsystem design based on current sensor technology. Survey emergent technologies for alternate gyro and PIGA. Perform radiation testing of current electronics technology.
(U) Continue build and test of Hemispherical Resinator Gyro (HRG) prototype hardware. Testing will assess the best approach to attain Strategic Performance.

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E, N / BA 7	**Strat Sub & Wpns Sys Suppt - 0101221N**	Technology Applications - J2228

B. Other Program Funding Summary
N/A

C. Acquisition Strategy: Contracts will continue to be awarded to those sources who were engaged in the TRIDENT II (D5) development program and are currently engaged in the production and/or operational support of the deployed D5/C4 Strategic Weapons Systems on the basis of Other Than Full and Open Competition pursuant to the authority of 10 U.S.C. 2304 (c) (1) and (3) implemented by FAR 6.302.-1, 3 4.

D (U) Schedule Profile: Not Applicable

Exhibit R-3 Cost Analysis (page 1)										DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA 4**			PROGRAM ELEMENT **Strat Sub & Wpns Sys Suppt - 0101221N**			PROJECT NAME AND NUMBER Technology Applications - J2228						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Technology Applications	SS, CPFF	LMMS/CAL	25.500	8.600	10/99	6.500	10/00	6.100	N/A	Cont.	Cont.	Cont.
Technology Applications	WR	NSWC/VA	19.800	6.700	10/99	5.500	10/00	5.500	10/01	Cont.	Cont.	Cont.
Technology Applications	MIPR	DOE/NM	3.700	1.600	10/99	4.400	10/00	2.200	10/01	Cont.	Cont.	Cont.
Technology Applications	SS-CPFF	CSDL/MA	1.400	1.200	10/99	3.400	10/00	4.300	10/01	Cont.	Cont.	Cont.
Technology Applications	SS-CPFF	KAMAN/CO	2.200	0.600	10/99	0.700	10/00	0.900	10/01	Cont.	Cont.	Cont.
Technology Applications	SS-CPFF	CSDL/MA	46.000	27.800	10/99	16.500	10/00	15.000	10/01	Cont.	Cont.	Cont.
Technology Applications	SS-CPFF	CNSW/IN	0.000	0.000	N/A	6.900	10/00	0.000	N/A	Cont.	Cont.	Cont.
Subtotal Product Development			98.600	46.400		43.900		34.000		Cont.	Cont.	Cont.
Remarks:												
Development Support Equipment											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Subtotal Support			0.000	46.400		43.900		34.000		0.000	124.300	
Remarks:												

EXHIBIT R-2, RDT&E Budget Item Justification									DATE: **June 2001**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY//BA-7**					R-1 ITEM NOMENCLATURE Submarine Acoustic Warfare Development/0101226N					
COST ($ in Millions)	FY 2000	FY 2001	FY 2002							
Total PE Cost	**3.857**	**0.871**	**0.996**							
Submarine Defensive Warfare/V1265	**3.857**	**0.000**	**0.000**							
Submarine Defensive Warfare/F1265	**0.000**	**0.871**	**0.996**							
Quantity of RDT&E Articles										

A. Mission Description and Budget Item Justification: This project develops a Submarine Defensive Warfare System (SDWS) to improve the effectiveness and survivability of all classes of US submarines. Project efforts consist of a new acoustic threat intercept system that will have threat platform sonar and torpedo recognition capability for early detection, classification, and tracking of threats. It will allow radius of curvature and multipath ranging. The system will also include a control subsystem for launch management of all onboard countermeasure devices and launchers. Integrate technology insertion of COTS through Acoustic Rapid COTS Insertion (ARCI) and Advanced Process Build (APB) software improvements to the AN/WLR-9 system. Next Generation Countermeasure (NGCM) including Weapons Analysis Facility (WAF) simulation analysis capability provides the US Navy with testing of hardware and software within detailed representations of acoustic environments. Provides integration of the Anti-Torpedo Torpedo (ATT) All Up Round (AUR) for Submarine Force use.

1. (U) FY 2000 Plan:
   - ($3.857) Complete Phase II Design Review and conduct TECHEVAL/OPEVAL for the AN/WLY-1 system.

2. (U) FY 2001 Plan:
   - ($0.865) Perform AN/WLR-9 Sensor Development.
   - ($0.006) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

3. (U) FY 2002 Plan:
   - ($0.996) Conduct at-sea test. Continue AN/WLR-9 Technology Transition and begin integration of the ATT AUR for Submarine Force use.

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY//BA-7**	R-1 ITEM NOMENCLATURE Submarine Acoustic Warfare Development/0101226N

B. Program Change Summary:

	FY 2000	FY 2001	FY 2002
(U) FY 2001 President's Budget:	3.178	0.879	0.997
(U) Appropriated Value:	3.178	0.879	0.997
(U) Adjustments to FY2000/2001 Appropriated Value/ FY 2001 President's Budget:	0.679	-0.008	-0.001
(U) FY 2002 PRES Budget Submit:	3.857	0.871	0.996

Funding: FY 2000: Increase of (+$0.679) is due to +792 for FY2000 actuals and (-$0.113) for undistributed reductions.
FY 2001: Decrease of (-$0.008) is due to undistributed reductions.
FY 2002: Decrease of (-$0.001) is due to undistributed reductions.

Schedule: Not Applicable

Technical: Not Applicable

C. Other Program Funding Summary:

D. Acquisition Strategy: Sole Source Contract to Developer for 2 units in FY00, and a one-time Competitive Contract buying out the Backfit market within the FYDP.

OPN BLI: 221000/221005 Submarine Acoustic Warfare Systems

FY 2000	FY 2001	FY 2002
12.983	10.598	12.624

D. Acquisition Strategy: Multi-year competitive contract for the WLY-1 backfit market starting in FY01 has been delayed.

E. Schedule Profile: See Attached Schedule

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY//BA-7**	R-1 ITEM NOMENCLATURE Program Element (PE) Name and No. Submarine Acoustic Warfare Development/0101226N

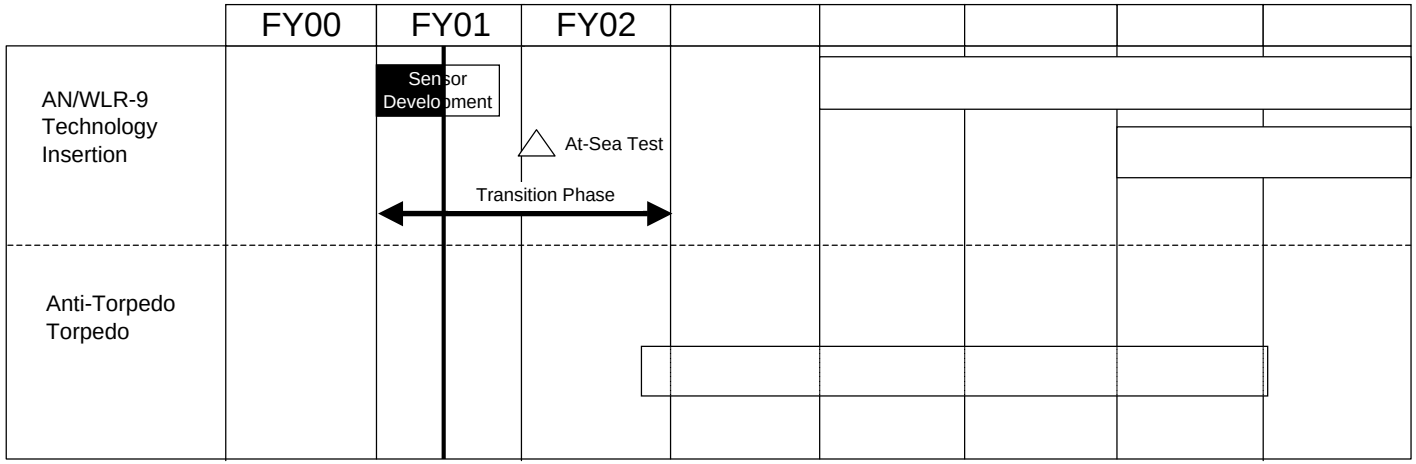


Exhibit R-3 Cost Analysis (page 1)								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-7**			PROGRAM ELEMENT **Sub Acoustic Warfare Dev/0101226N**			PROJECT NAME AND NUMBER Submarine Defensive Warfare Systems/V1265						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			
Primary Hardware Development	C/CPAF	Northrop Grum Melville, NY	35.545	1.917	02/00							
Ancillary Hardware Development												
Systems Engineering	C/CPAF	General Dyn Groton,CT	4.778									
Systems Engineering	WR	PNSY	0.730									
Systems Engineering	WR	NUWC Newport, RI	2.763	1.073	02/00	0.549	11/00	0.549	11/01			
Systems Engineering	WR	NSWC Crane, IN	0.000	0.291	04/00			0.100				
Tooling												
GFE												
Award Fees												
Subtotal Product Development			43.816	3.281		0.549		0.649				

Remarks:
Award Fees: (FY - Amount Budgeted - % Awarded)
FY92 - $205,367 - 57% FY95 - $63,010 - 49% FY98 - $220,000 - 74%
FY93 - $184,830 - 66% FY96 - $271,199 - 88% FY99 - $234,566 - 77%
FY94 - $154,025 - 78% FY97 - $258,198 - 83% FY00 - $215,940 - 78%

Development Support Equipment												
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
GFE												
Miscellaneous	WR		0.196	0.000	Various	0.072	Various	0.072	Various			
Subtotal Support			0.196	0.000		0.072		0.072				

Remarks:

Exhibit R-3 Cost Analysis (page 2)								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-7**			PROGRAM ELEMENT **Sub Acoustic Warfare Dev/0101226N**			PROJECT NAME AND NUMBER Submarine Defensive Warfare Systems/V1265						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			
Developmental Test & Evaluation	WR	OPTEVFOR Norfolk, VA	0.055									
Operational Test & Evaluation	WR	OPTEVFOR Norfolk, VA		0.076	03/00							
Operational Test & Evaluation												
GFE												
Subtotal T&E			0.055	0.076		0.000		0.000				
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support	C/CPFF	RM Vredenburg Reston, VA	1.517	0.400	11/99	0.200	12/00	0.200	12/00			
Travel		PMS415	0.210	0.100		0.050		0.075				
Labor (Research Personnel)												
Overhead												
Subtotal Management			1.727	0.500		0.250		0.275				
Remarks:												
Total Cost			45.794	3.857		0.871		0.996				
Remarks:												

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification										DATE: **June 2001**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0101402N Navy Strategic Communications					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	**0.000**	**0.000**	**0.000**	**4.205**							
H0793 E-6 Service Life Assessment	**0.000**	**0.000**	**0.000**	**0.000**							
H3002 Navy Strategic Communications Project	**0.000**	**0.000**	**0.000**	**4.205**							
Quantity of RDT&E Articles Not Applicable											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
(H0793) The E-6A was a military variant of the BOEING commercial 707 airframe with expected service life of 27,000 hours at the E-6A weight and operational tempo. Modification of aircraft to E-6B Airborne Command Post configuration increased maximum zero gross fuel weight and altered intended operational tempo without an associated service life assessment. The current service life assessment is outdated leading to unknown service life and inaccurate airframe inspection and maintenance plans. Completion of SLAP determines aircraft service life, identifies areas for extending aircraft life, directs future program efforts and will serve as the basis for a Service Life Extension Program.
(H3002) This funding replaces the existing Digital Airborne Intercommunications Switching System (DAISS) and Very Low Frequency (VLF) Transmit terminal and adds Open Architecture capabilities to the E-6 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.

R-1 SHOPPING LIST - Item No. 179

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0101402N Navy Strategic Communications					PROJECT NUMBER AND NAME H3002 Navy Strategic Communications Project					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost				**4.205**							
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
(H3002) This funding replaces the existing Digital Airborne Intercommunications Switching System (DAISS) and Very Low Frequency (VLF) Transmit terminal and adds Open Architecture capabilities to the E-6 Aircraft.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS: - Not Applicable

2. FY 2001 PLANS: - Not Applicable

3. FY 2002 PLANS:
   (U) ($ 2.215) Funding is in support of the replacement of DAISS and VLF Transmit terminal and addition of Open Architecture to the E-6.
   (U) ($ 1.850) Contract support services for the replacement of DAISS and VLF Transmit terminal and addition of Open Architecture to the E-6.
   (U) ($ .140) Travel requirements to support Program personnel and NAWC personnel.

R-1 SHOPPING LIST - Item No. 179

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0101402N Navy Strategic Communications	H3002 Navy Strategic Communications Project

(U) B. PROGRAM CHANGE SUMMARY: Not Applicable

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:			
(U) Adjustments from the President's Budget:			4.205
(U) FY 2002 President's Budget Submit:			4.205

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2002 net increase of $4.205 is for three new programs (DAISS, VLF, and Open System Architecture).

(U) Schedule: Not Applicable

(U) Technical: Not Applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002
056400 E-6A Series	84.406	60.130	74.847

R-1 SHOPPING LIST - Item No. 175

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0101402N Navy Strategic Communications	H3002 Navy Strategic Communications Project

(U) D. ACQUISITION STRATEGY: Competitively Award Cost Plus Development Contract with follow on FFP Production Contract.

(U) E. SCHEDULE PROFILE:

	FY 2000	FY 2001	FY 2002
(U) Program Milestones			
(U) Engineering Milestones			
(U) T&E Milestones			
(U) Contract Milestones			

R-1 SHOPPING LIST - Item No. 179

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0101402N Navy Strategic Communications			PROJECT NUMBER AND NAME H3002 Navy Strategic Communications Project						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E			0.000	0.000		0.000				0.000	0.000	
Remarks:												
											0.000	
Government Engineering Support	WX	NAWCAD PAX RIVER, MD				2.215	10/01			Continuing	Continuing	
Engineering Technical Services	RX	TBD				1.850	10/01			Continuing	Continuing	
Travel						0.140				Continuing	Continuing	
Subtotal Management			0.000	0.000		4.205				Continuing	Continuing	
Remarks:												
Total Cost			0.000	0.000		4.205				Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 179

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0204136N F/A-18 SQUADRONS					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	**8,509.247**	**307.589**	**234.490**	**253.257**							
E1662 F/A-18 Improvements	* **2,799.625**	*** **172.039**	**114.155**	**136.556**							
E2065 F/A-18 RADAR Upgrade	** **299.116**	**3.652**	**102.987**	**115.455**							
E2130 F/A-18 Follow-On Variant	**5,410.506**	**131.898**	**17.348**	**1.246**							
Quantity of RDT&E Articles	**10**										

*FY92 & Prior: $2511.304; FY93-FY95: $55.765; FY96-FY99: $232.556
**FY 1991 through FY 1999 = $272.228. Adding RUG Phase I and RUG Phase II
***The FY 2000 budget reflects a $5.000M Congressional add for Radar ECCM Improvements, executed under E2803, which has been decreased by $.028M for a Congressional Rescission and $.061M for a SBIR Assessment. The FY 2000 budget also includes a $2.000M Congressional add for Bol Chaff which is requested for reprogramming to the F-14 RDT&E,N program.

(U) A. 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.

F/A-18 Improvements: 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).

F/A-18 Radar Upgrade: The F/A-18 Radar Upgrade, Active Electronically Scanned Array (AESA) development program, beginning in FY 1999, is the last of three pre-planned upgrades to the F/A-18 Type/Model/Series radar. The AESA corrects operational test deficiencies noted in the AN/APG-73. It provides for multi-target tracking, Synthetic Aperture Radar (SAR) imagery, SAR Target Location Error (TLE), and improved spotlight map resolution. In addition, it provides for greater lethality than previous F/A-18 radars by allowing for full tactical support of existing and planned air-to-air (A/A) and air-to-ground (A/G) weapons significantly increases A/A and A/G detection and tracking ranges. The AESA provides greater survivability through self-protection and standoff jamming capabilities, while its greater range allows for reduced detection by enemy radar. The AESA is also more affordable than previous radars. Significant savings in operating and support costs can be realized through a five fold increase in reliability over the AN/APG-73 as well as incorporating open architecture and Higher Order Language software. Additionally, savings can be realized by avoiding parts obsolescence redesign costs that will be experienced on the AN/APG-65 and AN/APG-73.

R-1 SHOPPING LIST - Item No. 176

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**	R-1 ITEM NOMENCLATURE 0204136N F/A-18 SQUADRONS

F/A-18 Follow-On Variant: The follow-on F/A-18 (E/F version) is an airframe upgrade incorporating increased capabilities, performance, and survivability necessary to satisfy the 41% percent increase in range over the C/D in the high-low-low-high attack/interdiction mission carrying three 480 gallon drop tanks, four 1,000 pound bombs, and two AIM-9 air-to-air missiles. The E/F version has increased internal fuel capacity, increased weapons carriage capability, increased carrier recovery payload, enhanced survivability/vulnerability, increased growth capacity, and increased engine thrust. It retains 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.

R-1 SHOPPING LIST - Item No. 176

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification									DATE: **JUNE 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204136N/F/A-18 SQUADRONS					PROJECT NUMBER AND NAME E1662 F/A-18 IMPROVEMENTS					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**2,799.625**	**172.039***	**114.155**	**136.556**							
Quantity of RDT&E Articles **Not Applicable**											

***The FY 2000 budget reflects a $5.000M Congressional add for Radar ECCM Improvements, executed under E2803, which has been decreased by $.028M for a Congressional Rescission and $.061M for a SBIR Assessment. The FY 2000 budget also includes a $2.000M Congressional add for Bol Chaff which is requested for reprogramming to the F-14 RDT&E,N program.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The F/A-18 is a multi-mission strike fighter aircraft that is used in both fighter and attack roles through selected use of external equipment (fuel tanks, targeting/navigation, Forward Looking Infrared (FLIR) pods, and various bomb/missile launching racks). In order to respond effectively to emerging future threats, F/A-18 aircraft capabilities are being upgraded to incorporate new/enhanced weapons systems and avionics including the Positive Identification System (PIDS) (incorporates Congressionally mandated Combined Interrogator Transponder (CIT) Identification Friend or Foe (IFF) System, Digital Communications System (DCS), Joint Helmet Mounted Cueing System (JHMCS), Advanced Targeting Forward Looking Infrared (ATFLIR), development and integration of the Multifunctional Information Distributions System (MIDS), conversion of the System Configuration Set (SCS) to a Higher Order Language (HOL), development of the F/A-18 E/F Advanced Crew Station (ACS), and upgrade of the existing Global Positioning System/Inertial Navigation System in order to meet precision strike/precision approach requirements. Continued hardware/software development is required to successfully optimize fleet F/A-18 weapons systems. As F/A-18 Squadrons report system problems/requirements, a continuing capability is needed to perform technical evaluations/investigative flight testing, provide software support and integrate selected improvements

R-1 SHOPPING LIST - Item No. 176

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204136N/ F/A-18 SQUADRONS	E1662 F/A-18 IMPROVEMENTS

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS :

* (U) ($2.756) Conducted engineering analysis and developed improvements to existing systems and subsystems for deficiencies identified during development of the aircraft. Provided technical support for the integration of new weapons and systems.

* (U) ($3.117) Developed and integrated enhancements to the effectiveness, operability, and safety of the F/A-18 Weapon System (airframe, avionics, and weapons) and subsystems to include (MIDS), AIM-9X, and Tactical Aircraft Moving Map Capability (TAMMAC). Continued to investigate deficiencies and develop corrective action. Successfully completed LRIP II decision in support of Lot 24 Airborne Launch Control System (ALCs). Continued DT evaluation and OPEVAL for subsystems.

*(U) ($18.328) Continued development of DCS, PIDS, and JHMCS.

*(U) ($1.989) Congressional add for BOL CHAFF development (Funds being reprogrammed).

*(U) ($86.140) Continued ATFLIR development, DT-IIA testing and start DT-IIB testing.

*(U) ($54.798) Continued conversion of the System Configuration Set (SCS) to a High Order Language (HOL). Commenced development of ACS to enable Independent Weapon System Operator functionalities.

* (U) ($4.911) Initiated development studies and software improvements for Radar Electronic Counter- Counter Measures (ECCM) and ID techniques.

R-1 SHOPPING LIST - Item No. 176

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	02014136N F/A-18 SQUADRONS	E1662 F/A-18 IMPROVEMENTS

2. FY 2001 PLANS:

* (U) ($.786) Continue to conduct engineering analysis and develop improvements to existing systems and subsystems for deficiencies identified during development of the aircraft. Provide technical support for the integration of new weapons and systems.

* (U) ($7.080) Continue to develop and integrate enhancements to the effectiveness, operability, and safety of the F/A-18 Weapon System (airframe, avionics, and weapons) and subsystems to include MIDS, AIM-9X, and TAMMAC. Continue to investigate deficiencies and develop corrective action.

* (U) ($9.178) Complete development of DCS and PIDS. Continue development of JHMCS.

* (U) ($29.553) Continue ATFLIR development, DT-IIA and DT-IIB. Commence DT-IIC testing.

* (U) ($64.978) Continue software conversion from assembly language SCS to a Higher Order Language for load H1E. Continue development of Advanced Crew Station (ACS). Operational Assessment (OA) testing is planned to commence upon completion of DT testing.

* (U) ($2.580) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.

3. FY 2002 PLANS:

* (U) ($1.455) Continue to conduct engineering analysis and develop improvements to existing systems and subsystems for deficiencies identified during development of the aircraft. Provide technical support for the integration of new weapons and systems.

* (U) ($11.739) Continue to develop and integrate enhancements to the effectiveness, operability, and safety of the F/A-18 Weapon System (airframe, avionics, and weapons) and subsystems to include MIDS, and completion of AIM-9X and TAMMAC development. Continue to investigate deficiencies and develop corrective action.

* (U) ($.398) Complete development of JHMCS.

* (U) ($43.651) Continue ATFLIR development, DT-IIC testing and commence TECHEVAL and OTRR testing.

* (U) ($79.281) Continue software conversion from assembly language SCS to a Higher Order Language for load H1E. Commence HOL software development load H2E. Continue Advanced Crew Station (ACS).

R-1 SHOPPING LIST - Item no. 176

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	02014136N F/A-18 SQUADRONS	E1662 F/A-18 IMPROVEMENTS

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	175.130	124.842	89.444
(U) Adjustments from the President's Budget:	-3.091	-10.687	47.112
(U) FY 2002 President's Budget Submit:	172.039	114.155	136.556

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net decrease of $3.091 million consists of a decrease of $.686 million for a Congressional Rescission, a decrease of $3.066 million for a Small Business Innovation Research assessment, an increase of $4.0 million for Higher Order Language (HOL) development efforts, a decrease of $.012 million for a Federal Technology Transfer, and a decrease of $3.327 million for reprioritization of requirements within the Navy. *(Note 1) The FY 2001 net decrease of $ 10.687 million is due to a decrease of $.839 million for a Congressional Reduction, a $4.0 million Congressional reduction against ATFLIR, a $1.0 million Congressional reduction against Joint Helmet Mounted Cueing System (JHMCS), a decrease of $.261 million for a Congressional Rescission, and a decrease of $4.587 million for reprioritization of requirements within the Navy. The FY 2002 net increase of $47.080 million consists of an increase of $39.400 million for ATFLIR restructure (from APN-1), a decrease of $.147 million for economic assumptions, an increase of $18.150 million for Higher Order Language (HOL) development, and a decrease of $10.323 million for reprioritization of requirements within the Navy.

*Note 1: BOL CHAFF Funding reported under E1662, however the funds remain on OSD deferral pending Congressional approval of a reprogramming action.

(U) Schedule: Not applicable.

(U) Technical: Not applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete
APN-1 (E/F)	2832.64	2850.619	3156.398						
APN-5	317.666	261.789	193.206						

Related RDT&E

(U) P.E. 0207163N Advanced Medium Range Air-to-Air Mis (U) P.E. 0604777N Navigation ID System, project X0921, NAVSTAR GPS equipment
(U) P.E. 0604727N Joint Stand-off Weapon (JSOW) System (U) P.E. 0404215N Standards Development
(U) P.E. 0604270N EW Development (U) P.E. 0204136N Radar Upgrade (AESA)

R-1 SHOPPING LIST - Item no. 176

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **JUNE 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204136N/ F/A-18 SQUADRONS	E1662 F/A-18 IMPROVEMENTS

(U) D. ACQUISITION STRATEGY: The F/A-18 Improvements program consists of extensive development projects and integration of avionics systems onto the F/A-18E/F that were initially developed for incorporation onto the F/A-18C/D as the lead platform.

The major programs within the F/A-18 Improvements Line are as follows:

*PIDS. PIDS is a sole source cost plus fixed fee contract on an R&D Basic Ordering Agreement. Will be bought as CFE through the prime contractor.

*ATFLIR. The ATFLIR development was a sole source incentive fee contract to Boeing. Boeing competed the development contract. The procurement supplier is sole source to Boeing.

* Higher Order Language (HOL). The conversion of the System Configuration Set software to HOL will be accomplished by the F/A-18 Advanced Weapons Laboratory at China Lake as the designated Software Support Activity for the F/A-18. The design of the software will be accomplished by Boeing under sole source contracts. CY2000, the contract vehicle is a Technical Direction Letter contract at China Lake. As the Prime contractor for the aircraft, Boeing is the design agent for software of aircraft in production.

* Advanced Crew Station. The design and development of the Advanced Crew Station modification is sole source to Boeing as the Prime aircraft contractor.

* DCS. DCS is a sole source cost plus fixed fee contract on an R&D Basic Ordering Agreement. Equipment is GFE.

* MIDS. An acquisition developmental effort supported by SPAWAR (PMW-159), MIDS is being developed by a consortium of international companies.

* JHMCS. JHMCS is a sole source award fee Joint Air Force contract to Boeing.

(U) E. SCHEDULE PROFILE: See following pages.

R-1 SHOPPING LIST - Item No. 176

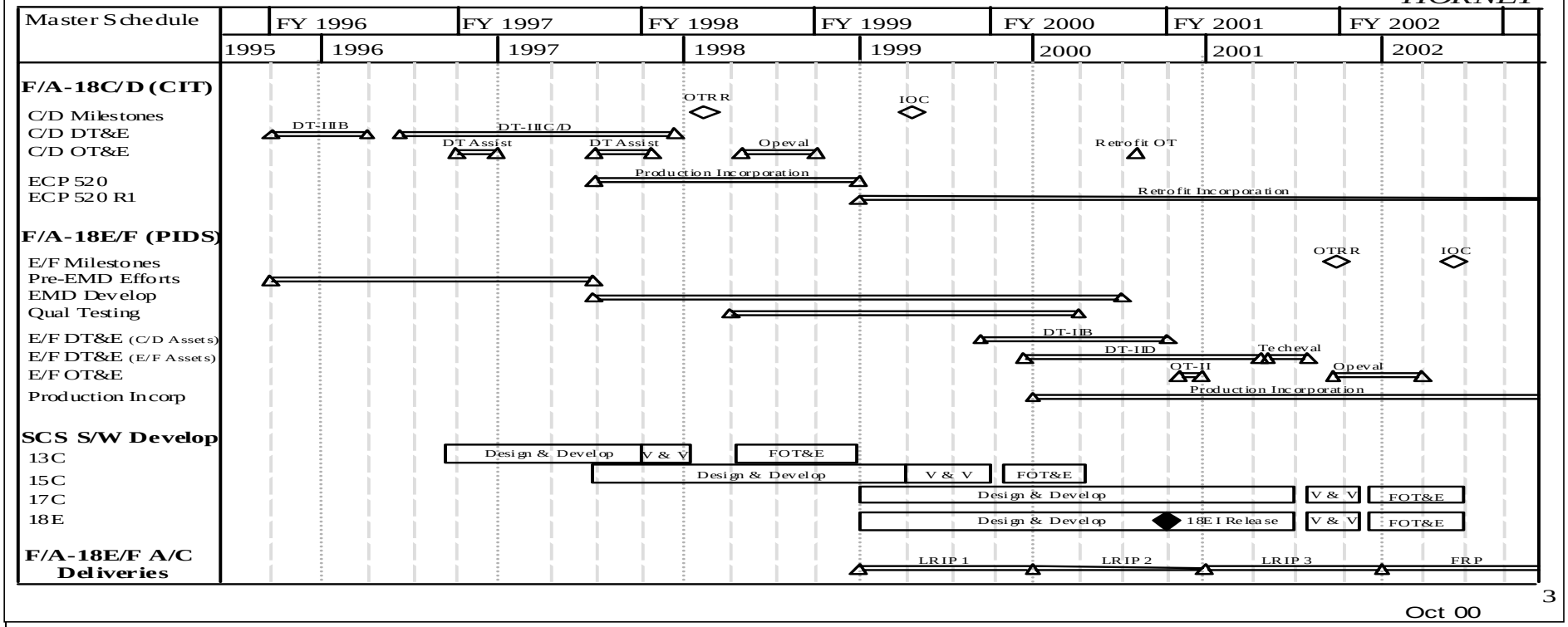
CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204136N F/A-18 Squadrons	E1662 F/A-18 Improvements

PEO(T), F/A-18 IPT

PIDS MASTER SCHEDULE

TEAM HORNET



R-1 SHOPPING LIST - Item No. 176

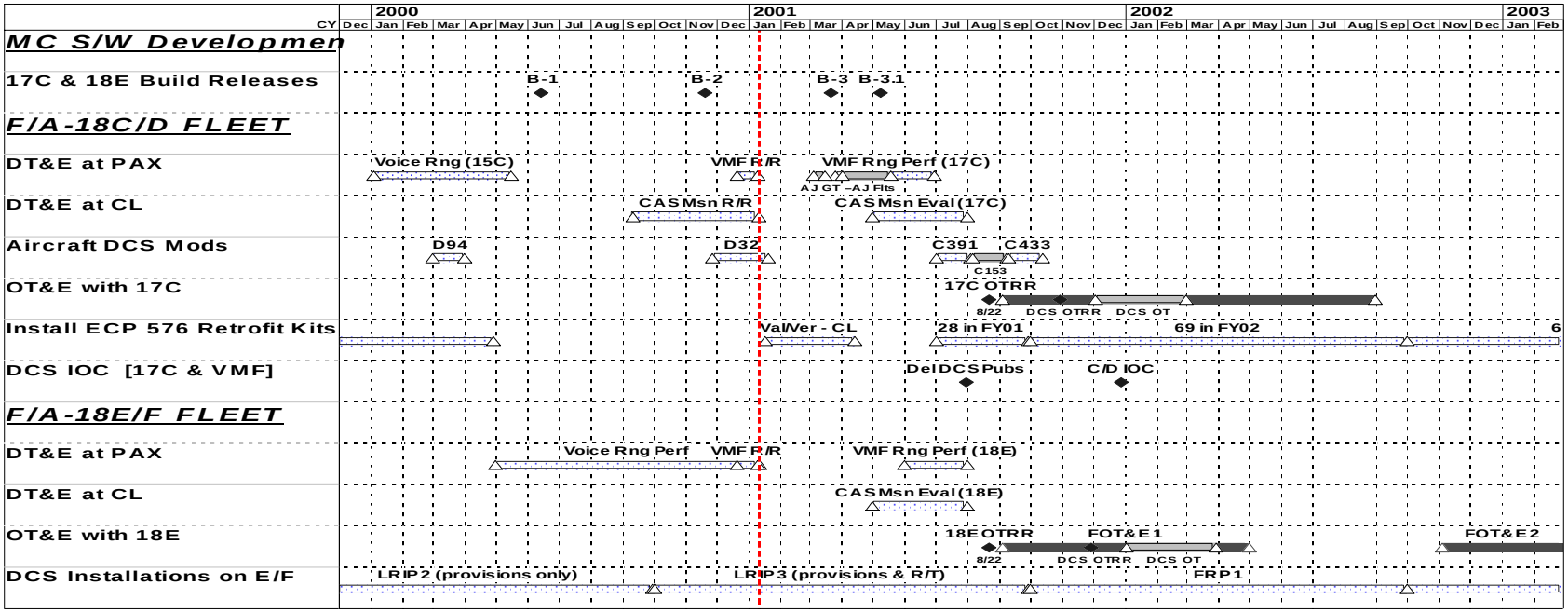
CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204136N F/A-18 Squadrons	E1662 F/A-18 Improvements

PEO(T), F/A-18 IPT

DCS MASTER SCHEDULE

TEAM HORNET



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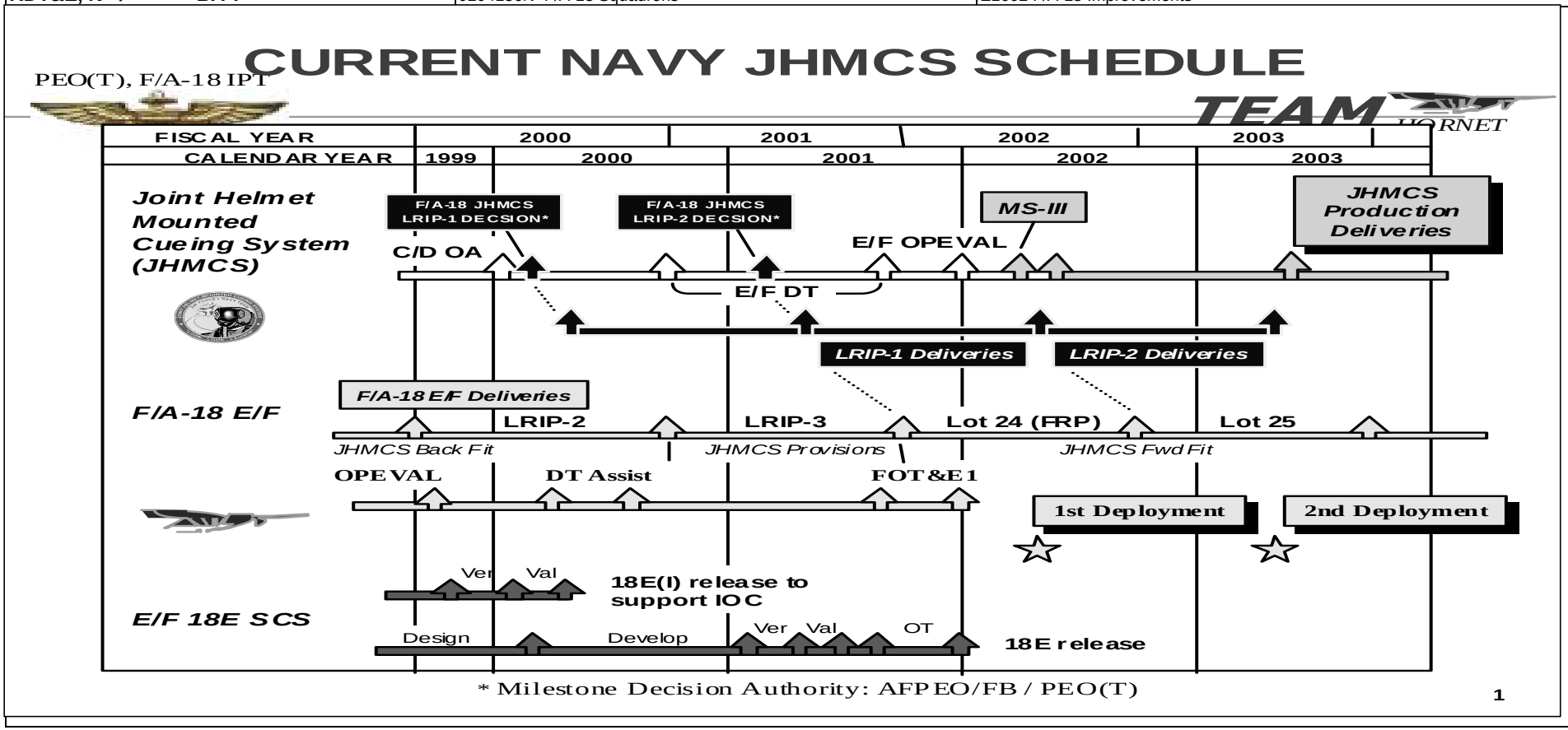
Apr 01

R-1 SHOPPING LIST - Item No. 176

CLASSIFICATION:

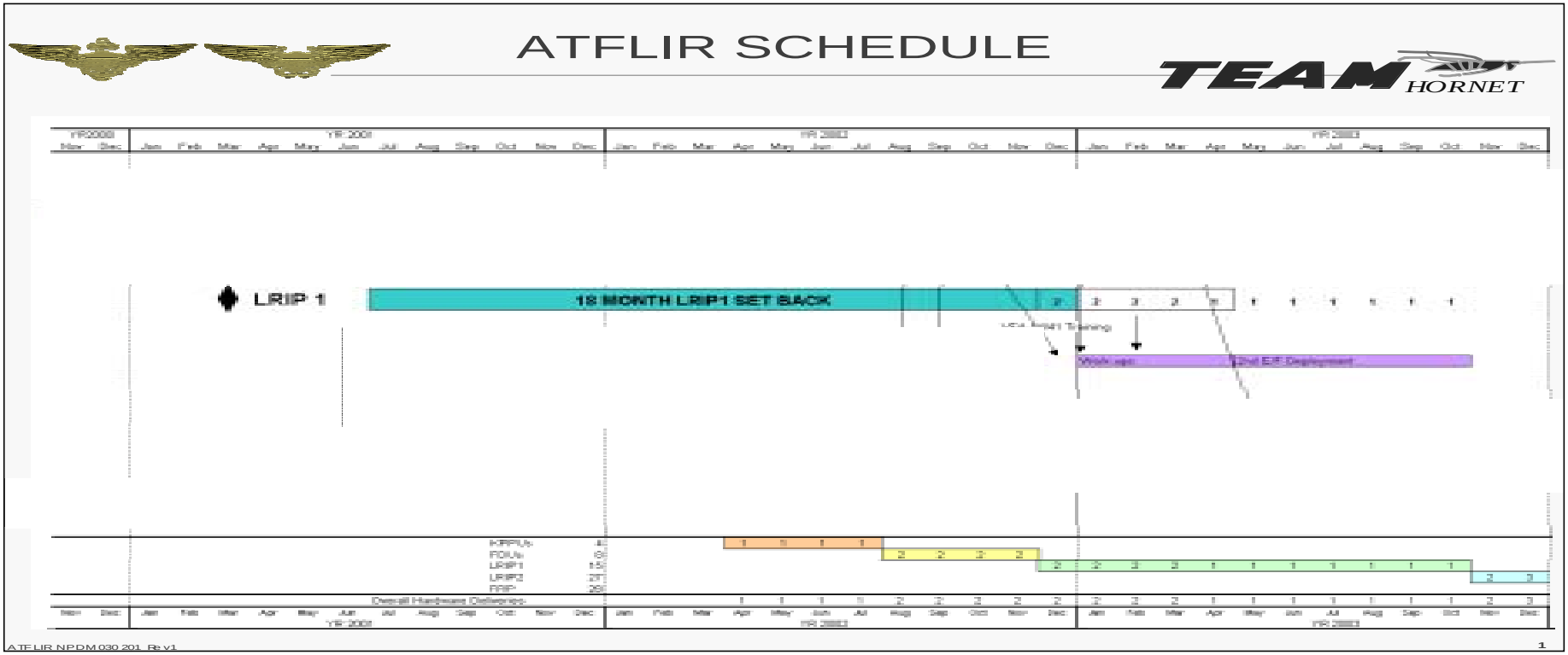
EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204136N F/A-18 Squadrons	E1662 F/A-18 Improvements



R-1 SHOPPING LIST - Item No. 176

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204136N F/A-18 Squadrons	E1662 F/A-18 Improvements



R-1 SHOPPING LIST - Item No. 176

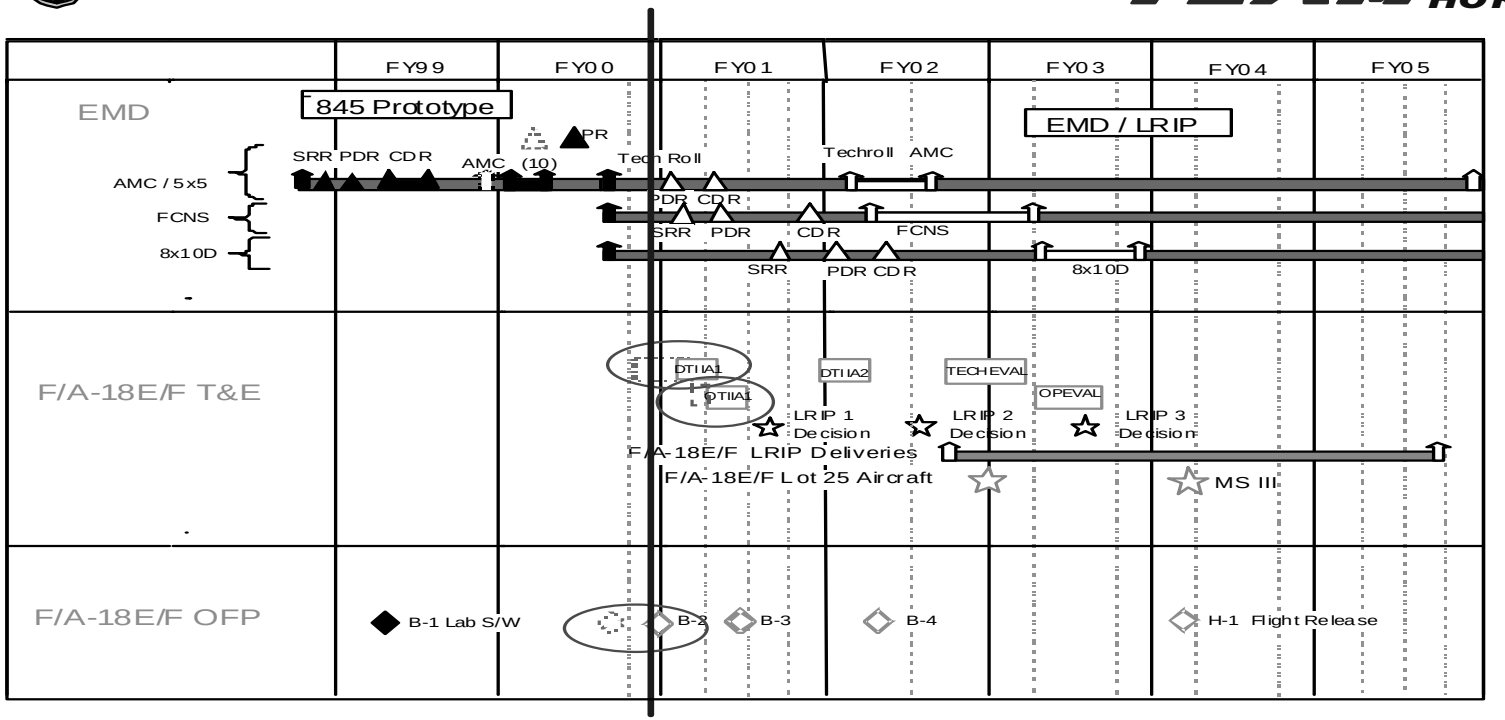
CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204136N F/A-18 Squadrons	PROJECT NUMBER AND NAME E1662 F/A-18 Improvements

PEO(T), F/A-18 IPT

F/A-18E/F AMC&D / HOL Integrated Master Schedule

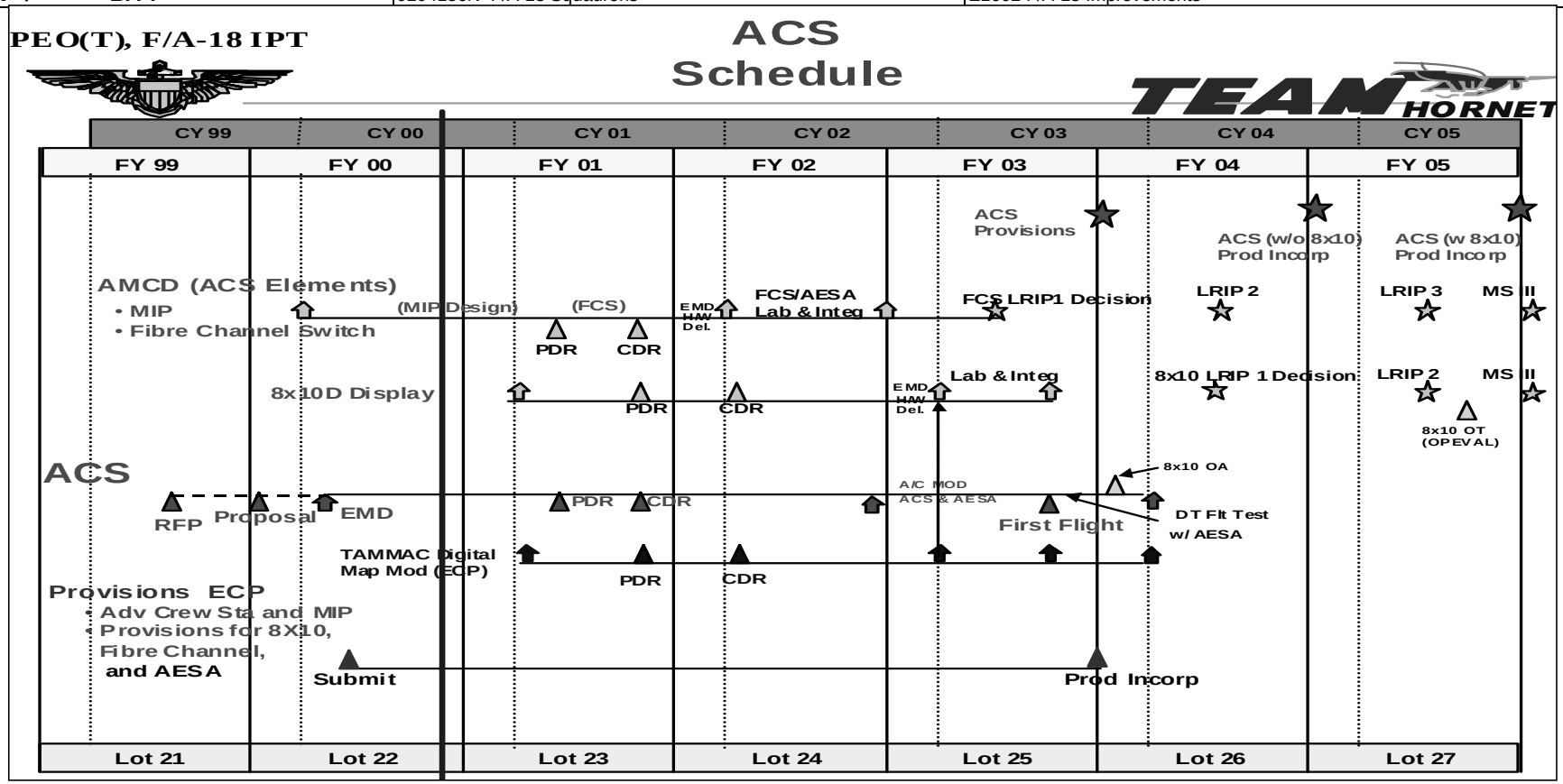
TEAM HORNET



R-1 SHOPPING LIST - Item No. 176

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204136N F/A-18 Squadrons	E1662 F/A-18 Improvements



R-1 SHOPPING LIST - Item No. 176

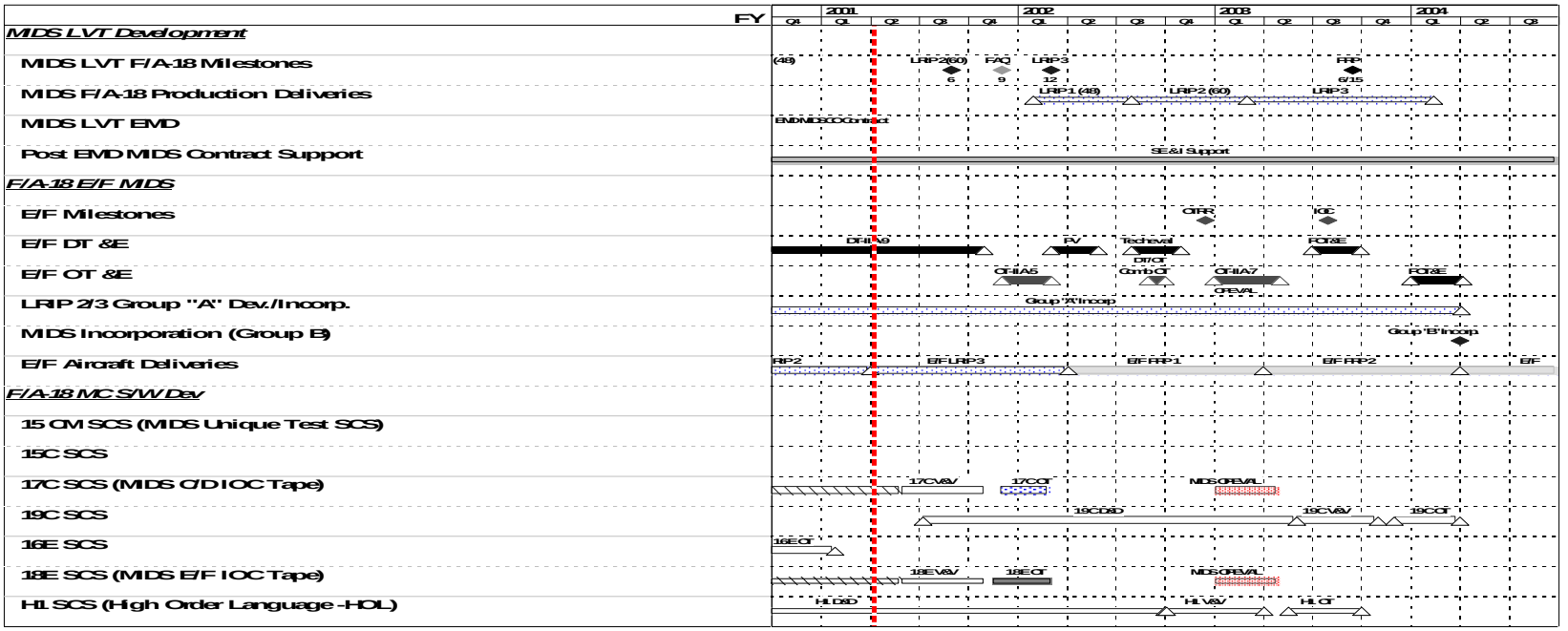
CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204136N F/A-18 Squadrons	E1662 F/A-18 Improvements

PEO(T), F/A-18 IPT

MIDS MASTER SCHEDULE

TEAM HORNET



Jan 01

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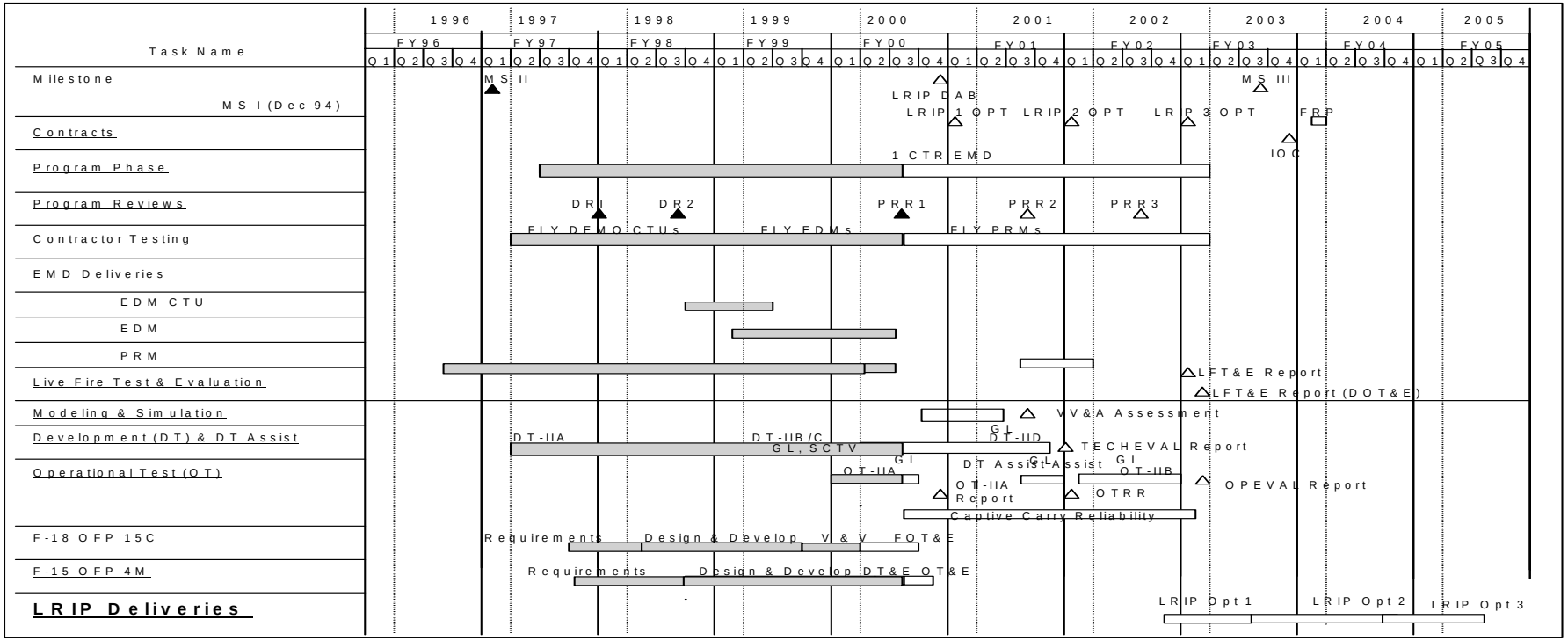
R-1 SHOPPING LIST - Item No. 176

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204136N F/A-18 Squadrons	PROJECT NUMBER AND NAME E1662 F/A-18 Improvements

AIM-9X Integrated Program Schedule



R-1 SHOPPING LIST - Item No. 176

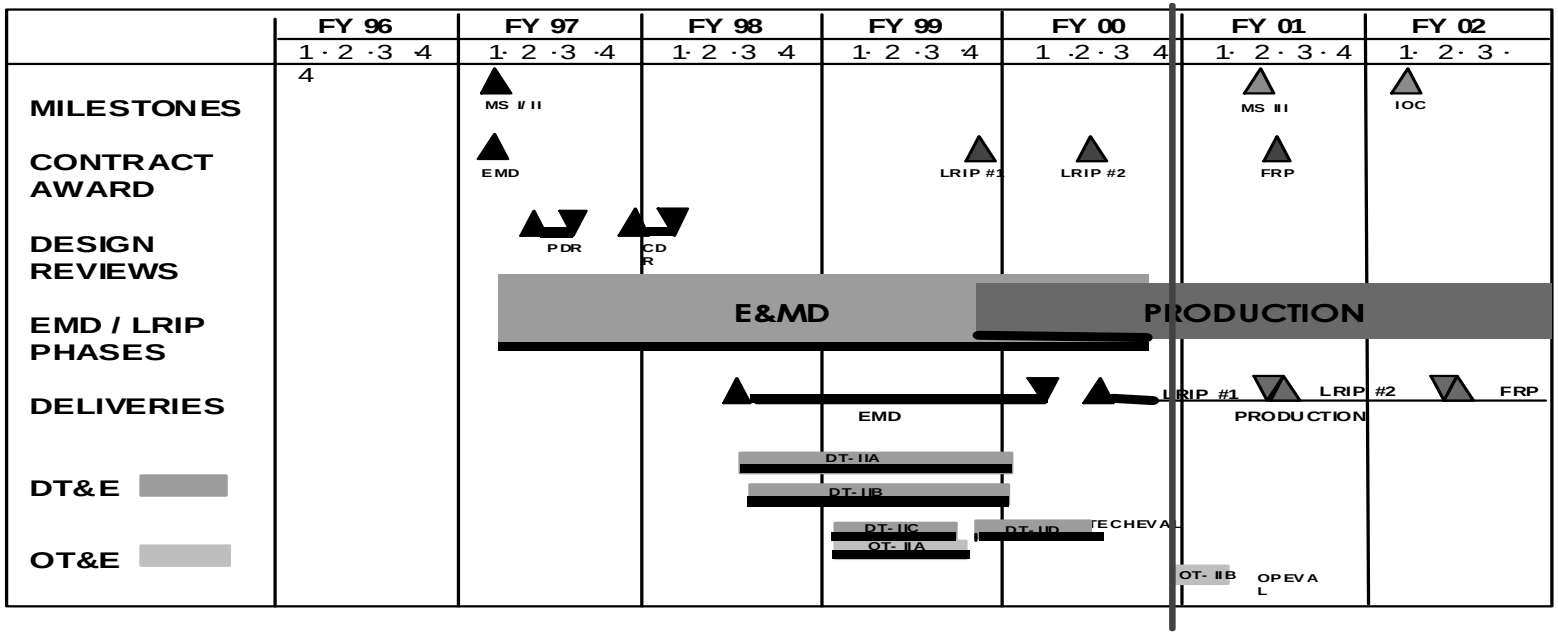
CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204136N F/A-18 Squadrons	E1662 F/A-18 Improvements

PEO(T), F/A-18 IPT

TAMMAC Schedule

TEAM HORNET



R-1 SHOPPING LIST - Item No. 176

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0204136N F/A-18 SQUADRONS			PROJECT NUMBER AND NAME E1662 F/A-18 IMPROVEMENTS							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract	
PIDS/DCS Development/integration	SS/CPFF/FFP	MDA-ST LOUIS,MO	70.245	3.190	01/01								
DCS E&MD	SS/FFP	Rockwell-Collins C.Rapids, IA	16.196										
ATFLIR E&MD (Basic Contract) note 1	SS/CPIF/AF	MDA-ST LOUIS,MO	39.949										
ATFLIR AWARD FEE (note 1)			0.803										
ATFLIR EMD (OPTION CONTRACT)	SS/CPIF/AF	MDA-ST LOUIS, MO	62.703	20.000	10/00	39.555	06/02						
ATFLIR AWARD FEE (note 1)			0.773										
ATFLIR SUPPORT EQUIPMENT	WX	NAWCAD-LAKEHURST NJ	9.003	2.500	11/00								
ADVANCED CREW STATION	SS/CPIF	MDA-ST LOUIS, MO	4.081	16.946	11/00	18.739	11/01						
HOL CONVERSION	TDL	NAWCWD-CHINA LAKE	38.085	32.629	11/00	25.122	11/01						
HOL CONVERSION	SS/CPIF	NAWCWD-CHINA LAKE	13.802	2.229	11/00	4.545	11/01						
JHMCS E&MD	MIPR	WPAFB DAYTON, OHIO	13.876	2.968	11/00								
MISCELLANEOUS DEVELOPMENT	VARIOUS	VARIOUS	22.315	0.240	10/00	0.253	11/01						
SOFTWARE DEVELOPMENT	WX	NAWCWD-CHINA LAKE	63.241	19.633	10/00	30.111	11/01						
MISC. PRODUCT DEVELOPMENT	WX	OTHER FIELD ACTIVITIES	2.219	2.978	10/00	8.993	11/01						
Prior Year Costs (Note 2)	Various	Various	2,567.069										
Subtotal Product Development			2,924.360	103.313		127.318							

Remarks: Note 1: FY99 and prior year award fee earned is 74.7% (ATFLIR)
Note 2: Prior year costs (FY95 & prior) not broken out into separate categories.

R-1 SHOPPING LIST - Item No. 176

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)							DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA- 7**		PROGRAM ELEMENT 0204136N F/A-18 SQUADRONS				PROJECT NUMBER AND NAME E1662 F/A-18 IMPROVEMENTS					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NAWCAD, PAX RIVER, MD	37.488	5.823	11/00	5.195	11/01					
Operational Test & Evaluation	WX	OPTEVFOR, NORFOLK, VA	1.713	1.234	11/00	2.436	11/01					
Subtotal T&E			39.201	7.057		7.631						
Remarks:												
CONTRACT SUPP/TRL/MISC	VARIOUS	NAVAIR, PAX RIVER, MD	8.103	1.205	11/00	1.575	11/01					
SBIR Assessment				2.580								
Subtotal Management			8.103	3.785		1.575						
Remarks:												
Total Cost			2,971.664	114.155		136.524		0.000		0.000	3,222.343	

R-1 SHOPPING LIST - Item No. 176

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204136N/ F/A-18 SQUADRONS					PROJECT NUMBER AND NAME E2065 RADAR UPGRADE					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**299.116**	**3.652**	**102.987**	**115.455**							
RDT&E Articles Qty **Not applicable**											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Active Electronically Scanned Array (AESA) development program, began in FY 1999. It is the last of three pre-planned upgrades to the F/A-18 Type/Model/Series radar. The AESA corrects operational test deficiencies noted in the AN/APG-73. It provides for multi-target tracking, SAR imagery, SAR TLE, and improved spotlight map resolution. In addition, it provides for greater lethality than previous F/A-18 radars by allowing for full tactical support of existing and planned air-to-air (A/A) and air-to-ground (A/G) weapons, significantly increasing A/A and A/G detection and tracking ranges. The AESA provides greater survivability through self-protection and standoff jamming capabilities, while its greater range allows for reduced detection by enemy radar. The AESA is also more affordable than previous radars. Significant savings in operation and support costs can be realized through a five fold increase in reliability over the AN/APG-73 as well as incorporating open architecture and Higher Order Language software. Additionally, savings can be realized by avoiding parts obsolescence redesign costs that will be experienced on the AN/APG-65 and AN/APG-73.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) ($2.300) Continued Pre-EMD AESA radar development activities.
- (U) ($.422) Commenced software development and systems integration efforts.
- (U) ($.865) Commenced radar development/planning and prepared Milestone II documentation.
- (U) ($.065) Started Integrated Logistics Support Efforts.

2. FY 2001 PLANS:

- (U) ($79.600) Commence EMD. Conduct Critical Design Reviews (CDR's), Integrated Forebody testing, and radar cross-section assessments. Conduct Preliminary Design Review (PDR). Conduct Integrated Baseline Review and Quarterly Program Review.
- (U) ($3.408) Pre-EMD component procurement.
- (U) ($.140) Commence Applied Physics Laboratory workload.

R-1 SHOPPING LIST - Item No. 176

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204136N F/A-18 SQUADRONS	PROJECT NUMBER AND NAME E2065 RADAR UPGRADE

(U) PROGRAM ACCOMPLISHMENTS AND PLANS: (Con't)

2. FY 2001 PLANS (Con't):

- (U) ($4.500) Continue software development and systems integration efforts.

- (U) ($12.204) Continue radar development/planning and prepare Milestone II decision documentation.

- (U) ($.417) Continue Integrated Logistics Support Efforts.

- (U) ($2.718) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.

3. FY 2002 PLANS:

- (U) ($87.987) Continue EMD efforts and radar cross-section assessments. Conduct Quarterly Program Review.

- (U) ($7.000) Continue software development and systems integration efforts.

- (U) ($19.875) Continue radar development/planning .

- (U) ($.572) Continue Integrated Logistics Support Efforts.

R-1 SHOPPING LIST - Item No. 176

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204136N F/A-18 SQUADRONS	PROJECT NUMBER AND NAME E2065 RADAR UPGRADE

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	3.920	104.098	106.936
(U) Adjustments from the President's Budget:	-0.268	-1.111	8.519
(U) FY 2002 President's Budget Submit:	3.652	102.987	115.455

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net decrease of $.268 million consists of a decrease of $.087 million for Small Business Innovative Research Assessment, a decrease of $.015 million for a Congressional rescission, and a decrease of $.166 million for reprioritization of requirements within the Navy. The FY 2001 decrease of $1.111 million consists of a decrease of $.729 million for a Congressional reduction, a decrease of $.155 million for reprioritization of requirements within the Navy, and a decrease of $.227 million for Congressional Rescission. The FY 2002 increase of $8.498 million consists of an increase of $15.300 million due to a program restructure/funding realignment from Procurement (APN-1) to achieve a Moderate Risk Program, a decrease of $.008 million for economic assumptions, and a decrease of $6.794 million for reprioritization of requirements within the Navy.

(U) Schedule: Not applicable.

(U) Technical: Not Applicable.

R-1 SHOPPING LIST - Item No. 176

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204136N F/A-18 SQUADRONS	PROJECT NUMBER AND NAME E2065 RADAR UPGRADE

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
(2) Line Item 2 E/F APN-1	0	0	32.3							32.3
(1) Line Item 25 APN-5 F/18 (OSIP 38-94)	52.560	18.366	3.697							183.255

(1) RUG Phase I and Phase II (retrofit)
(2) RUG Phase I and AESA (production incorporated)

Related RDT&E

(U) P.E. 0204136N F/A-18 Squadrons (Project R1662: F/A-18 Improvements - High Order Language, Aft Crew Station Upgrade
(U) P.E. 0603261N Tactical Airborne Reconnaissance

(U) D. ACQUISITION STRATEGY: The AESA program employs a two-phase approach with sole source contracts to Boeing, the airframe prime manufacturer. Phase I is a moderate risk reduction phase conducted in FY 1999 and FY 2000. During this phase, Boeing conducted competitive source selection at the radar system subcontract level. A BOA order for RFP development and subcontractor selection was made to conduct this effort. It includes an "845" agreement for prototype development, which includes commercial development/amortization provisions. Conducting the competition early in the program allowed for focused risk reduction and contractor investment.

Phase II will consist of a typical E&MD program and development contract. The program transitions to Phase II with a successful Milestone II Decision in FY 2001. Once the program enters production, the "845" agreement allows the contractor to amortize unreimbursed development costs into the production unit cost. This strategy fully utilizes acquisition reform initiatives such as: early partnering with industry; alpha contracting; leveraging industry investment; optimizing use of Commercial Off-the Shelf software and Non-Developmental Item; Cost as an Independent Variable; and Electronic Data Deliverables.

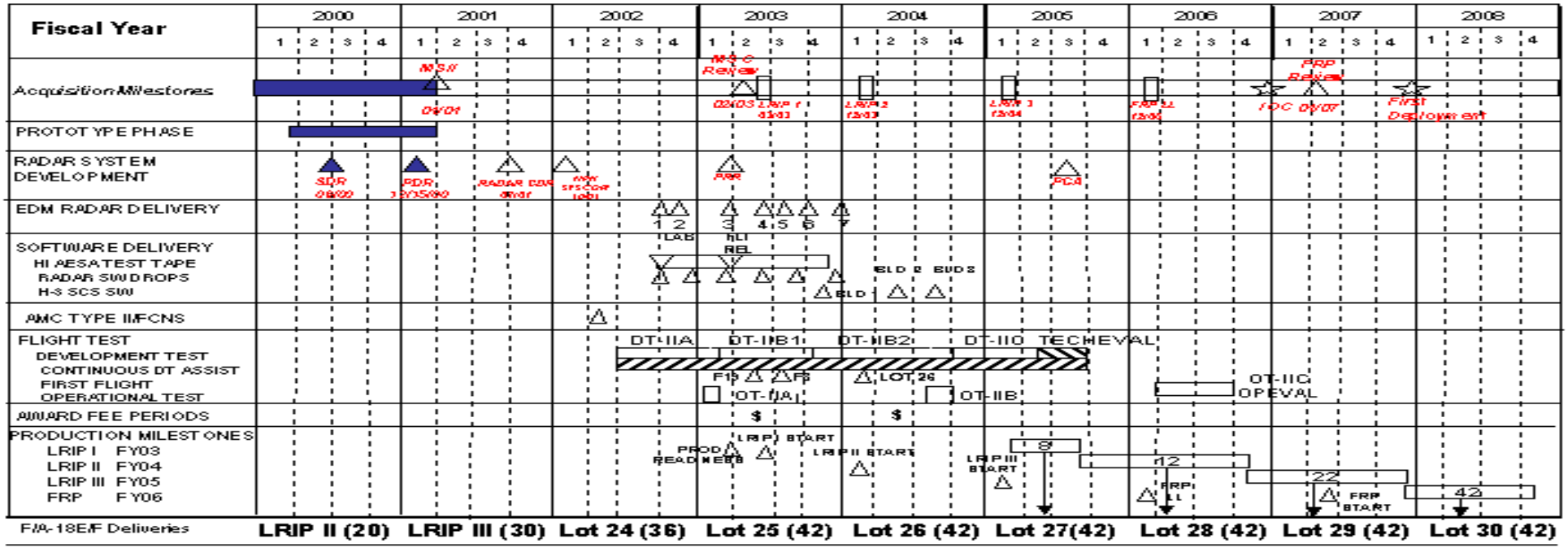
R-1 SHOPPING LIST - Item No. 176

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204136N F/A-18 SQUADRONS	E2065 RADAR UPGRADE

(U) E. SCHEDULE PROFILE:

AESA PROGRAM MILESTONE CHART



R-1 SHOPPING LIST - Item No. 176

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)						DATE: **June 2001**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0204136N F/A-18 SQUADRONS			PROJECT NUMBER AND NAME E2065 RADAR UPGRADE						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
AESA Radar Contract	SS/CPFF	BOEING, St Louis	4.300	79.600	02/01	87.987	11/01					
AESA Radar Software Dev/Integratio	WX	NAWCWD, China Lake, CA	0.822	4.780	11/00	7.000	11/01					
AESA Radar Development	WX	NAWCAD, Pax River, MD	0.904	14.588	11/00	16.173	11/01					
RUG Phase I	SS/LTR(FPIF)	BOEING, St Louis	171.000									
RUG Phase II	CPIF	BOEING, St Louis	51.729									
RUG Phase II Integration	CPFF	BOEING, St Louis	11.000									
SBIR Assessment				2.718								
Subtotal Product Development			239.755	101.686		111.160						
Remarks:												
AESA Integrated Support	WX	NADEP, North Island, Ca	0.065	0.108	11/00	0.146	11/01					
AESA Integrated Support	WX	NAWCAD, Lakehurst, NJ	0.000	0.309	11/00	0.425	11/01					
Subtotal Support			0.065	0.417		0.571						
Remarks:												

R-1 SHOPPING LIST - Item No. 176

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)							DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0204136N F/A-18 SQUADRONS			PROJECT NUMBER AND NAME E2065 RADAR UPGRADE						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
AESA Test & Evaluation	WX	NAWCAD, Pax River, MD		2.273	11/00	2.800	11/01					
AESA Test & Evaluation	WX	NAWCWD, China Lake, CA										
RUG Upgrade Test & Evaluation	WX	NAWCWD, China Lake, CA	52.956									
RUG Lab Asset	WX	NAWCWD, China Lake, CA	1.370									
RUG OPEVAL	WX	OPTEVFOR, Norfolk, VA	1.799									
RUG Upgrade Test & Evaluation	Various	Other Field Activities	4.795									
Subtotal T&E			60.920			2.800						
Remarks:												
RUG Contractor Sprt/Travel/Misc	Various	NAVAIR Pax River, MD	2.028	0.884	12/00	0.903	12/01					
Subtotal Management			2.028	0.884		0.903						
Remarks:												
Total Cost			302.768	102.987		115.434		0.000		155.914	677.103	
Remarks:												

R-1 SHOPPING LIST - Item No. 176

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204136N/ F/A-18 Squadrons					PROJECT NUMBER AND NAME E2130/ Follow -On Variant					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**5,410.506**	**131.898**	**17.348**	**1.246**							**5,560.998**
RDT&E Articles Qty	**10**										**10**

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

The F/A-18 is a twin-engine, mid-wing multi-mission, tactical aircraft employed 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-18E/F variant is an upgrade to the night attack "C" and "D" models. The F/A-18E/F will be the second major upgrade since the program's inception. The F/A-18 continues to adapt its strike fighter role to evolving threats into the next century. The F/A-18E/F E&MD program is under a Congressional mandated cost cap of $4.883B FY90 dollars. Pre-development efforts of $36.6M (in FY90 base year dollars), previously funded under the F/A-18C/D program, is reflected in the RDT&E total, but is not included in the approved $4,883B development cap.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:
   - (U) ($86.920) Completed engineering and manufacturing design activity in support of developmental flight test and successfully completed Milestone-III (MS-III) Defense Acquisition Board (DAB) approval for Full Rate Production.
   - (U) ($ 4.160) Continued to develop and integrate mission software.
   - (U) ($36.818) Completed DT-IIE and OT-IIC (OPEVAL) and continued integration and testing of avionics subsystems.
   - (U) ($ 4.000) Continued Test Program Set (TPS) development.
2. FY 2001 PLANS:
   - (U) ($3.228) Continue to develop and integrate mission software.
   - (U) ($7.964) Complete integration and testing of avionics subsystems.
   - (U) ($4.250) Continue Test Program Set (TPS) development.
   - (U) ($1.729) Weapon System Integration Wind Tunnel Testing .
   - (U) ($0.177) Portion of extramural program reserved for Small Business Inovation Research Assessment in accordance with 15 USC 68.

R-1 SHOPPING LIST - Item No. 176

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204136N/ F/A-18 Squadrons	PROJECT NUMBER AND NAME E2130/ Follow -On Variant	

3. FY 2002 PLANS:

- (U) ($ .287) Complete integration and testing of avionics subsystems.

- (U) ($.959) Continue Test Program Set (TPS) development.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204136N/ F/A-18 Squadrons	PROJECT NUMBER AND NAME E2130/ Follow -On Variant

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	141.834	19.153	1.290
(U) Adjustments from the President's Budget:	-9.936	-1.805	-0.044
(U) FY 2002 President's Budget Submit:	131.898	17.348	1.246

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net decrease of $9.936 million consists of a decrease of $.556 million for a Congressional Rescission, a decrease of $2.929 million for Small Business Innovation Research, a decrease of $4.0 million realignment to the Improvements project for Higher Order Languge (HOL) development efforts for the F/A-18E/F aircraft, and a decrease of $2.451 million reduction for reprioritization of requirements within the Navy. The FY2001 net decrease of $1.805 million consists of a decrease of $.134 million due to a Congressional Reduction, a decrease of $.042 million for a Congressional Rescission, and a decrease of $1.629 million for reprioritization of requirements within the Navy. The FY 2002 net decrease of $.044 million consists of $.001 million reduction for economic assumptions and a decrease of $.043 million for reprioritization of requirements within the Navy .

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
APN-1 (Prior $7,193,699)	2,832.640	2,850.619	3,156.398							
APN-6 (Prior $239,480)	80.916	117.416	108.397							

Related RDT&E

(U) PE 0207163N (AMRAAM)
(U) PE 0604727N (Joint Standoff Weapon System) (JSOW)
(U) PE 0604270N (EW Development)
(U) PE 0604777N (Navigation/ID System)
(U) PE 0305141D (Joint UAV)
(U) PE 0603261N (Tactical Airborne Reconnaissance)
(U) PE 0204163N (Fleet Communications)
(U) PE 0604215N (Standards Development)

R-1 SHOPPING LIST - Item No. 176

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204136N/ F/A-18 Squadrons	E2130/ Follow -On Variant

(U) D. ACQUISITION STRATEGY: The July 1992 award of the two RDT&E,N contracts to MDA (airframe) and General Electric (engine), both sole source cost plus incentive fee/award fee, effectively initiated the F/A-18E/F E&MD program. The airframe and engine contracts are incrementally funded through FY00 and FY99, respectively. In March 1997, the F/A-18E/F program received approval to enter the Low Rate Initial Production (LRIP) phase. The airframe and engine contracts for this phase are Cost Plus Incentive Fee (CPIF) for LRIP I and Fixed Price Incentive Fee (FPIF) for LRIP II and LRIP III. LRIP III is a priced option to the LRIP II contract. The LRIP II/III contract possesses a common incentive profit structure which affords contractors maximum opportunity to implement quality, reliability, and producibility improvements. Benefits of the F/A-18E/F LRIP contracts include: 1) a measurable profit incentive across the LRIP period of performance; 2) commercial-like long time relationship with contractors which tie customer (fleet) satisfaction to long term profitability; 3) progressive assumption of risk by the contractors; 4) a single negotiation for LRIP II and III.

(U) C. Schedule Profile:

	FY 2000	FY 2001	FY 2002	FY 2003	TO COMPLETE
(U) Program Milestones	MS-III 2Q/00 IOC 4Q/00				
(U) Engineering Milestones					
(U) T&E Milestones					
(U) Contract Milestones					

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT NUMBER AND NAME 0204136N/ F/A-18 Squadrons			PROJECT NUMBER AND NAME E2130/ Follow -On Variant							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Pre-E&MD Activity	SS/CPFF	MDA, St Louis, MO	81.785									
Airframe E&MD	SS/CPIF/AF	MDA, St Louis, MO	3,579.420									
Airframe E&MD Award Fee (Note 1)			292.943									
Contrat OPEVAL Support	SS/CPFF/BOA	MDA , St Louis, MO	12.084									
Pre-E&MD Activity	SS/CPFF	GE Lynn, MA	51.500									
Engine E&MD	SS/CPFF/AF	GE Lynn, MA	767.655									
Engine E&MD Award Fee (Note 1)			48.378									
Radar Integration	SS/CPFF	Hughes California, LA, CA	9.887									
Miscellaneous Development Efforts	Various	Other	22.144									
Materials Development	WX	NAWCAD, Warminister, PA	20.302									
Software Development	WX	NAWCWD, China Lake, CA	59.523	3.228	10/00							
Support Equipment Development	WX	NAWCAD, Lakehurst, NJ	39.101	3.250	10/00	0.959	10/01					
Maintenance Support Planning	WX	NADEP, North Island, CA	10.930	1.000	10/00							
Avionics Support	WX	NAWCAD, Indianapolis, IN	9.502									
Misc Product Development/GFE	WX	Other Field Activities	151.961	6.297	10/00	0.087	10/01					
SBIR Assessment				0.177								
Subtotal Product Development			5,157.115	13.952		1.046						

Remarks:
Note 1: Award Fees included in the total contract value. FY00 and prior year award fee earned is 96.4%

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)							DATE: **June 2001**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT NUMBER AND NAME 0204136N/ F/A-18 Squadrons			PROJECT NUMBER AND NAME E2130/ Follw -On Variant						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Flying Qualities and Performance	MIPR	NASA Langley, AFB	7.306									
Operational Test & Evaluation	WX	COMOPTEVFOR Norfolk, Va	11.008	0.198	10/00							
Integrated Test Team	WX	NAWCAD, Pax River MD	253.228									
Wind Tunnel Testing	MIPR	AEDC, TN	44.410	1.531	10/00							
Misc Test & Evaluation	Various		7.108									
Subtotal T&E			323.060	1.729								
Remarks:												
Contractor Support/Misc.	RX	Various	58.908	0.927	10/00							
Travel	WX	NAVAIR, Maryland	2.972	0.610	10/00	0.200	10/01					
Transportation	WX	NAVAIR, Maryland	0.349	0.130	10/00							
Subtotal Management			62.229	1.667		0.200						
Remarks:												
Total Cost			5,542.404	17.348		1.246		0.000		0.000		
Remarks: There are no Support Costs.												

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: **JUNE 2001**			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0204152N, E-2 SQUADRONS					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	**56.584**	**38.694**	**44.890**	**20.583**							
E0463 - (E-2C Improvements)		*** 16.172**	****** 23.218**	**7.052**							
E2321 - (E-2 Radar Modernization)	**56.584**	**** 22.522**	***** 21.672**	**13.531**							
Quantity of RDT&E Articles	**14**										

* The FY2000 budget reflects a $5.400 million Congressional add for the UHF Electronically Scanned Antenna (UESA) executed under (E2806) which has been decreased by $.030 million for Congressional undistributed reductions and a $3.000 million Congressional add for the Follow-on Advanced Support Aircraft (ASA) executed under (E2805) which has been decreased by $.041 million for Congressional undistributed reductions.

** The FY2000 budget reflects a $12.000 million Congressional add for RMP/MCU Upgrade Development executed under (E2804) which has been decreased by $.357 million for Congressional undistributed reductions.

*** The FY2001 budget reflects a $15.000 million Congressional add for RMP LIttoral Survellance for the E-2C which will be executed under E2978, which has been decreased by $0.540 million for Congressional undistributed reductions.

**** The FY2001 budget reflects Congressional Adds for Eight Blade Composite Propeller ($4.000 million), Middleware Technology and Advanced Processing Buiilds ($5.000 million), Improved Composite Rotordome ($2.000 million), and NCW Development, Test and Evaluation in Support of Naval Fires Network Demo ($6.000 million) which will be executed under E2975, E2976, E2979, and E2977 respectively.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
E-2C Improvements provides pre-planned product improvements for the evolution of E-2C airborne warning system capabilities in support of naval warfare command and control requirements. It has previously funded developments for the modification/replacement of selected weapon replaceable assemblies of current installed subsystems. This has resulted in a new capability configuration referred to as Group II aircraft. The program has developed a Mission Computer Upgrade (MCU), applying on-going developments in data processing and target detection, which will relieve current bottlenecks in signal and processing. The MCU will permit incorporation of additional functional capabilities to satisfy evolving operational requirements, e.g., Cooperative Engagement Capability (CEC), Satellite Communications (SATCOM), and permits the evolutionary growth of Cruise Missile Defense (CMD) capability.

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **JUNE 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	R-1 ITEM NOMENCLATURE 0204152N, E-2 SQUADRONS

Funding provides for evaluation of technology for new emergent systems and subsystems. This initiative allows for data collection and the evaluation of new technologies in the context of emerging missions and requirements including Cruise Missile Defense, littoral warfare, combat identification, and Single Integrated Air Picture as well as parts and systems obsolescence. Emphasis will be upon the following areas: participation in exercises to assess capabilities against emerging threats; identify deficiencies; identification of candidate solutions; and ground/airborne demonstration of the identified technologies.

The Radar Modernization Program (RMP) is a ground and flight prototype test demonstration and risk mitigation of multiple technologies. It initiates the application of new radar technologies to modernize the primary sensor of the E-2C Weapon system to provide a definitive littoral surveillance capability integral to the Navy's Theater Air Missile Defense (TAMD) Integrated Warfare Architecture. Key technologies to be integrated are space-time adaptive processing (STAP), electronically scanning array (ESA), solid state transmitter, and high dynamic range digital receivers. The resulting detection system will provide a substantially improved overland performance, enhancing all current required mission areas while simultaneously contributing to the emerging TAMD mission requirements. The impact of the dominant battlefield awareness provided by this improved airborne early warning system will substantially contribute to the development of a single integrated air picture. These technologies and resultant equipment demonstrated in ground environment in FY1999 and will be flight tested in FY2001 through FY2003. The P.E. will be utilized for RMP pre-engineering and manufacturing development (Pre-E&MD) FY2001 - FY2002 followed by a phased E&MD for RMP, with phase I Littoral Surveillance beginning in FY2003 followed by phase II pre-planned product improvement (P3 I) which will meet the full JTAMD mission needs statement requirements.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses E&MD for upgrade of existing operational systems.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification										DATE: **JUNE 2001**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204152N, E-2 SQUADRONS					PROJECT NUMBER AND NAME E0463, E-2C IMPROVEMENTS					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		* **16.172**	** **23.218**	**7.052**							
RDT&E Articles Qty	**14**										

* The FY2000 budget reflects a $5.400 million Congressional add for the UHF Electronically Scanned Antenna (UESA) executed under (E2806) which has been decreased by $.030 million for Congressional undistributed reductions and a $3.000 million Congressional add for the Follow-on Advanced Support Aircraft (ASA) executed under (E2805), which has been decreased by $.041 million for Congressional undistributed reductions.

** The FY2001 budget reflects Congressional Adds for Eight Blade Composite Propeller ($4.000 million), Middleware Technology and Advanced Processing Buiilds ($5.000 million), Improved Composite Rotordome ($2.000 million), and NCW Development, Test and Evaluation in Support of Naval Fires Network Demo ($6.000 million) which will be executed under E2975, E2976, E2979, and E2977 respectively.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: E-2C Improvements provides pre-planned product improvements for the evolution of E-2C airborne weapon system capabilities in support of naval warfare command and control requirements. It has previously funded developments for the modification/replacement of selected weapon replaceable assemblies of current installed subsystems. This has resulted in a new baseline capability configuration referred to as Group II aircraft. The program has developed a Mission Computer Upgrade (MCU), applying on-going developments in data processing and target detection, which will relieve current bottlenecks in signal and data processing. The MCU will permit incorporation of additional functional capabilities to satisfy evolving operational requirements, e.g., Cooperative Engagement Capability (CEC), Satellite Communications (SATCOM), and permits the evolutionary growth of a Cruise Missile Defense (CMD) Capability.

Funding provides for evaluation of technology for new emergent systems and subsystems. This initiative allows for data collection and the evaluation of new technologies in the context of emerging missions and requirements including Cruise Missile Defense, Ballistic Missile Defense, littoral warfare, combat indentification, and Single Integrated Air Picture as well as parts and systems obsolescence. Emphasis will be upon the following areas: participation in exercises to assess capabilities against emerging threats; identify deficiencies; identification of candidate solutions; and ground/airborne demonstrations of the identified technologies.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:
   - (U) ($4.004) - Completed MCU DT-IIC.
   - (U) ($2.959) - Initiated Advanced Support Aircraft (ASA) Study.
   - (U) ($5.370) - Initiated UHF Electronically Scanned Antenna (UESA) Integration.
   - (U) ($3.839) - Completed MCU TECHEVAL/OPEVAL.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **JUNE 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204152N, E-2 SQUADRONS	E0463, E-2C IMPROVEMENTS

2. FY 2001 PLANS:

- (U) ($6.272) - Collect Sensor Data. Down Select Infra Red and Multi Source Integration Technologies. Perform Analysis and Requirements Generation for Future Engineering Change Proposals (ECPs) for E-2C.
- (U) ($1.916) - Improved Composite Rotordome (E2979). Analyze composite radome options for the UESA and support composite UESA radome analysis.
- (U) ($4.790) - Middleware Technology & Advanced Processing Builds (E2976). Perform ADA to C++ conversion of E-2C FCI software, analysis of applicablility of Middleware technology to future E-2C software configurations, and support Middleware Study and ADA code conversion.
- (U) ($5.847) - NCW Development (E2977). Develop Tactical Dissemination Module, support Prototype USS Coronado, install S-Band Phased Array Antenna, support Program Development, and support Limited Objective Experiments and Fleet Battle Experiment India.
- (U) ($3.880) - Eight Blade Composite Propeller (E2975). Provide Flight and Ground Test for C-2/E-2 aircraft and Integration Support.
- (U) ($0.513) - Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15USC 68.

3. FY 2002 PLANS:

- (U) ($1.768) - Continue Analysis and Requirements Generation for Future ECPs for E-2C.
- (U) ($1.983) - Support MSI Phase I Flight Test Evaluation for E-2C.
- (U) ($1.000) - Develop Advanced Middleware Software for Operational Flight Program Portability for E-2C.
- (U) ($1.500) - Support Fleet Battle Group Interoperability Testing and Evaluation for E-2C.
- (U) ($0.400) - Develop E-2C Joint Mission Planning System (JMPS) software.
- (U) ($0.300) - Develop and evaluate ALQ-217 database.
- (U) ($0.100) - Provide Tactical Aircraft Mission Planning System (TAMPS) support.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **JUNE 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204152N, E-2 SQUADRONS	E0463, E-2C IMPROVEMENTS

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	12.379	6.444	6.335
(U) Adjustments from the President's Budget:	3.793	16.774	0.717
(U) FY 2002 President's Budget Submit:	16.172	23.218	7.052

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net increase of $3.793 million consist of a $3.839 million reprogramming from APN to R&D for MCU support and a $.064 increase for reprioritization of requirements offset by a $.059 million decrease for a Small Business Innovation Research assessment, $.048 million decrease for a Congressional Recission, and a $.003 million decrease for reprioritization of requirements within the Navy. The FY 2001 net increase of $16.774 million consist of Congressional Adds for Eight Blade Composite Propeller ($4.000 million), Middleware Technology and Advanced Processing Builds ($5.000 million), Improved Composite Rotordome ($2.000 million), NCW Development, Test and Evaluation in Support of Naval Fires Network Demo ($6.000 million) offset by a $.164 million decrease for Congressional Reduction, $.011 million decrease for reprioritization of requirements within the Navy, and $.051 million decrease for Congressional Recission. The FY 2002 net increase of $.717 million consists of $.800 million increase for Realignment of Support Costs offset by a $.033 million decrease for reprioritization of requirements within the Navy and a $.051 million decrease for economic assumptions.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **JUNE 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204152N, E-2 SQUADRONS	E0463, E-2C IMPROVEMENTS

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
APN 1/E-2C (LI #10 &11)	381.264	314.709	278.937							
APN 5/E-2C (LI #35)	71.485	42.095	14.636							
APN 6/E-2C (LI #48)	11.218	16.98	21.711							

Related RDT&E
(U) 0603658N (Ship Self Defense, CEC)

(U) D. ACQUISITION STRATEGY: Not Applicable

(U) E. SCHEDULE PROFILE:

	FY 2000	FY 2001	FY 2002	FY 2003	TO COMPLETE
(U) Program Milestones		3Q/01 MCU MSIII Infra Red Search & Track (IRST) Demo Lasar Radar (LADAR) Demo Multi Source/Multi Sensor Integration			
(U) Engineering Milestones					
(U) T&E Milestones	2Q/00 MCU DT-IIC 3Q/00 MCU DT-IID/TECHEVAL 4Q/00 MCU OPEVAL	Ground Demo			
(U) Contract Milestones		4Q/01 MCU FRP			

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											DATE: **JUNE 2001**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0204152N, E2 SQUADRONS			PROJECT NUMBER AND NAME E0463, E-2C IMPROVEMENTS						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Hardware/Software Dev. - MCU	SS/CPIF	GAC, NY/FL	157.460								157.460	157.460
Hardware/Software Dev. - CEC/MCU	SS/CPFF	GAC, NY/FL	12.194								12.194	12.194
Hardware/Software Dev. - MCU	SS/CPFF	GAC, NY/FL	13.998								13.998	13.998
Hardware/Software Dev. Misc. - MCU	SS/CPFF	GAC, NY/FL	1.021								1.021	1.021
Hardware/Software Dev. - Prior Yr Eft		GAC, NY/FL	254.800								254.800	254.800
Hardware/Software Dev	C/CPFF	TBD				4.745	10/01				4.745	4.745
Hardware/Software Dev	SS/CPFF	NGC, NY		4.950	02/01						4.950	4.950
Hardware/Software Dev	TBD	DRS San Diego, CA		0.500	11/00						0.500	0.500
Hardware/Software Modification-ICR	SS/CPFF	NGC, NY		1.980	02/01						1.980	1.980
Hardware/Software	TBD	Rolls Royce/Hamilton Std		2.500	05/01						2.500	2.500
Hardware/Software - JMPS/TAMPS	C/CPFF	PMA-233				0.700	12/01				0.700	0.700
Subtotal Product Development			439.473	9.930		5.445				0.000	454.848	454.848
Remarks:												
Government Eng. Spt	WX/RC	NAWCAD, PAX RIVER, MD	13.261								13.261	
Government Eng. Spt - Prior Yr Eft	WX/RC	NAWCAD, PAX RIVER, MD	58.800								58.800	
Government Eng. Spt (AIR 4.2) - MCU	WX/RC	NAWCAD, PAX RIVER, MD	0.397								0.397	
Government Eng. Spt - ASA/UESA	C/CPFF	Classified	5.520								5.520	5.520
Government Eng. Spt - ASA	MIPR	NRL, Wash, D.C.	0.600								0.600	
Government Eng. Spt - Improvements	WX/RC	NAWCAD, PAX, MD				0.904	10/01			Continuing	Continuing	
Government Eng. Spt-JMPS/TAMPS	WX/RC	PMA-233				0.100	12/01				0.100	
Government Eng. Spt	WX/RC	NSWC (Various)		0.800	11/00						0.800	
Government Eng. Spt	WX/RC	NAWC China Lake		2.144	11/00						2.144	
Subtotal Support			78.578	2.944		1.004				Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)											DATE: **JUNE 2001**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0204152N, E2 SQUADRONS			PROJECT NUMBER AND NAME E0463, E-2C IMPROVEMENTS						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Test & Evaluation - MCU	WX/RC	NAWCAD, PAX RIVER, MD	38.578								38.578	
Test & Evaluation - Prior Yr Effort	WX	NAWCAD, PAX RIVER, MD	39.200								39.200	
ACIS (PMS-440)	PD	NAVSEA	2.483								2.483	
LEAR JET - MCU	PD	PMA-207	0.601								0.601	
Test & Evaluation - MCU	WX	PMRF, HAWAII	1.500								1.500	
Miscellaneous - MCU	MIPR	Various	0.666								0.666	
Test & Evaluation - IMPROV	WX	NAWCAD, PAX RIVER, MD	2.639	4.440	10/00						7.079	
Test & Evaluation - Contract/Improv.	MIPR		0.325								0.325	
Test & Evaluation - Improvements	WX	NAWCAD, PAX RIVER, MD	0.800	1.415	10/00	0.587	10/01			Continuing	Continuing	
Test & Evaluation - EBC Flt Test	WX	NAWCAD, PAX RIVER, MD		1.460	05/01						1.460	
Test & Evaluation	TBD	Northrop		0.900	11/00						0.900	
Test & Evaluation	TBD	Various		0.500	11/00						0.500	
Test & Evaluation	TBD	Various		0.300	11/00						0.300	
Test & Evaluation	TBD	DRS, San Diego, CA		0.800	11/00						0.800	
Subtotal T&E			86.792	9.815		0.587				Continuing	Continuing	
Remarks:												
Management	WX/RX	NAWCAD, PAX RIVER, MD	0.091								0.091	
Travel	WX	NAWCAD, PAX RIVER, MD	0.106	0.016	10/00	0.015	10/01			Continuing	Continuing	
SBIR Assessment				0.513								
Subtotal Management			0.197	0.529		0.015				Continuing	Continuing	
Remarks:												
Total Cost			605.040	23.218		7.051				Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 181

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification									DATE: **JUNE 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204152N, E-2 SQUADRONS					PROJECT NUMBER AND NAME E2321, RADAR MODERNIZATION PROGRAM					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**56.584**	**22.522***	**21.672****	**13.531**							
RDT&E Articles Qty Not Applicable											

* The FY2000 budget reflects a $12.000 million Congressional add for RMP/MCU Upgrade Development executed under (E2804) which has been decreased by $.357 million for Congressional undistributed reductions.

** FY2001 budget includes a $15.000 million Congressional add for RMP LIttoral Survellance for the E-2C which will be executed under E2978, which has been decreased by $0.540 million for Congressional undistributed reductions.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Radar Modernization Program (RMP) is a ground and flight prototype test demonstration and risk mitigation of multiple technologies. It initiates the application of new radar technologies to modernize the primary sensor of the E-2C weapon system to provide a definitive littoral surveillance capability integral to the Navy's Theater Air Missile Defense (TAMD) Integrated Warfare Architecture. Key technologies to be integrated are space-time adaptive processing (STAP), electronically scanning array (ESA), solid state transmitter, and high dynamic range digital receivers. The resulting detection system will provide a substantially improved overland performance, enhancing all current required mission areas while simultaneously contributing to the emerging TAMD mission requirements. The impact of the dominant battlefield awareness provided by this improved airborne early warning system will substantially contribute to the development of a single integrated air picture. These technologies and resultant equipment demonstrated in ground environment in FY1999, will be tested in FY2001 through FY2003. The P.E. will be utilized for RMP pre-engineering and manufacturing development (Pre-E&MD) FY2001 - FY2002 followed by a phased E&MD for RMP, with phase I Littoral Surveillance beginning in FY2003 followed by phase II pre-planned product improvement (P3 I) which will meet the full JTAMD mission needs statement requirements.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:
   - (U) ($4.906) - Completed Modification and Fabrication of Hardware and Installation Provisions in C-130.
   - (U) ($5.973) - Initiated integration and checkout (IACO) of Flight Test System in C-130.
   - (U) ($0.407) - Completed an initial program definition for Post Multi Year Production for RMP/MCU Engineering and Manufacturing Development.
   - (U) ($2.213) - Completed Independent Validation & Verification (IV&V) of Future Growth Potential.
   - (U) ($3.717) - Improved Mission Computer Upgrade (MCU) ACIS Interoperation.
   - (U) ($5.306) - Initiated C-130 Littoral Configuration Development.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **JUNE 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204152N, E-2 SQUADRONS	E2321, RADAR MODERNIZATION PROGRAM

2. FY 2001 PLANS:

- (U) ($ 6.523) - Complete the IACO of C-130 Test Bed, install Flight Test Instrumentation, conduct Subsystem Flight Test, perform Elemental Data Analysis/Generate Quicklook Report, and initiate Preliminary Design of C-130 Littoral Configuration Processing Suite.
-(U) ($14.460) - Radar Modernization Program Plus-Up (E2804). Perform Weapon system performance requirements analysis for the E-2C RMP Littoral Surveillance aircraft. Perform engineering effort necessary to build a 21 channel antenna rotary coupler equipment cooling system, fabricate Identify Friend or Foe (IFF) antenna beam forming device, provide analysis, design, and modification of an existing IFF system, conduct IACO and demonstration of an existing IFF system, and conduct co-aligned IFF antenna feasibility analysis.
-(U) ($ 0.689) - Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15USC 68.

3. FY 2002 PLANS:

- (U) ($2.233) - Complete Subsystem Flight Test.
- (U) ($0.675) - Complete Elemental Data Analysis/Generate Final Rep.
- (U) ($2.853) - Complete Design of C-130 Littoral Configuration Processing Suite.
- (U) ($6.774) - Complete Parts/Fabrication of C-130 Littoral Configuration Processing Suite.
- (U) ($0.993) - Initiate C-130 IACO of Processing Suite.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **JUNE 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204152N, E-2 SQUADRONS	E2321, RADAR MODERNIZATION PROGRAM

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	23.951	12.254	13.586
(U) Adjustments from the President's Budget:	-1.429	9.418	-0.055
(U) FY 2002 President's Budget Submit:	22.522	21.672	13.531

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net decrease of $1.429 million consists of $.570 million decrease for SBIR assessment, a $.765 million decrease for reprioritization of requirements within the Navy, and $.094 million decrease for Congressional Recission. The FY 2001 net increase of $9.418 million consists of a $15.000 million Congressional Add for RMP Littoral Sureillance offset by a $5.332 million decrease for reprioritization of requirements within the Navy, $.191 million decrease for Congressional Reduction, and a $.059 million decrease for Congressional Recission. The FY 2002 decrease of $.055 million is due to reprioritization of requirements within the Navy.

(U) Schedule: Program plan adjustment for FY2000 reflect a restructured integrated schedule.

(U) Technical: Not Applicable.

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

(U) D. ACQUISITION STRATEGY: Not applicable. Non-acquisition ground and flight prototype test demonstration and risk mitigation of multiple technologies.

(U) E. SCHEDULE PROFILE: Not applicable. Non-acquisition ground and flight prototype test demonstration and risk mitigation of mulltiple technologies.

R-1 SHOPPING LIST - Item No. 181

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)							DATE: **JUNE 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0204152N, E2 SQUADRONS			PROJECT NUMBER AND NAME E2321, RADAR MODERNIZATION PROGRAM						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Hardware/Software Dev.	SS/CPFF	Classified	53.752	2.254	10/00	6.814	10/01					
Hardware/Software Dev.	SS/CPFF	GAC, NY	15.167	8.886	10/00	4.351	10/01					
Hardware/Software Dev.	MIPR	Hanscomb AFB, MA	0.748									
Hardware/Software Dev.	BAAs	BAAs	0.406									
Hardware/Software Dev.	SS/CPFF	Kirkland AFB, TX	0.476									
Hardware/Software Mod/Analysis	CPFF	TBD		5.607	01/01							
Subtotal Product Development			70.549	16.747		11.165						
Remarks:												
Government Eng. Support	WR/WX	NAWCAD, PAX RIVER, MD	1.837	0.938	10/00	0.881	10/01					
Government Eng. Support	CPFF	Classified	0.865	0.165	10/00	0.180	10/01					
Subtotal Support			2.702	1.103		1.061						
Remarks:												

R-1 SHOPPING LIST - Item No. 181

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2) | DATE: **JUNE 2001**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-7** | PROGRAM ELEMENT: 0204152N, E2 SQUADRONS | PROJECT NUMBER AND NAME: E2321, RADAR MODERNIZATION PROGRAM

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Test & Evaluation	WX/WR	NAWCAD, PAX RIVER, MD	3.840	0.528	10/00	0.862	10/01					
Test & Evaluation	C/CPFF	Classified	0.895	0.330	10/00	0.360	10/01					
Lear Jet - RMP	PD	PMA-207	0.380									
Gear Boxes	PD	AIR-5.0	0.550									
Test & Evaluation	WR/WX	PMRF Hawaii		2.200	10/00							
SBIR Assessment				0.689								
Subtotal T&E			5.665	3.747		1.222						
Remarks:												
Management	C/CPFF	Classified	0.105	0.055	10/00	0.060	10/01					
Travel	WX	NAWCAD, PAX RIVER, MD	0.085	0.020	10/00	0.020	10/01					
Subtotal Management			0.190	0.075		0.080						
Remarks:												
Total Cost			79.106	21.672		13.528						
Remarks:												

R-1 SHOPPING LIST - Item No. 181

FY 2002 RDT&E, N PROJECT JUSTIFICATION

Exhibit R-2, RDT&E,N Budget Item Justification Date: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N

PROGRAM ELEMENT TITLE: Fleet Communication

COST ($ in Thousands)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
X0725 Communications Automation	4,529	3,317	9,678							
X1083 Shore to Ship Communications Systems	6,613	8,030	9,097							
X0795 Support of MEECN	648	555	2,361							
Total P.E. Cost	11,790	11,902	21,136							

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

The Communications Automation Program - This project is a continuing program that provides for automation and communications upgrades for Fleet tactical users. It includes Naval Modular Automated Communications System/Single Messaging Solution (NAVMACS II/SMS), Digital Wideband Transition System (DWTS) Low-Data Rate (EPLRS), Naval Computer & Telecommunications Area Master Station (NCTAMS), Joint Network Management System, Automated Digital Network System (ADNS) and Global Directory Services.

NAVMACS II/SMS develops joint/combined individual and organizational message handling to US Naval ships and submarines, United States Marine Corp (USMC) vans, and selected Military Sealift Command (MSC) and United States Coast Guard (USCG) platforms. NAVMACS II/SMS develops fleet interface to Defense Messaging System (DMS) and legacy ashore messaging systems.

DWTS Low-Data Rate (EPLRS) Navy requires a digital wideband capability, which can be used in amphibious operations where a fixed DWTS station cannot be used. System must be interoperable with Army and Marine Corps EPLRS system. DWTS Block Upgrade BRAVO improves the fixed DWTS station to operate at higher bandwidths with greater reliability than the current system.

NCTAMS, as part of the DoD Teleport initiative, is the information transfer gateway joining space-based and terrestrial networks. It provides a point of presence for strategic and tactical users. NCTAMS is the joint gateway for tactical resources providing multiple connection paths between information users and information producers integrating X, C, Ku, Civil & Military Ka, Extra High Frequency (EHF), Ultra High Frequency (UHF) and L-Band Satellite Communications (SATCOM) connectivity and Defense Information Switched Network (DISN), Defense Switched Network DSN, Defense Red Switched Network (DRSN), Secure Internet Protocol Router Network (SIPRNET), Non Secure Internet Protocol Router Network (NIPRENET), Joint World Wide Intelligence Communications System (JWICS), and Video Teleconference (VTC) services. NCTAMS will provide survivable worldwide connectivity to the war fighter enabling network centric warfare.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communication

The Joint Network Management System is a CINC, Commander, Joint Forces (CJF) joint communications planning system with Department of the Army as the Executive Agent. It is intended to be an automated software system including capabilities for planning and engineering, monitoring, control and reconfigurations, spectrum management and security.

ADNS provides automated routing and switching of Tactical and Strategic C4I data via Transmission Control Protocol (TCP/IP) networks linking deployed Battle Group units with each other and with the DISN ashore via multiple Radio Frequency (RF) paths. Consists of Commercial Off-The-Shelf (COTS) non-developmental Joint Tactical Architecture (JTA) compliant hardware (routers, processors, switches) and commercial Y2K compliant software (VxWorks toolkit) in a standardized, scalable shock qualified rack design. Provides Internet Protocol (IP) connectivity afloat and ashore. Merges multiple redundant stove pipe communications circuits and efficiently manages RF assets resulting in better throughput using existing RF media. Line includes Network Operation Centers (NOCs) Ashore.

Global Directory Services is a key component of the infrastructure that will be leveraged to support a variety of network operations to include, but not limited to, Single Point of Administration (SPA) and Unified Account Management; Software Distribution; White/Yellow/Blue Pages; Menu, Profile, and Application Management; Public Key Infrastructure (PKI)-enablement of applications/devices; and Network Management. The Global Directory Services will leverage the Afloat deployed White Pages to construct individual ship Afloat Full Service Directories which will create a foundation for further development, over time, to create a ship-to-shore and ship-to-ship Global Directory Services.

The Shore to Ship Communications System develops communications systems elements, which provide positive command and control of deployed ballistic missile submarines (SSBNs). Provides the communication elements for continuous assessment of the command and control link between National Command Authority (NCA) and the ballistic missile platforms. Provides the tools for strategic command and control planning to deployed SSBNs.

Minimum Essential Emergency Communications Network (MEECN) is the Tri-Service transmission system, including land-based segment, 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.

B. (U) PROGRAM CHANGE SUMMARY:
FY00: Transfer to SBIR (-223K), WINSAT (486K), Feasibility Study (+1,165K), ASN RDA execution adjustment (-170K), Miscellaneous Navy adjustments (329K), Section 8055 Congressional Proportionate Rescission (-39K), NAVWARGPS (-125K), and Tomahawk (-157K).
FY01: Section 8086 .7% Pro-Rata Reduction (-84K), PL 106-664 Congressional Rescission (-26K).

C. (U) OTHER PROGRAM FUNDING SUMMARY: See individual projects.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communication

D. (U) ACQUISTION STRATEGY: See individual projects.

E. (U) SCHEDULE PROFILE: See individual projects.

FY 2002 RDT&E, N PROJECT JUSTIFICATION

Exhibit R-2, RDT&E,N Budget Item Justification Date: June 2001

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

Cost ($ in Thousands)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
X0725 Communications Automation	**4,529**	**3,317**	**9,678**							

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

This project is a continuing program that provides for automation and communications upgrades for Fleet tactical users. The Naval Modular Automated Communications System II (NAVMACS II)/Single Messaging Solution (SMS) is the network centric IP solution for the processing, storage, distribution and forwarding of General Service and Defense Messaging System (DMS) organizational messages to the user's desktop throughout the IT-21 Local Area Network (LAN)/Wide Area Network (WAN). DWTS Low-Data Rate (EPLRS); Navy requires a digital wideband capability which can be used in amphibious operations where a fixed DWTS station cannot be used. System must be interoperable with Army and Marine Corps EPLRS system. Existing DWTS configuration requires improvement in order to provide more reliable performance at the highest bandwidths. Naval Computer & Telecommunications Area master Station (NCTAMS), as part of the DoD Teleport initiative, is an information transfer gateway joining space-based and terrestrial networks. It provides a point of presence for the strategic and tactical users. NCTAMS is the joint gateway for tactical resources providing multiple connection paths between information users and information producers integrating X, C, Ku, Civil & Military Da, EHF, UHF and L-Band SATCOM connectivity and DISN, DSN, DRSN, SIPRNET, NIPRNET, JWICS, AND VTC services. NCTAMS will provide survivable worldwide connectivity to the war fighter enabling network centric warfare. The Joint Network management System is a CINC, Commander, Joint Forces (CJF) joint communications planning system with the Department of the Army as the Executive Agent. It is intended to be an automated software system including capabilities for planning and engineering, monitoring, control and reconfigurations, spectrum management and security. Automated Digital Network System (ADNS) provides automated routing and switching of Tactical and Strategic C4I data via Transmission Control Protocol (TCP/IP) networks linking deployed Battle Group units with each other and with the Defense Information Systems Network (DISN) ashore via multiple Radio Frequency (RF) paths. Consists of Commercial Off-The-Shelf (COTS) non-developmental Joint Tactical Architecture (JTA) compliant hardware (routers, processors, switches) and commercial Y2K compliant software (VxWorks toolkit) in a standardized, scalable shock qualified rack design. Provides Internet Protocol (IP) connectivity afloat and ashore. Merges multiple redundant stove pipe communications circuits and efficiently manages RF assets resulting in better throughput using existing RF medial. Line includes Network Operation Centers (NOCs) Ashore. Global Directory Services is a key component of the infrastructure that will be leveraged to support a variety of network operations to include, but not limited to, Single Point of Administration (SPA) and Unified Account Management; Software Distribution; White/Yellow/Blue Pages; Menu, Profile, and Application Management; PKI-enablement of applications/devices; and Network Management. The Global Directory Services will leverage the Afloat deployed White Pages to construct individual ship Afloat Full Service Directories which will create a foundation for further development, over time, to create a ship-to-shore and ship-to-ship Global Directory Services.

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

PROGRAM ACCOMPLISHMENTS AND PLANS:

- FY 2000 Accomplishments:
  ($3,591K) Supported DWTS Range Extension development through EPLRS interface. Conducted concept exploration and risk reduction. Performed test and evaluation, Systems Engineering and Evaluation, preliminary installation design and Integrated Logistics System development. Supported feasibility studies.

  ($938K) Continued Tactical DMS/SMS afloat migration efforts. Continued the development of emerging technologies which includes DMS Fortezza Gateway (DFG) and Personal Computer Interface Front End Processor (PCI FEP) Phase 1 Engineering and Integration. Continued Fleet Automated Messaging Information System (FAMIS) interface testing of Smart-push/Warrior-pull and P-MUL broadcast. Conducted integration and evaluation of SMS Support Server (SSS) functionality.

- FY 2001 PLAN:
  ($1,347) Complete development of emerging technologies which includes the Multicast NT integration of DMS interface products and PCI FEP Phase II circuits. Conduct evaluation and test of Bandwidth (BW) Mitigation Tools and Techniques for Medium assurance messaging. Conduct Security Accreditation engineering and evaluation. Initiate Fleet Developmental Testing of Internet Protocol (IP) messaging.

  ($1,970) Begin Risk Reduction RDT&E for Low-Data DWTS (EPLRS). Conduct DT-I and MS-II DWTS LDR (EPLRS).

- FY 2002 PLAN:

  ($2,067) Conclude EMD Phase including ILS development and DT/OT-II DWTS LDR (EPLRS). Design, develop, and test DWTS Block Upgrade BRAVO to improve radio performance at the highest data rates.

  ($2,019K) Continue the test and evaluation of emerging technology which includes SSS Multi-Cast Connector and Lightweight Directory Access Protocol (LDAP) Services. Initiate DoD (PKI) engineering evaluation. Initiate Sensitive Compartmentalized Information (SCI) messaging engineering, evaluation and testing. Continue Top Secret IP messaging automation engineering and testing. Initiate development and test efforts for multi-enclave messaging.

  ($529K) Supports testing of JNMS for Integrated Shipboard and Network Systems (ISNS), ADNS, and lab activities for security accreditation of the system.

  ($3,335) Begin research and development to support major technology refresh to include integration of ADNS and ISNS software and hardware. Begin development for Integrated Voice, Video and Data within the shipboard ADNS environment. Begin development to support the time division multiplexing

transition. Development required for additional routers and RF interfaces as they become available to ensure continued inter-operability and scalability. Investigate, develop and test ADNS technology upgrades to incorporate into existing architecture until integrated system is available. The ADNS program must prepare for efficient insertion of replacement technology being driven by an eighteen month technology change cycle. Investigate, develop and test Network Management to merge with existing ADNS development solutions.

($1,728K) Global Directory Services: Provide engineering efforts for a directory service architecture in the Ashore and Afloat support communities to support major programs (GCCS-M, NTCSS, etc) and general network environments. Provide engineering support for enhancement of the deployed directory service product. Modify ship data feed to Navy/ Marine Corps White Pages . Expand Common Access Card (PKI SmartCard) capability and integrate with Single Sign-On functionality. Develop Directory Services menus and applications including Navy/Marine Corps Yellow and Blue Pages.

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

OTHER PROGRAM FUNDING SUMMARY:

	FY 2000	FY 2001	FY 2002
OPN Line 3050 – Comm Auto - NAVMACS	11,078	13,311	18,242
OPN Line 3050 – Comm Auto – JNMS	0	0	618
OPN Line 3050 – Comm Auto – ADNS	37,766	37,180	18,743
OPN Line 3050 – Comm Auto – TELEPORT	0	0	0
OPN Line 3010 – 52NU Ship TAC Comms - DWTS	11,078	7,596	3,197
O&MN 4A6M – NAVMACS	1,177	1,063	1,081
O&MN 4B7N – DWTS (EPLRS)	0	394	147
O&MN 4A6M – NCTAMS	0	0	10,766
O&MN 4A6M – ADNS	3,012	2,472	7,992
O&MN 4A6M – JNMS	0	0	1,161

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

C. Acquisition Strategy: N/A

D. Schedule Profile:

	FY 2000	FY2001	FY2002
Program Milestones			
T & E Milestones		2Q DWTS TECHEVAL Block A 4Q DWTS TECHEVAL Block B	4Q EPLRS DT/OT

FY 2002 RDT&E, N PROJECT COST ANALYSIS

Exhibit R-3, RDT&E,N Project Cost Analysis Date: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N PROJECT NUMBER: X0725

Exhibit R-3 Cost Analysis (page 1)												Date:
APPROPRIATION/BUDGET ACTIVITY 7			PROGRAM ELEMENT Fleet Communications 0204163N									PROJECT NAME AND NUMBER: X0725 Communications Automation
Cost Categories	Contract Method & Type	Performing Activity & Location	Total FY00 and PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
240 Engineering Development	WX	SSC, San Diego	685	1,640	10/00	1,644	10/01				CONT	CONT
		SSC, San Diego	0	0	0	738	12/01				CONT	CONT
240 Engineering Development	Various	Various	329	105	Var	127	Var				CONT	CONT
240 Engineering Development	WX	SSC Charleston	1,756	1,242	Var	2,372	12/00				CONT	CONT
		SSC Charleston	100								CONT	CONT
		BAH	348									
Primary Hardware Development		DSCC	617									
Primary Hardware Development	Various	SSC, San Diego	795			300	Var					
Prime Mission Product	Various	SSC, San Diego				577	12/01				CONT	CONT
Prime Mission Product	Various	SSC, Charleston				558	12/01				CONT	CONT
Subtotal Product Development			4,630	2,987		6,316					CONT	CONT
Remarks:												
Software Development	Various	Various	N/A	N/A	N/A	1,710	12/01				CONT	CONT

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N PROJECT NUMBER: X0725

Subtotal Support						1,710					CONT	CONT
Remarks												

Cost Categories	Contract Method & Type	Performing Activity & Location	FY00 and Prior	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
400 System T&E	WX	SSC San Diego	37	50	10/00	225	10/01			CONT	CONT	CONT
400 System T&E	Var	Various				380	12/01			374		
400 System T&E	N/A	SSC SD				294	12/01			293		
400 System T&E	N/A	OPTEVFOR				60	12/01			240		
400 System T&E	Var	SSC Charleston				246	12/01			196		
400 System T&E	WX	SSC San Diego				0				CONT	CONT	CONT
Subtotal T&E			37	50		1,205						
Remarks												
210 Project Management	WX	SSC, San Diego	749	280	10/00	198	10/01			CONT	CONT	CONT
210 Project Management	Var	Various				249	12/01			392	742	
210 Project Management		BAH	350			0	12/01			CONT	CONT	
Subtotal Management			1,099	280		447						

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N PROJECT NUMBER: X0725

Remarks												
Total Cost			5,766	3,317		9,678						
Remarks												

Exhibit R-2a, RDT&E,N Project Justification Date: June 2001

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

Cost ($ in Thousands)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
X1083 Shore to Ship Communications System	6,613	8,030	9,097							

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

This project develops communications systems elements that provide positive command and control of deployed ballistic missile submarines (SSBNs). This program provides enhancements to the shore-to-ship transmitting systems and the Submarine Low Frequency (LF)/Very Low Frequency (VLF) Versa Module Eurocard (VME) Receiver (SLVR) System. This project also provides submarine unique capabilities to the Network Operation Center (NOC) and Broadcast Command Authority (BCA). Evaluation of this communications system performance is provided via the Strategic Communications Assessment Program (SCAP) and the Continued Evaluation Program (CEP) that provides constant assessment of the effectiveness of the end-to-end network. Submarine Communications Support System (SCSS) accomplishes the integration of component systems into single radio room configuration. Phase I of SCSS is scheduled for completion during FY01 and the follow on phase II efforts have been renamed Common Submarine Radio Room (CSRR). The NOC and the BCA provide the oversight and control for all fixed submarine broadcasts. Improvements to high voltage insulators, bushings and antenna components used in the FVLF transmit systems are evaluated and tested through the High Voltage Improvement Program (HVIP). Composite bushings take advantage of new material technology to replace aging expensive ceramic bushings.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

FY 2000 ACCOMPLISHMENTS:

- ($300) Continued high voltage and antenna component development and test. Initiated feasibility study to explore use of low cost composite exit bushings to replace aging high cost ceramic exit bushings.
- ($1,250) Continued development of the ELF and Signal Processing integration into SLVR.
- ($1,414) Completed SCSS Phase I design and continue integration and test.

Exhibit R-2a, RDT&E,N Project Justification Date: June 2001

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

- ($3,649) Continued SCAP, conducted CEP and strategic connectivity threats, and performed analysis.

FY 2001 PLAN:

- ($323) Continue high voltage and antenna component development and test. Test candidate composite exit bushings to replace aging high cost ceramic exit bushings.
- ($1,962) Continue development of the ELF and Signal Processing integration into SLVR.
- ($1,491) Complete SCSS Phase I integration and land-based test.
- ($4,254) Continue SCAP, conduct CEP and strategic connectivity threats, and perform analysis.

FY 2002 PLAN:

- ($368) Complete high voltage on-site testing and evaluation of composite bushings with focus on development of system to detect onset of corona breakdown which will provide a heightened protection to present day carrier cutoff systems at FVLF sites.
- ($1,095) Complete Phase I at –sea testing and continue engineering, integration and test for CSRR architecture and component upgrades.
- ($2,548) Complete development of ELF integration into SLVR and commence system level testing to meet FY03 Virginia Class requirement.
- ($4,039) Continue SCAP, conduct CEP and strategic connectivity threats, and perform analysis.
- ($698) Conduct research and development necessary for integration of shore based submarine unique capabilities at the Network Operation Center (NOC) and Broadcast Control Authority (BCA).
- ($349) Initiate design concepts for integrated FVLF dynamic control system.

Exhibit R-2a, RDT&E,N Project Justification Date: June 2001

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

B. (U) OTHER PROGRAM FUNDING SUMMARY

	FY 2000	FY 2001	FY 2002
OPN Line 3107 Shore LF	35,135	31,144	18,117
O&MN 4A6M	14,383	16,499	16,232

Exhibit R-2a, RDT&E,N Project Justification Date: June 2001

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

C. (U) ACQUISITION STRATEGY:

	FY 2000	FY 2001	FY 2002
Program Milestones			
T&E Milestones	3Q SLVR OT-III (SLVR/TRIDENT FOT&E) 4Q SLVR DT (REM into SLVR on TRIDENT)	2Q DT (SSN) 3Q OT IV A & B on both SSNs and SSBNs (OT events combined to support fleet asset availability.)	

D. (U) SCHEDULE PROFILE: See paragraph C.

FY 2002 RDT&E, N PROJECT COST ANALYSIS

Exhibit R-3, RDT&E,N Project Cost Analysis Date: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N PROJECT NUMBER: X1083

Cost Categories	Contract Method & Type	Performing Activity & Location	FY 00 and Prior	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
240 Engineering Support	CPIF	Rockwell, Richardson, TX	15,864	0	N/A	0	N/A			Complete	16,197	N/A
240 Engineering Support	CPFF	APL/JHU Baltimore, MD	24,378	3,659	11/00	3,712	11/01			CONT	CONT	CONT
240 Engineering Support	WR	SSC, San Diego, CA	28,571	2,007	11/00	2,985	11/01			CONT	CONT	N/A
240 Engineering Support	WR	Miscellaneous Labs, NUWC	6,247	1,554	11/00	519	11/01			CONT	CONT	N/A
240 Engineering Support	WR	U.S. Army, Monmouth, NJ	3,790	130	11/00	0	11/01			CONT	CONT	N/A
240 Engineering Support	Various	Various	0	0	N/A	0	N/A				0	
Subtotal Product Development			78,850	7,350		7,216						
Remarks:												
Subtotal Support												
Remarks												

FY 2002 RDT&E, N PROJECT COST ANALYSIS

Exhibit R-3, RDT&E,N Project Cost Analysis Date: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N PROJECT NUMBER: X1083

Cost Categories	Contract Method & Type	Performing Activity & Location	FY00 and Prior	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
400 System T&E	Various	Various	850	297	11/00	1,298	11/01			CONT	CONT	
Subtotal T&E			850	297		1,298						
Remarks												
210 Program Management	Various	Various	3,047	383	11/00	583	11/01		11/02	CONT	CONT	
Subtotal Management			3,047	383		583						
Remarks												
Total Cost			82,747	8,030		9,097						
Remarks												

FY 2002 RDT&E, N PROJECT COST ANALYSIS

Exhibit R-3, RDT&E,N Project Cost Analysis Date: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N PROJECT NUMBER: X1083

FY 2002 RDT&E, N PROJECT JUSTIFICATION

Exhibit R-2a, RDT&E,N Project Justification Date: June 2001

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

Cost ($ in Thousands)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
X0795 MEECN	648	555	2,361							

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION

Support of Minimum Essential Emergency Communications Network (MEECN). MEECN is the Tri-Service communication system that ensures delivery of Emergency Action Messages (EAMs) to our strategic platforms including the land based delivery system components. 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 new High Data Rate (HIDAR) mode, which greatly reduces message transmission time while providing the performance of low data rate modes, has been deployed. Potential improvements in mode design and signal processing are continually being investigated for MEECN application. A new generation of high performance universal mode will be defined to provide a single standard MEECN replacement to take advantage of new computer processing capability.

FY 2000 ACCOMPLISHMENTS:

- ($300) Completed Turbo Code investigation to MEECN Modes.
- ($166) Continued development of improved MEECN Mode.
- ($167) Completed study to integrate NONAP and Signal Separator AJ algorithms.
- ($15) Completed crypto replacement coordination.

FY 2001 PLAN:

- ($220) Incorporate improved MEECN Mode into Mode Standard.
- ($303) Incorporate Mode Standard design into Mode Standard MEECN Test Bed for performance evaluation.
- ($32) Investigate applicability of commercial programmable crypto devices to the MEECN transmission.

FY 2002 PLAN:

- ($234) Complete MEECN Mode Standard.
- ($266) Complete verification of Mode Standard performance in MEECN testbed.
- ($ 23) Complete evaluation of commercial programmable crypto.
- ($1,838) Develop a non-AUTODIN based Emergency Action Messages (EAMs) delivery system.

B. (U) OTHER PROGRAM FUNDING SUMMARY

	FY 2000	FY 2001	FY 2002
O&MN 4A6M	555	541	544

C. (U) ACQUISITION STRATEGY: Not applicable.

D. (U) SCHEDULE PROFILE: Not applicable.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0204229N Tomahawk and Theater Mission Planning Center					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost		**137.445**	**90.461**	**76.036**							
A0545 Tomahawk		**135.640**	**88.610**	**76.014**							
A1784 Theatre Mission Planning Center	**92.830**	**1.805**	**1.851**	**0.022**							
Quantity of RDT&E Articles		**EDM 10**									

(U) A. 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)). 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 efficiency 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 Tactical Tomahawk (TT) missile development covered by this budget provides a comprehensive baseline upgrade to the TWS. The TT weapons program will provide the tactical commander a quick reaction response capability as well as improved flexibility, accuracy, and lethality.

(U) This budget provides for the Tomahawk Command and Control System (TC2S) Theater Mission Planning Center (TMPC) and Afloat Planning System (APS), a shipboard version of TMPC. TMPC and APS provide mission planning and employment support information for both the nuclear (TMPC only) and conventional TLAM. This project also supports the distribution of mission data and command information essential to TLAM employment via the Mission Distribution System (MDS) and associated communications infrastructure. TMPC and APS software development decreases mission planning time and increases the quality and accuracy of each mission for Block II and III TLAM. The development of Tactical Tomahawk capabilities in TMPC/APS/MDS includes software development, integration, test, and delivery; support for TECHEVAL and OPEVAL; development of training; installation planning; and simulation/model development required by COMOPTEVFOR to offset live missile flights in TECHEVAL and OPEVAL. This project includes development required by future national and tactical imagery architectures.

R-1 SHOPPING LIST - Item No. 183

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**	R-1 ITEM NOMENCLATURE 0204229N Tomahawk and Theatre Mission Planning Center

(U) The Tomahawk Weapons Control System provides launch capability for surface and submarine platforms. Surface Advanced Tomahawk Weapons Control System (ATWCS) Launch Control Group Replacement (LCGR) completed Initial Operational Capability (IOC) in FY00. Submarine ATWCS Block 1/C Mod 0/1 completed IOC in FY01. Tactical Tomahawk Weapons Control System entered Engineering and Manufacturing Development (EMD) in FY99 with Phase A IOC planned for FY03.

(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.

R-1 SHOPPING LIST - Item No. 183

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204229N TOMAHAWK AND THEATER MISSION PLANNING CENTER					PROJECT NUMBER AND NAME A0545 TOMAHAWK					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		**135.640**	**88.610**	**76.014**							
RDT&E Articles Qty		**EDM 10**									

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

(U) The TOMAHAWK Cruise Missile has been designed to accurately attack land targets from seaborne platforms at great distances from the launch platform (Tomahawk Land-Attack Missile (TLAM)). The TLAM can be produced with either a single Conventional warhead (TLAM/C), a submunition Dispenser (TLAM/D), or a Nuclear warhead (TLAM/N).

(U) The Tomahawk development program (Project A0545) contains all costs for the Tactical Tomahawk (TT) program including the missile, weapons control systems, both surface ship and submarine, and the Tomahawk Command and Control Systems (TC2S).

(U) The TT missile development covered by this budget provides a comprehensive baseline upgrade to the Tomahawk Weapon System including the missile, weapons control systems, and mission planning systems. The upgrade will improve system flexibility, responsiveness, accuracy and lethality. The essential elements of the TT are upgrades to the guidance, navigation, control, and mission computer systems of the missile along with the associated Command and Control (C2) systems and weapons control systems. TT will provide a UHF Satcom data link to enable the missile to receive in-flight mission modification messages, to transfer health and status messages, and to broadcast Battle Damage Indication (BDI) messages. TT also includes a high anti-jam GPS receiver, navigation improvements including Precision Terrain Aided Navigation (PTAN), and associated antenna systems.

(U) The weapons control development portion of the project is centered on the Tactical Tomahawk Weapons Control System (TTWCS), being introduced into the surface and submarine fleets. The TTWCS advancements are increased data throughput, thereby reducing the time needed to execute missile preparation and launch sequences, and improving strike coordination capabilities.

(U) The development of TT capabilities in TC2S includes software development, integration, test, and delivery; support for TECHEVAL and OPEVAL; development of training; installation planning; and simulation/model development.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204229N TOMAHAWK AND THEATER MISSION PLANNING CENTER	A0545 TOMAHAWK

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

(U) ($97,534) Completed System Critical Design Review (CDR). Continued missile prototype fabrication and component-level Development Testing.
(U) ($38.106) Continued development of common launch and track control systems for surface ship and submarine platforms for the new Tactical Tomahawk baseline. Completed CDR leading to Development Testing of entire system in 2001.

2. FY 2001 PLANS:

(U) ($44.659) Conduct Development, Integration and Qualification Testing of Tactical Tomahawk missile.
(U) ($18.915) Incorporate new capabilities in Tomahawk Command and Control systems necessary for the employment of the Tactical Tomahawk missile.
(U) ($23.234) Complete software development and begin Government Testing of Weapons Control System. Conduct Phase 1A Land Based System Integration Tests of redesigned surface and submarine Weapons Control Systems.
(U) ($1.802) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.

3. FY 2002 PLANS:

(U) ($42.629) Conduct Contractor Flight Testing of missile. Complete missile Development, Integration and Qualification testing.
(U) ($19.530) Continue the incorporation of new capabilities in Tomahawk Command and Control systems necessary for the employment of Tactical Tomahawk. Support Tactical Tomahawk Weapon System TECHEVAL, and continue development of related training and installation materials.
(U) ($13.855) Complete Phase 1A land based tests of Weapons Control System. Initiate Weapons Control System TECHEVAL/OPEVAL for Phase 1A. Conduct Phase 1B Land Based and Sea Based System Integration Testing. I

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204229N TOMAHAWK AND THEATER MISSION PLANNING CENTER	A0545 TOMAHAWK

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	139.522	89.565	52.483
(U) Adjustments from the President's Budget:	(3.882)	(0.955)	23.531
(U) FY 2002 President's Budget:	135.640	88.610	76.014

CHANGE SUMMARY EXPLANATION:

(U) Funding:

The FY 2000 net decrease of $3.882 million consists of a decrease of $2.842 million for Small Business Innovative Research assessment, a decrease of $.480 million for reprioritization of requirements within the Navy, a $0.547 million decrease for a Congressional Recission, and a decrease of $0.013 million for Federal Technology Transfer.

The FY 2001 net decrease of $0.955 million consists of a $0.627 million Congressional Reduction, a decrease of $0.133 million for reprioritization of requirements within the Navy, and a decrease of $0.195 million for a Congressional Recission.

The FY 2002 net increase of $23.531 million consists of an increase of $13.205 million for Tactical Tomahawk development, an increase of $7.5M to support missile EMD cost growth, restoration of $2.800 million for TTWCS government testing, an increase of $.600 million for TTWCS prototype training lab design, a decrease of $.272 million for reprioritization of requirements within the Navy, and a decrease of $0.302 million for economic assumptions.

Schedule: Not Applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002
WPN BLI 210100 Tomahawk	0.000	0.000	50.101
OPN BLI 525000 Surface Tomahawk Support Equipment	43.543	43.830	36.808
OPN BLI 525500 Submarine Tomahawk Support Equipment	3.464	2.833	3.062

Related RDT&E,N: Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204229N TOMAHAWK AND THEATER MISSION PLANNING CENTER	A0545 TOMAHAWK

(U) D. ACQUISITION STRATEGY: In 1998, the Tomahawk Baseline Improvement Program (TBIP) transitioned to the Tactical Tomahawk program. This program is outlined in the Class Justification and Approval (CJ&A No AIR-22448) signed by the Under Secretary of the Navy on 29 May 1998. The acquisition strategy, in brief, is to transition the on-going Tomahawk Baseline Improvement Program (TBIP) to Tactical Tomahawk. The Tactical Tomahawk development program is a cost sharing contract between the Government and the Contractor to add capability to the missile. As part of the development, the contractor provided an unsolicited proposal with a fixed unit price of $569 thousand (FY99) dollars. This price is predicated on the government pursuing and obtaining a multi-year procurement.

(U) E. SCHEDULE PROFILE:

	FY 2000	FY 2001	FY 2002
(U) Program Milestones			
(U) Engineering Milestones	3Q/00 CDR Complete		
(U) T&E Milestones		4Q/01 AUR System Integration Complete	4Q/02 AUR System Qual Complete
(U) Contract Milestones			3Q/02-LRIP One Award

Definitions:
AUR - All-Up-Round
CDR - Critical Design Review
IOC - Initial Operational Capability
LRIP - Low Rate Initial Production
OA - Operational Assessment
PDR - Preliminary Design Review

R-1 SHOPPING LIST - Item No. 183

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0204229N/TOMAHAWK AND THEATER MISSION PLANNING CENTER				PROJECT NUMBER AND NAME A0545 TOMAHAWK						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development												
All Product Development Costs,												
1974 through TBIP Costs in 1998			2,176.447									
Tactical Tomahawk Program												
AUR	C/CPFF	Raytheon, Tucson, AZ	160.758	19.330	11/00	18.287	11/01					
Launcher Integration	TBD	NAVSEA, Washington, DC	17.372	2.671	11/00							
Systems Engineering	C/FP	Raytheon, Tucson, AZ	6.000	2.000	11/00	1.000	11/01					
	UARC	APL, Laurel, MD	11.587	4.735	01/01	3.665	01/02					
	C/FP	Boeing, St. Louis, MO	3.000									
Subtotal Product Development			2,375.164	28.736		22.952						

Remarks: None

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0204229N/TOMAHAWK AND THEATER MISSION PLANNING CENTER			PROJECT NUMBER AND NA A0545 TOMAHAWK						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Development Support	Economy Act	NSWC, Dahlgren VA	7.256	2.126	11/00	1.261	11/01					
	Economy Act	NAWC-WD, China Lake, CA	7.074	1.352	11/00	0.746	11/01					
	Economy Act	NSWC, Pt Hueneme, CA	3.043	0.152	11/00	0.202	11/01					
	Economy Act	NAWC-AD, Pax River, MD	2.425	1.088	11/00	0.338	11/01					
	Economy Act	NWAD, Corona	0.652	0.390	11/00	0.286	11/01					
	Economy Act	NUWC, Newport, RI	1.842	1.617	11/00	0.501	11/01					
	SS/CPFF	SAIC, Arlington, VA	3.165	2.199	12/00	1.738	12/01					
	Economy Act	NSWC, Indian Head, MD	1.944	2.152	11/00	0.675	11/01					
	Economy Act	NSWC, Carderock, MD	0.000	0.668	01/01	0.907	11/01					
		Various	14.635	0.351		0.310						
Other Development												
Mission Planning Systems (TC2S)	SS/CPFF	Raytheon, Arlington, VA	5.100									
	SS/CPFF	Boeing, St. Louis, MO	0.000									
	SS/CPFF	ComGlobal, San Jose, CA	0.000	9.401	12/00	10.181	12/01					
	SS/CPFF	SAIC, Arlington, VA	0.000	5.215	12/00	3.049	12/01					
	UARC	APL, Laurel, MD	0.000	3.596	12/00	4.300	12/01					
	SS/CPFF	BAE Systems, San Diego, CA	0.000	0.329	12/00	0.600	12/01					
	SS/CPFF	Lockheed, Valley Forge, PA	0.000	0.374	12/00	1.400	12/01					
Weapons Control Systems	C/CPAF	Lockheed, Valley Forge, PA	58.695	20.890	12/00	8.028	12/01					
	Economy Act	NSWC, Dahlgren VA	15.393	0.910	11/00	3.324	11/01					
	Economy Act	NUWC, Newport, RI	9.364	1.434	11/00	1.700	11/01					
	UARC	APL, Laurel, MD	0.000			0.804	12/01					
Subtotal Support			130.588	54.244		40.350						

Remarks: None

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)											DATE: **June 2001**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0204229N/TOMAHAWK AND THEATER MISSION PLANNING CENTER				PROJECT NUMBER AND NAME A0545 TOMAHAWK						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	SS/CPFF	Raytheon, Tucson, AZ	19.574	0.000	11/00	6.608	11/01					
	Economy Act	COMOPTEVFOR, VA	1.603	0.230	11/00	0.400	11/01					
	Economy Act	NAWC, Pt Mugu Test Ctr, CA	6.711	1.847	11/00	4.240	11/01					
	Economy Act	NOSC, San Diego CA	0.000	0.700	04/01	0.700	11/01					
	Economy Act	NUWC, Newport RI	0.000	0.235	11/00	0.239	11/01					
	UARC	APL, Laurel MD	0.000	0.200	11/00	0.450	11/01					
	Economy Act	NAC, China Lake FltTestCtr, CA	3.247									
		Various	0.000	0.616		0.075						
Subtotal T&E			31.135	3.828		12.712						
Remarks: None												
Management		SBIR		1.802								
Subtotal Management				1.802								
Remarks: None												
Total Cost			2,536.887	88.610		76.014						
Remarks:												

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204229N TOMAHAWK AND THEATER MISSION PLANNING CENTER					PROJECT NUMBER AND NAME A1784 THEATER MISSION PLANNING CENTER					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**92.830**	**1.805**	**1.851**	**0.022**							
RDT&E Articles Qty											

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

(U) 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) warfare 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) and the Electronic TOMAHAWK Employment Planning Package (ETEPP). The Mission Distribution System (MDS) allows TOMAHAWK users the capability to transmit and receive mission data updates in a tactical environment. The ETEPP provides the TOMAHAWK user with command and control information needed to employ TOMAHAWK missions.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

   (U) ($1.805) Continued TMPC integration of New National Sensors and Software Architectural Enhancements.

2. FY 2001 PLANS:

   (U) ($1.790) Develop system updates to TOMAHAWK Command and Controls systems necessary for the employment of the Tactical TOMAHAWK missile.
   (U) ($0.061) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.

3. FY 2002 PLANS:

   (U) ($0.022) Continue to develop system updates to TOMAHAWK Command and Controls systems necessary for the employment of the Tactical TOMAHAWK missile.

R-1 SHOPPING LIST - Item No. 183

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204229N TOMAHAWK AND THEATER MISSION PLANNING CENTER	A1784 THEATER MISSION PLANNING CENTER

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	1.895	1.871	0.022
(U) Adjustments from the President's Budget:	(0.090)	(0.020)	0.000
(U) FY 2002/2003 OSD Budget Submit:	1.805	1.851	0.022

CHANGE SUMMARY EXPLANATION:

(U) Funding:

The FY 2000 net decrease of $0.090 million reflects a decrease of $0.046 million for Small Business Innovative Research (SBIR) assessment, a decrease of $0.007 million for a Congressional Recission, and a decrease of $0.037 million for reprioritization of requirements within the Navy.

The FY 2001 net decrease of $0.020 million reflects a decrease of $0.003 million for reprioritization of requirements within the Navy, a reduction of $0.013 million Congressional reduction, and a reduction of $0.004 million for a Congressional Recission.

(U) Schedule: Not Applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002
OPN BLI 525000 Surface Tomahawk Support Equipment	36.184	25.508	24.433

Related RDT&E,N: Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-7	0204229N TOMAHAWK AND THEATER MISSION PLANNING CENTER	A1784 THEATER MISSION PLANNING CENTER	

(U) D. ACQUISITION STRATEGY: The acquisition strategy for this project is to maintain contractual continuity to develop system updates to continue TMPC integration of New National Sensors and Software Architectural Enhancements.

(U) E. SCHEDULE PROFILE:

	FY 2000	FY 2001	FY 2002
(U) Program Milestones	Annual Fleet Release	Annual Fleet Release	Annual Fleet Release
(U) Engineering Milestones			
(U) T&E Milestones			
(U) Contract Milestones	TMPC APS	TMPC APS	TMPC APS

R-1 SHOPPING LIST - Item No. 183

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)							DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0204229N TOMAHAWK AND THEATER MISSION PLANN			PROJECT NUMBER AND NAME A1784 THEATER MISSION PLANNING CENTER						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/FP	Boeing, St. Louis, MO	36.795									
	SS/CPFF	GD/E, San Diego, CA	11.342									
	Econ Act	NCCOSC, San Diego, CA	4.325									
		Misc. Items 1974-1997	34.940									
	C/CPFF	Lockheed, Bethesda, MD	1.283	1.300	11/00	0.022	11/01					
	C/CPFF	MTL, Classified	1.060									
	Econ Act	NSWC, Dahlgren	1.253									
Subtotal Product Development			90.998	1.300		0.022						
Remarks:												
Development Support Equipment	CPFF	SAIC, Arlington, VA	1.866									
	UARC	APL, Laurel, MD	1.771	0.490	01/01							
Subtotal Support			3.637	0.490		0.000						
Remarks:												

R-1 SHOPPING LIST - Item No. 183

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)							DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0204229N TOMAHAWK AND THEATER MISSION PLANN			PROJECT NUMBER AND NAME A1784 THEATER MISION PLANNING CENTER						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E			0.000	0.000		0.000						
Remarks:												
Management		SBIR		0.061								
Subtotal Management				0.061								
Remarks:												
Total Cost			94.635	1.851		0.022						
Remarks:												

R-1 SHOPPING LIST - Item No. 183

BUDGET ACTIVITY: 7

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

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE
X0766 IUSS Detect/ Classif System	11,245	24,872	14,235
X0758 SURTASS	5,663	12,212	5,806
TOTAL	16,908	37,084	20,041

A. (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 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 the 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 the Fixed Distributed System (FDS), as well as SURTASS Low Frequency Active (LFA) developments. The number of SOSUS processing sites has been reduced and the display and processing equipment used at the remaining sites has been converted to SDS/SSIPS (Shore Signal and Information Processing Segment) to significantly lower life cycle costs and enable system-wide consolidation. 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.

BUDGET ACTIVITY: 7

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

(U) In order to continue with reductions in life cycle costs and continue with system-wide consolidation, a long-term goal is to develop a single IUSS processor based on NAVSEA's Acoustic Rapid COTS Insertion (ARCI) program. The IUSS processor will have the capability to process and display data from future underwater systems (such as the Advanced Deployable System (ADS) and FDS-C). The IUSS processor will also have the capability to replace the legacy systems (SSIPS, SDS, and SURTASS) as they reach end of life and require upgrading.

(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.

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

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE
X0766 IUSS Detect/Classif System			
TOTAL	11,245	24,872	14,235

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: 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. Improvements include Twin-Line/LFA integration enhancements; advanced waveforms for littoral/shallow water operations including doppler sensitive waveforms; and processing algorithms to reduce clutter and reverberation false alarms in shallow water. Also includes Adaptive Beamforming; Integration of tactical decision aids for LFA monostatic and bistatic operation; integration of SURTASS active and passive information processing systems to provide contact association and geographic tracking; and common antisubmarine warfare (ASW) OMI and environmental processing. The LFA task includes development and testing of a compact LFA transmit source array for SWATH-P ships.

B. (U) PD18 is involved with the development and maintenance of various IUSS systems. These systems include FDS, FDS-C, SDS, SURTASS, and ADS. The near term objective is to obtain a common Operator Machine Interface (OMI) among currently fielded systems. The long-term goal is to develop a single IUSS processor baseline, with minor maintenance efforts continuing on fielded systems. The existing system architecture, signal processing, contract management, and reporting requirements will be evaluated as well as the requirements for future systems. The development of the IUSS processor will take advantage of automation advancement, array technology improvements, and submarine and surface system commonality.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

(U) FY 2000 Accomplishments:

- (U) ($ 3,925) Continue design and development of software to transition IUSS to a common processing architecture.
- (U) ($ 1,500) Continue scientific research program to support operational deployment of LFA.
- (U) ($ 1,560) Conduct DT/OT testing of T-AGOS 23 SURTASS/LFA system.

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

- (U) ($ 2,562) Continue LFA development and integration in support of DT/OT testing of T-AGOS 23 SURTASS/LFA system. Correct software issues identified during conduct of DT/OT testing.
- (U) ($ 1,441) Complete transition of SURTASS and SSIPS/SDS to a common OMI. Complete Factory Acceptance Testing (FAT) at each developer facility and install into fielded legacy systems. Prototype requested fleet enhancements to common OMI baseline.
- (U) ($ 257) Continue integration of IUSS into the Fleet C4ISR architecture.

1. (U) FY 2001 Plans:

- (9,433) Develop fiber optic sensor technology for a long life all optical underwater surveillance system.
- (4,965) Develop/expand the collaborative planning functionality of WeCAN to include other multi-mission warfare areas.
- (3,296) Continue design and development of software to transition IUSS to a common processing architecture(ARCI). Verify design and functionality via in lab demonstration testing and sea tests.
- (3,388) Continue sea testing and LFA development to improve performance in shallow water/littoral regions to support ARG operations. Conduct LFA Cory shakedown tests to verify system operability and operator training.
- (1,200) Continue scientific research program to support operational deployment of LFA.
- (890) Continue integration of IUSS into the Fleet C4ISR architecture.
- (1,000) Conduct trade-off analysis for LLFA array, processing, array handling and ship modification.
- (700) Conduct trade-off and mission studies to explore networked ASW system concepts, investment alternatives and development of a community-wide strategy for common performance models.

2. (U) FY 2002 PLANS

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

- (1,903) FSS – Continue design and development of software and perform hardware evaluations to transition IUSS to a common processing architecture. Verify design and functionality via in lab demonstration testing.

- (866) LFA MSIII – Conduct T-23 development testing/Operational Testing (DT/OT) certification testing. Correct software issues uncovered during testing.

- (3,099) Common Acoustic Processor – Complete development of SURTASS ARCI(I) capability for all single line array types. Develop software for Twin-Line processing in the ARCI(I) architecture.

- (1,800) Surveillance System Integration – Continue integration of SURTASS ARCI(I) capability with IUSS legacy systems. Integrate future ARCI(I), Comms, and TDA improvements.

- (3,679) Active Acoustics – Continue implementation of a multi-year sea test program focused on CONOPS and the physics of shallow water. Develop improvements for LFA operations in shallow water, conduct analysis, simulations, and trade-off studies to define the optimum configuration of shallow water sources, including frequency diversity and power levels, source technology, array handling configurations/platforms. Continue sea test program to support system improvements and demonstrate/validate operational concepts.

- (1,200) LFA Environmentals – Continue environmental research on the effect of low frequency active sonar on marine mammals.

- (1,100) N84 ASW Study – Continue conducting trade-off and mission studies to explore networked ASW system concepts, investment alternatives and development of a community-wide strategy for common performance models.

- (588) ASWC4I – Continue performing engineering, analysis and trade-offs; conduct proof of concept testing to support IUSS integration into the Navy’s C4I architecture, including IT-21 implementation. Continue supporting IUSS C4I IPT. Coordinate the development of GCCS-M ASW Tactical Decision Aids (TDAs). Define ASWC4I system concepts, system interfaces and architecture.

B. (U) PROGRAM CHANGE SUMMARY:

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

FY 2000: SBIR Assessment (-$262K), Miscellaneous Navy Adjustments (-$376K), Section 8055 Congressional Proportionate Rescission (-$47K).
FY 2001: Section 8086 .7% Pro-Rata Reduction (-$176K), Congressional Plus-Up WECAN Tech to Other Warfare Areas and Domain (+$5,000K), Congressional Plus-Up Advanced Deployable System (+$9,500K), Government Wide Recission (-$55K).

(U) Schedule/Technical: FY00, delay start of Compact Low Frequency Active (CLFA) development to FY04. FY00, delay in DT/OT of T-23 to FY02.

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

	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	ESTIMATE
OPN# 2225	0	0	0	2,000
OMN 1C3C	26,624	29,635	29,936	31,149
OPN# 2237	7,081	5,465	17,650	20,825

(U) RELATED RDT&E:
(U) PE 0204311N(Integrated Surveillance System)
(U) PE 0603785N(Combat Systems Oceanographic Performance Assessment)
(U) PE 0603747N(Undersea Warfare Advanced Technology)

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

D. (U) ACQUISITION STRATEGY:

	FY 2000	FY2001	FY2002
Program Milestones			
Engineering Milestones		ARCI A-180R VARIANT 7/01	
T&E Milestones		SEA TEST ARCI A180R VARIANT	SEA TESTS DT-8/02
Contract Milestones		T-AGOS 23 DLVRY 3/01	ARCI (I) PROCUREMENT

Exhibit R-3, FY 2002 RDT&E,N Project Cost Analysis DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311 PROJECT NUMBER X0766
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS

Exhibit R-3 Cost Analysis (page 1)													Date: Sep 2000
RDT&E/Budget Activity 7			PROGRAM ELEMENT: 0204311N										SURTASS x0766
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date						
WeCAN	CPFF/ WX	ORINCON/Var	0	4,965	Apr-01								
FDS/AODS	CPFF/ WX	TBD	0	8,000	Sep-01								
IUSS Common Architecture/Surveillance System Integration	CPFF	DSR/LM/ARL/Var	24,148	4,491	Nov-00	6,377	Oct-01						
Environmental Research	WR	ONR	5,500	1,200	Nov-00	1,200	Nov-01						
LFA Improvements/LFA MS III Active Acoustics	CPFF/ WX	RSC/LS/DSR/Var	80,555	1,643	Nov-00	2,404	Nov-01						
C4I Integration	CPFF/WX	Various	31,278	165	Nov-00	413	Nov-01						
N84 ASW Study	WX/PD	NUWC/APL	0	700	Nov-00	1,100	Nov-01						
Various	WX	Various	28,457	0		0							
Subtotal Product Development			169,938	21,164		11,494							

Remarks:
ORINCON= San Diego, CA
Litton= Woodland Hills, CA
RSC= Raytheon Systems Co. Portsmouth, RI
LM= Lockheed Martin, Manassas, VA
TRW=TRW Systems Div., San Diego, CA
L/S= Lockheed Sanders, Nashua, NH
DSR = Digital System Resources, Fairfax, VA

Exhibit R-3 Cost Analysis (page 2)									Date: Sep 2000			
RDT&E/Budget Activity 7			PROGRAM ELEMENT: 0204311N						SURTASS x0766			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date					
IUSS Common Arch./ Surveillance System Integration	WX	Various	990	0	N/A	0	N/A					
LFA Improvements/ LFA MSIII Active Acoustics	CPFF	TRW/Various	2,930	625	Nov-00	450	Nov-01					
C4ISR Integration	CPFF	TRW/Various	1,534	175	Nov-00	175	Nov-01					
FDS/AODS	WX	Various	0	1433	May-01	0	N/A					
Subtotal Support			5,454	2,233		625						
RDT&E/Budget Activity 7									SURTASS x0766			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date					
IUSS Common Arch./ Surveillance System Integration	Var/WX	Various	651	0	N/A	400	Nov-01					
LFA Improvements/ LFA MSIII Active Acoustics	Var/WX	Various	2,975	1,325	Var.	1,566	Var.					
Subtotal T&E			3,626	1,325		1,966						

Remarks

EXHIBIT R-3, FY 2002 RDT&E PROJECT COST ANALYSIS DATE: June 2001

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

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date					
LFA Improvements/C4ISR	Var/Wx	Various	1,437	150	Var.	150	Var.					
Subtotal Management			1,437	150		150						
Total Cost			180,455	24,872		14,235						

Exhibit R-2a, FY 2002 RDT&E,N Budget Item Justification (Project) DATE: June 2001

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

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE
X0758 SURTASS	5,663	12,212	5,806

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 cueing 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) included source-set formulation and analysis tools, automated line trackers and nuclear source auto-detector. Build #2 (FY 96) included wideband energy trackers, wideband/narrowband feature association, and diesel Full Spectrum Processing (FSP). Build #3 (FY 97) included automated localization and tracking, diesel automated detectors. Build #4 (FY 98) included twin-line integration, automated classification aids that provide surface/subsurface target discrimination and subsurface target classification clues. Build #5(FY 99) includes bi-static LFA signal processing and integration of active and passive information processing subsystems to improve contact association and geographic tracking performance. Build #6 (FY00) focuses on improvements to the Twin-Line processing capability and increases bandwidth to shore. It also includes the initial investment in the common acoustic processor for IUSS based on the ARCI program.

Exhibit R-2a, FY 2002 RDT&E,N Budget Item Justification (Project) DATE: June 2001

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

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 Accomplishments:

- (1,071) Develop processing improvements to support transition to TB-29 common towed array and expand array interoperability.
- (1,581) Complete software development to support increased data processing on shore to support tactical operations.
- (967) Continue computer aided detection, classification and tracking to improve passive performance to support tactical operations in high clutter environments.
- (844) Continue software development to improve Bi-static operations in littoral/shallow water regions.
- (1,200) Develop software to transition to Common Processor.

2. (U) FY 2001 PLANS:

- (2,000) TB-29/Twin-Line – Continue hardware and software development and processing improvements to support TB-29 operations and expand array interoperability.
- (1,845) Passive Processing & Automation – Continue Computer Aided Detection, Classification, and Tracking improvements, and development of automated tools to improve passive performance to support tactical operations and reduce operator workload in high clutter environments.
- (2,367) Bi-Static and Shore Processing – Continue software development to improve Bi-Static Processing in littoral/shallow water regions. Develop Link Management capabilities for providing Bi-Static data to shore to reduce requirements for deploying Military Detachments (MILDETS).
- (6,000) Onboard Signal Processor – Integrate SURTASS shipboard processing (ARCI) into a network-Centric architecture to extend SURTASS capabilities to other tactical platforms.

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

3. (U) FY 2002 PLANS:

- (1,923) Passive Processing & Automation – Develop capability for monitoring low priority beams, improved acoustic signature formation, and target passive ranging. Continue development of software for processing off-board (autonomous) sensor data.

- (2,000) TB-29/Twin-Line – Continue processing improvements to support TB-29 operations and expand array interoperability. Develop across platform telemetry architecture.

- (1,883) Shore Processing – Continue incorporation of OMI Commonality Working group guidance. Continue development of Link Management functionality. Develop shore processing capability for TB-29A array and off-board sensors.

B. (U) PROGRAM CHANGE SUMMARY

FY 2000: SBIR Assessment (-$157K), Miscellaneous Navy Adjustments (-$200K), Section 8055: Congressional Proportionate Rescission (-$23K).
FY 2001: Section 8086 .7% Pro-Rata Reduction (-$86K), Congressional Plus-Up ASW Combat Sys Int - Onboard Signal Processor (+$6,000K), Government-Wide Rescission (-$27K).

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

	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE
OMN 1C3C	26,624	29,635	29,936
OPN 2237	7,081	5,465	17,650

(U) RELATED RDT&E:

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

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

D. (U) ACQUISITION STRATEGY:

	FY 2000	FY2001	FY2002
Program			
Engineering Milestones		ARCI A-180R VARIANT 7/01	
T&E Milestones		SEA TEST ARCI A180R VARIANT	
Contract Milestones			TB-29A Procurement

Exhibit R-3, FY 2002 RDT&E,N Project Cost Analysis DATE: June 2001

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

Exhibit R-3 Cost Analysis (page 1)													Date: Sep 2000
RDT&E/Budget Activity 7		PROGRAM ELEMENT: 0204311N											SURTASS x0758
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date						
Passive Auto	CPFF	APL/DSR	22,952	1,845	Nov-00	1,923	Nov-01						
Array Improvements	CPFF/WR	APL/SSC/Var	16,451	1,075	Nov-00	1,075	Nov-01						
Processing Improvements/Shore Processing	CPFF	ARL/DSR/Var	24,588	1,957	Nov-00	1,473	Nov-01						
Various	Var/WX	Various	15,103	0	Nov-00	0	Nov-01						
Common Processor	WX	DSR	1,200	0	N/A	0	N/A						
Onboard Signal Processing	Var/WX	Various	0	5,675									
Subtotal Product Development			80,294	10,552		4,471							

Remarks:

APL = APL/JHU

RSC = Raytheon Systems Co.

SSC = SPAWAR Systems Center.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0758

PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: SURTASS

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date					
Passive/Array Improvements	Var/Wx	Various	1,838	375	Nov-00	375	Nov-01					
Onboard Signal Processing	Var/Wx	Various	0	125								
Subtotal Support			1,838	500		375						
Remarks												
Passive/Array improvements	Var/WX	MISC.	3.313	945	Nov-00	945	Nov-01					
Onboard Signal Processing	Var/WX	Various	0	100								
Subtotal T&E			3,313	1,045		945						
Remarks												
Passive/Array improvements	Var/WX	MISC.	522	15	Nov-00	15	Nov-01					
Onboard Signal Processing	Var/WX	Various	0	100								
Subtotal Management			522	115		15						
Remarks												
Total Cost			85,967	12,212		5,806						

(Exhibit R-3, page 2 of 2)

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA7**					R-1 ITEM NOMENCLATURE Amphibious Tactical Support Unit/0204413N					
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Total PE Cost	**0.000**	**11.837**	**24.387**						**Continuing**	**Continuing**
SACC AUTOMATION/21980	**0.000**	**0.000**	**4.598**						**Continuing**	**Continuing**
LCU REPLACEMENT AND DMFD/22231	**0.000**	**2.905**	**5.817**						**Continuing** **Continuing**	**Continuing** **Continuing**
AMPHIBIOUS LIGHTERAGE DEVELOP/Y2909	**0.000**	**8.932**	**13.972**						**Continuing** **Continuing**	**Continuing** **Continuing**
Quantity of RDT&E Articles										

A. Mission Description and Budget Item Justification: This Program Element supports various amphibious development efforts.

B. Program Change Summary:

	FY 2000	FY 2001	FY 2002
FY 2001 President's Budget:	0.000	7.911	13.589
Appropriated Value:	0.000	7.911	
Adjustments to FY 2000/2001 Appropriated Value/			
FY 2001 President's Budget			
a. Section 8086: 0.7% Pro-rata reduction (App Bill)		-0.056	
b. SACC Automation functionality improvements			-1.200
c. LCU realignment of initial production year			-2.000
d. Amphibious Lighterage - N4 program balancing			2.250
e. Minor pricing adjustments			-0.016
f. Milestone slip (Amphib Light Dev) - JMLS		3.999	11.700
g. Government-wide rescission		-0.017	
h. Non-pay inflation adjustment			0.030
i. LCU Program Support revision			0.034
FY 2002 PRES Budget Submit:	0.000	11.837	24.387

Funding: See Detail Above
Schedule: Not Applicable
Technical: Not Applicable

EXHIBIT R-2a, RDT&E Project Justification							DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/BA7**	PROGRAM ELEMENT NAME AND NUMBER **Amphibious Tactical Spt Unit/0204413N**				PROJECT NAME AND NUMBER SACC Automation/21980					
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost	**0.000**	**0.000**	**4.598**						**Continuing**	**Continuing**
RDT&E Articles Qty										

A. Mission Description and Budget Item Justification: The Supporting Arms Coordination Center (SACC) initiative is to automate the communications and data flow that calls for fire and supporting arms for marine forces ashore. Currently the process is all manual and voice accomplished which, in the future, will be unresponsive to the needs of supported forces. Specifically, this project will develop the Naval Fire Control System and procure two engineering development ship sets for installation. It will also provide interface with the Advance Combat Direction System (ACDS) which brings the automated functions of supporting arms into the coherent tactical picture.

FY 2000 Accomplishments: Not Applicable
FY 2001 Plan: Not Applicable
FY 2002 Plan:
- ($0.351) Conduct a SACC Reconfiguration Study.
- ($2.280) Define Software Functionality (requirements).
- ($1.967) Resolve Engineering and Integration Issues.

B. Other Program Funding Summary

	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	To Complete	Total Cost
OPN Line 098100 Items Under $5M	0	0	346							
O&MN Line, 1D3D, PEO EXW, PE 0708017N	0	0	350							

The procurement items are for jam boxes, Automated Distribution Network Systems (ADNS), and racks which will be permanent changeouts to the amphibious ships. These need to be in place in order to permit the connection of the automated SACC capabilities. The operations and maintenance efforts are for program, engineering, and technical support, logistics support and technical assists.

(U) Related RDT&E: Not Applicable

C. Acquisition Strategy: This project is part of a collaboration between N85 and N86 to jointly develop and field a Naval Fire Control System (NFCS) that satisfies the requirements of naval and supported forces. The NFCS is to be an ACAT III program under N86 management.

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/BA7**	PROGRAM ELEMENT NAME AND NUMBER **Amphibious Tactical Spt Unit/0204413N**	PROJECT NAME AND NUMBER SACC Automation/21980	

D. Schedule Profile:

	FY01	FY 02	To Complete
Program Milestones	- Not Applicable	- Conduct a SACC reconfiguration study -Address amphibious ship specific engineering intregration issues -Design and test communications architecture for LHA/LHD/LPD-17 class ships -Begin and complete System Segment Specification	- Develop SACC specific software functions
Engineering Milestones			
T&E Milestones			
Contract Milestones			

Exhibit R-3 Cost Analysis (page 1)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N**		PROGRAM ELEMENT **Amphibious Tactical Spt Unit/0204413N**				PROJECT NAME AND NUMBER SACC Automation/21980						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development										Continuing	Continuing	
Ancillary Hardware Development	WR/PO	NSWC, DD Dahlgren						0.050	11/01	Continuing	Continuing	
Systems Engineering	TBD	TBD						0.641	11/01	Continuing	Continuing	
Licenses	WR/PO	NSWC, DD Dahlgren						0.020	11/01	Continuing	Continuing	
Tooling										Continuing	Continuing	
GFE										Continuing	Continuing	
Award Fees										Continuing	Continuing	
Subtotal Product Development			0.000	0.000		0.000		0.711		Continuing	Continuing	
Remarks: Software programs to integrate and automate SACC functions												
Development Support Equipment										Continuing	Continuing	
Software Development	TBD	TBD						2.297	11/01	Continuing	Continuing	
Training Development	WR/PO	NSWC, DD Dahlgren						0.050	11/01	Continuing	Continuing	
Integrated Logistics Support	WR/PO	NSWC, DD Dahlgren						0.050	11/01	Continuing	Continuing	
Configuration Management										Continuing	Continuing	
Technical Data	WR/PO	NSWC, DD Dahlgren						0.350	11/01	Continuing	Continuing	
GFE										Continuing	Continuing	
Subtotal Support			0.000	0.000		0.000		2.747		Continuing	Continuing	
Remarks: Preparation of ship alterations and tech drawings and accompanied support												

Exhibit R-3 Cost Analysis (page 2) | DATE: **June 2001**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E,N** | PROGRAM ELEMENT: **Amphibious Tactical Spt Unit/0204413N** | PROJECT NAME AND NUMBER: SACC Automation/21980

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	TBD	TBD						0.240	11/01	Continuing	Continuing	
Operational Test & Evaluation										Continuing	Continuing	
Tooling										Continuing	Continuing	
GFE	TBD	TBD						0.150	11/01	Continuing	Continuing	
Subtotal T&E			0.000	0.000		0.000		0.390		Continuing	Continuing	

Remarks:

Contractor Engineering Support	CPFF	TBD						0.290	11/01	Continuing	Continuing	
Government Engineering Support	WR/PO	NSWC,DD Dahlgren						0.217	11/01	Continuing	Continuing	
Program Management Support	WR/PO	NSWC,DD Dahlgren						0.233	11/01	Continuing	Continuing	
Travel								0.010	11/01	Continuing	Continuing	
Labor (Research Personnel)										Continuing	Continuing	
Overhead										Continuing	Continuing	
Subtotal Management			0.000	0.000		0.000		0.750		Continuing	Continuing	

Remarks: Program management support also includes $88K for Hqs, Program Office program management support in FY02.

Total Cost			0.000	0.000		0.000		4.598		0.000	0.000	

Remarks:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **May 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/BA7**	PROGRAM ELEMENT NAME AND NUMBER **Amphibious Tactical Spt Unit/0204413N**				PROJECT NAME AND NUMBER LCU Replacement and D-Day Mobile Fuel Demo,DMFD/22231					
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost	**0.000**	**2.905**	**5.817**						**Continuing**	**Continuing**
RDT&E Articles Qty										

A. Mission Description and Budget Item Justification: (LCU) - This project supports development and procurement of a technologically advanced heavy lift utility landing craft to compliment the high speed, over-the-beach, ship-to-shore amphibious lift of the future. D-Day Mobile Fuel Demo (DFMD) - This effort, in FY04 only ($1M), funds procurement of the 15K Bladder System currently being demonstrated by ONR/NFESC as an Advance Technology Demonstration (ATD). This will provide bulk fuel delivery capability by LCACs from distances exceeding hose capability.

FY 2000 Accomplishments: Not Applicable

FY 2001 Plan (LCU and DFMD)

- ($0.236) Conduct requirements update.
- ($0.491) Conduct enabling technologies study.
- ($1.214) Conduct feasibility studies (3 to 5 major variations).
- ($0.494) Conduct analysis of alternatives.
- ($0.432) Conduct market survey analysis.
- ($0.038) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

FY 2002 Plan (LCU and DFMD)

- ($1.500) Execute design studies.
- ($1.229) Conduct enabling technologies R&D.
- ($1.872) Begin and complete model testing (beaching, seakeeping, survivability).
- ($0.197) Conduct virtual prototyping/signatures assessment.
- ($0.492) Conduct commercial specification IPT.
- ($0.296) Conduct cost studies.
- ($0.231) Generate acquisition documentation.

B. Other Program Funding Summary (LCU and DFMD)

	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY 2006	FY 2007	To Complete	Total Cost
SCN Line 510000 Service Craft	0	0	0	0	0	59.110	61.317	61.553	Cont.	Cont.
OPN/603300/CL-25(NAVFAC)/0204413N					3.997	3.999	4.001			

(U) Related RDT&E: Not Applicable

C. Acquisition Strategy (LCU): Feasibility studies will be conducted to determine the best design to meet new Navy requirements for heavy lift utility landing craft and to support a performance specification

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E,N/BA7	**Amphibious Tactical Spt Unit/0204413N**	LCU Replacement and D-Day Mobile Fuel Demo(DMFD)/22231

D. Schedule Profile (LCU):

	FY01	FY02	To Complete
Program Milestones	- Mission needs statement approval - Assessment of alternatives - Milestone 0		- Evaluation of feasibility of alternatives - Enabling technology studies
Engineering Milestones	- Feasibility studies	-Execute design studies	
T&E Milestones		-Begin and complete model testing	
Contract Milestones			

Exhibit R-3 Cost Analysis (page 1)											DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/BA7**			PROGRAM ELEMENT **Amphibious Tactical Spt Unit/0204413N**			PROJECT NAME AND NUMBER LCU Replacement and D-Day Mobile Fuel Demo(DMFD)/22231						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	NSWC Bethesda, Md								Continuing	Continuing	
Ancillary Hardware Development	WR	NSWC Bethesda, Md								Continuing	Continuing	
Systems Engineering	WR	NSWC Bethesda, Md								Continuing	Continuing	
Licenses										Continuing	Continuing	
Tooling										Continuing	Continuing	
GFE										Continuing	Continuing	
Award Fees										Continuing	Continuing	
Subtotal Product Development			0.000	0.000		0.000		0.000		Continuing	Continuing	
Remarks:												
Development Support Equipment										Continuing	Continuing	
Software Development										Continuing	Continuing	
Training Development										Continuing	Continuing	
Integrated Logistics Support										Continuing	Continuing	
Configuration Management										Continuing	Continuing	
Technical Data										Continuing	Continuing	
GFE										Continuing	Continuing	
Subtotal Support			0.000	0.000		0.000		0.000		Continuing	Continuing	
Remarks: Cost to complete is $1M for D-Day Mobile Fuel effort in FY04.												

Exhibit R-3 Cost Analysis (page 2)								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N**			PROGRAM ELEMENT **Amphibious Tactical Spt Unit/0204413N**			PROJECT NAME AND NUMBER LCU Replacement and D-Day Mobile Fuel Demo(DMFD)/22231						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC Bethesda, Md						1.872	12/01		Continuing	Continuing
Operational Test & Evaluation											Continuing	Continuing
Tooling											Continuing	Continuing
GFE											Continuing	Continuing
Subtotal T&E			0.000	0.000		0.000		1.872		0.000	Continuing	Continuing
Remarks:												
Contractor Engineering Support											Continuing	Continuing
Government Engineering Support	WR	NSWC Bethesda, Md				1.977	11/00	3.150	11/01		Continuing	Continuing
Program Management Support	CPFF	various				0.908	11/00	0.745	11/01		Continuing	Continuing
Travel						0.020	10/00	0.050	10/01		Continuing	Continuing
Labor (Research Personnel)											Continuing	Continuing
Overhead											Continuing	Continuing
Subtotal Management			0.000	0.000		2.905		3.945		0.000	Continuing	Continuing
Remarks:												
Total Cost			0.000	0.000		2.905		5.817		0.000	0.000	
Remarks:												

EXHIBIT R-2a, RDT&E Project Justification							DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/BA7**	PROGRAM ELEMENT NAME AND NUMBER **Amphibious Tactical Spt Unit/0204413N**				PROJECT NAME AND NUMBER Amphibious Lighterage Development/Y2909					
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost	**0.000**	**8.932**	**13.972**						**Continuing**	**Continuing**
RDT&E Articles Qty										

A. Mission Description and Budget Item Justification: Joint Modular Lighterage System (JMLS Development) - This project supports development and procurement of technology to develop a service-interoperable causeway lighterage system with the US Army, capable of assembly and operation (in a loaded condition) through Sea State 3. The Defense Planning Guidance includes requirements for SS3 JLOTS capabiltiy by FY05. Sea State 3 is defined as significant wave height of 3.5 feet to 5.0 feet per the Joint Logistics Over The Shore (JLOTS) Mission Need Statement. This project includes resolution of technical issues identified during Technical Evaluation and efforts to support/conduct Operation Evaluation of the JMLS system to support transition from an FY98/FY99 Advanced Concept Technology Demonstration (ACTD) to an acquisition program.

FY 2000 Accomplishments (JMLS Development):
- ($0.0) JMLS ACTD contractor completes hardware fabrication and completes Test and Demonstration program. (FY00 tasks accomplished under National Defense Sealift Funds.)

FY2001 Plan (JMLS Development):
- ($0.839) Complete Advanced Concept Technology Demonstration. Conduct Mulitary Utility Assessment (MUA).
- ($1.199) Engineering studies, engineering support to resolve technical issues.
- ($0.100) Program documentation including ORD and TEMP.
- ($1.998) Resolve Technical and Design issues identified during ACTD. Efforts include engineering tests.
- ($0.350) Throughput and ship interface studies.
- ($0.959) Specification development and contract support.
- ($3.358) Proof of Concept contract for design, manufacture, and test of 24' wide module.
- ($0.129) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

FY 2002 Plan (JMLS Development):
- ($1.503) Engineering studies, engineering support to resolve technical issues.
- ($0.050) Program documentation including ORD and TEMP.
- ($0.641) Resolve Technical and Design issues identified during ACTD.
- ($0.225) Throughput and ship interface studies.
- ($1.964) Specification development.
- ($9.589) Proof of Concept contract for design, manufacture, and test of 24' wide module.

B. Other Program Funding Summary (JMLS Development)

	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	To Complete	Total Cost
CESE Line 6033 Amphib Equip (OPN)(Reqmt)	15.867	51.142								
(U) Related RDT&E: n/a										

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/BA7**	PROGRAM ELEMENT NAME AND NUMBER **Amphibious Tactical Spt Unit/0204413N**	PROJECT NAME AND NUMBER Amphibious Lighterage Development/Y2909	

C. Acquisition Strategy (JMLS): The T&E efforts for the JMLS ACTD is scheduled to complete in 3Q FY01. Following the Gov't T&E effort, the JMSL Program will transition into a formal Acquisition program at MS B, Program Definition and Risk Reduction. Results of ACTD contractor tests completed in 3Q FY00 indicated that a larger module is required to support Navy mission. Program restructured so that FY01 and FY02 efforts focus on incorporating connector technology developed during the ACTD into a wider 24' module and a Proof of Concept contract to design, manufacture, and test a new 24' wide module. MS B effort will support a LRIP milestone decision in 1Q FY03. LRIP hardware will be procured to conduct a full OPEVAL in 2Q-3Q FY05. OPEVAL results will be used to support a Full Production milestone decision in FY05

D. Schedule Proflie:

	FY00	FY01	FY02	To Complete
Program Milestones	- Continue ACTD	- Conduct MUA. - Complete ACTD - MS I Decision - Begin Phase I Def & Risk Red	- Mfg module prototype (24' module) - Test module prototype (24' module)	- MS II Decision - Phase II Eng & Mfg Dev - Award LRIP contract - Build OPEVAL hardware - Conduct OPEVAL

Exhibit R-3 Cost Analysis (page 1)											DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/BA7**			PROGRAM ELEMENT **Amphibious Tactical Spt Unit/0204413N**			PROJECT NAME AND NUMBER Amphibious Lighterage Development/Y2909						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	SS/CPFF	TBA				3.289	12/00	8.714	10/01	Continuing	Continuing	
Ancillary Hardware Development	SS/CPFF	TBA				0.200	12/00	0.373	10/01	Continuing	Continuing	
Systems Engineering	PO/WR	NSWC,CD, NFESC				2.347	10/00	0.867	10/01	Continuing	Continuing	
Licenses										Continuing	Continuing	
Tooling										Continuing	Continuing	
GFE										Continuing	Continuing	
Award Fees										Continuing	Continuing	
Subtotal Product Development			0.000	0.000		5.836		9.954		Continuing	Continuing	
Remarks:												
Development Support Equipment										Continuing	Continuing	
Software Development										Continuing	Continuing	
Training Development										Continuing	Continuing	
Integrated Logistics Support										Continuing	Continuing	
Configuration Management										Continuing	Continuing	
Technical Data										Continuing	Continuing	
GFE										Continuing	Continuing	
Subtotal Support			0.000	0.000		0.000		0.000		Continuing	Continuing	
Remarks:												

Exhibit R-3 Cost Analysis (page 2)											DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N**			PROGRAM ELEMENT **Amphibious Tactical Spt Unit/0204413N**			PROJECT NAME AND NUMBER Amphibious Lighterage Development/Y2909						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	PO/WR	NSWC,CD, NFESC				0.839	10/00	0.501	10/01	Continuing	Continuing	
Operational Test & Evaluation	PO/WR	NSWC,CD, NFESC						0.351	10/01	Continuing	Continuing	
Tooling										Continuing	Continuing	
GFE										Continuing	Continuing	
Subtotal T&E			0.000	0.000		0.839		0.852		Continuing	Continuing	
Remarks:												
Contractor Engineering Support	SS/CPFF	TBD				1.098	10/00	1.503	10/01	Continuing	Continuing	
Government Engineering Support	WR	NSWC Bethesda, Md				1.009	01/01	0.641	10/01	Continuing	Continuing	
Program Management Support	PO/WR	NSWC,CD, NFESC				0.100		0.972	10/01	Continuing	Continuing	
Travel	PO/WR	NAVFAC				0.050		0.050	10/01	Continuing	Continuing	
Labor (Research Personnel)										Continuing	Continuing	
Overhead										Continuing	Continuing	
Subtotal Management			0.000	0.000		2.257		3.166		Continuing	Continuing	
Remarks:												
Total Cost			0.000	0.000		8.932		13.972		#VALUE!	#VALUE!	
Remarks:												

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0204571N Consolidated Training Systems Development					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	**52.672**	**36.853**	**36.774**	**22.407**						**Continuing**	**Continuing**
21427/22449 Surface Tactical Team Trainer (STTT)/Battle Force Tactical Trainer (		**** 10.553**	**11.676**	**5.593**						**Continuing**	**Continuing**
W0431 Tactical Aircrew Combat Training System (TACTS)	* **52.672**	**0.987**	**1.569**							**Continuing**	**Continuing**
W0604 Training Range and Instrumentation Development (TRIDS)		**0.145**	**1.741**	**3.600**						**Continuing**	**Continuing**
W1998 Joint Tactical Combat Training System (JTCTS)		**14.472**	***** 10.163**	**0.000**						**Continuing**	**Continuing**
W2124 Air Warfare Training Development (AWTD)		**2.061**	**2.134**	**1.904**						**Continuing**	**Continuing**
X1823 Training and Modeling Systems (TMS)		**8.635**	**9.491**	**11.310**						**Continuing**	**Continuing**
Quantity of RDT&E Articles **Not applicable**											

* This amount includes FY90- FY99.
** Control includes a FY 01 Congressional add for $7.5M for BFTT which will be executed under 22449. FY 00 funding is identified under project 22449.
***Control includes a FY01 Congressional add of $4.0 million which will be executed under W2982.
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
The STTT will develop the Battle Force Tactical Training (BFTT) System to provide realistic Combat System team training including a means to link surface ships together for coordinated unit and Battle Group level training using Distributed Interactive Simulation (DIS) and High Level Architecture (HLA) protocols. The Congressional add provides migration of BFTT software to Windows NT from UNIX OS. BFTT developed the BFTT Electronic Warfare Trainer (BEWT) and applicable BFTT System software to provide EW operator and team training for Fleet EW Systems.

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 Naval Strike and Air Warfare Center and the Marine Aviation Weapons and Tactics Squadron.

The TRID program provides development of many range systems including range electronic warfare simulator, advanced weapons training systems, laser training systems, Large Area Tracking Range (LATR), combat training system improvements and shallow water range technology.

R-1 SHOPPING LIST - Item No. 182

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY BA-7**	R-1 ITEM NOMENCLATURE 0204571N Consolidated Training Systems Development

JTCTS is planned to provide U.S. Navy fleet deployable instrumentation for at sea surface, subsurface, 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. The JTCTS program is in the process of realigning the acquisition strategy. This action is focused toward a contract award in FY02. The Navy, as the lead activity, will award an FY02 contract to satisfy an Air Force requirement. This summary reflects only the USN funding component of the JTCTS.

The AWTD program provides development of many aviation training systems including mission rehearsal simulation technologies and the Aviation Training Technology Integration Facility (ATTIF).

The TMS encompasses the requirements analysis and software development associated with the Navy's Maritime Development Agent function as part of the Joint Simulation System (JSIMS). The BFTT will develop the BFTT Electronic Warfare Trainer (BEWT) and applicable BFTT system software to provide EW operator and team training for Fleet EW Systems.

(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.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification									DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME Program Element (PE) No. and Name 0204571N CTSD					PROJECT NUMBER AND NAME 21427 Surface Tactical Team Trainer (STTT)/22449 Battle Force Tactical Trainer (BFTT)					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**N/A**	**10.553** **	**11.676**	**5.593**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Continuing**	**Continuing**
RDT&E Articles Qty											

**Includes project 22449.

(U) A. 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, with planned migration to High Level Architecture (HLA). 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 provides a baseline capability/system that meets the Operational Requirements Document (ORD). Stimulator/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/teams as part of the BFTT System. The BFTT Electronic Warfare Trainer (BEWT) effort provides embedded operator and team electronic emissions recognition training capability, integrated into BFTT. BFTT software is being migrated from UNIX/TAC to a Windows-NT/PC Operating System (OS).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) ($0.852) BFTT - Initiated development of tactical link interface/simulation software and fleet-driven requirements into BFTT. Initiated development of stand-alone objective based training software for scenario development.
- (U) ($2.421) HLA - Continued conversion of the DIS protocol based software to the HLA mandated architecture for the Scenario Generation and Control portion of the BFTT software in accordance with DoD directives.
-(U) ($7.280) BFTT Windows NT - Continued migration of BFTT software elements to Windows-NT for UNIX Operating System (OS).

2. FY 2001 PLANS:

- (U) ($2.663) BFTT - Continued development of link software, developing/integrating new software capabilities and automating debrief products.
- (U) ($1.540) HLA - Continuing conversion of the DIS protocol based software to the HLA mandated architecture for the Entity Motioning and Modeling portion of the BFTT software in accordance with DoD directives.
-(U) ($7.473) BFTT Windows NT - Completing migration of BFTT software elements to Windows-NT for UNIX Operating System (OS).

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	Program Element (PE) No. and Name 0204571N CTSD	21427 Surface Tactical Team Trainer (STTT)/22449 Battle Force Tactical Trainer (BFTT)

(U) PROGRAM ACCOMPLISHMENTS AND PLANS: CONTINUATION SHEET

3. FY 2002 PLANS:

- (U) ($3.919) BFTT - Completing development of data link simulation software, develop/integrate new s/w capabilities and system interfaces, develop BG level Display and Debrief rqmts.

- (U) ($1.674) HLA - Complete conversion of the BFTT software to the existing HLA Standards.

4. FY 2003 PLANS:

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	Program Element (PE) No. and Name 0204571N CTSD	21427 Surface Tactical Team Trainer (STTT)/22449 Battle Force Tactical Trainer (BFTT)

(U) B. PROGRAM CHANGE SUMMARY: (Show total funding, schedule, and technical changes for the program element that have occurred since the last President's submission.

	FY2000	FY2001	FY2002	FY2003
(U) FY 2001 President's Budget:	11.083	4.196	5.679	
(U) Appropriated Value:	10.596	11.784		
(U) Adjustments to FY2000/2001 Appropriated Value/ FY2001 President's Budget	-0.043	-0.108	-0.086	
(U) FY 2002 PRES Budget Submit:	10.553	11.676	5.593	

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net decrease of ($.043) thousand consists of the FY 2000 Actuals Adjustment of ($.043) thousand.
The FY 2001 net decrease of ($.108) thousand consists of a ($.082) thousand 7% Pro-rata recision, and a ($.026) thousand Government-wide recision.
The FY 2002 net decrease of ($.086) thousand consists of a ($.053) thousand PB Budget Years Baseline decrease, a NWFC rate decrease of ($.044) thousand, and an $.011 thousand program support increase.
The FY 2003 net decrease of ($.093) thousand consists of an ($ .085) thousand PB Budget Years Baseline decrease, the ($.022) thousand NWFC rate decrease, a $.012 thousand program support increase, and a $.002 thousand non-pay purchases baseline increase.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
OPN 276200	37.897	24.263	33.629						CONT.	CONT.

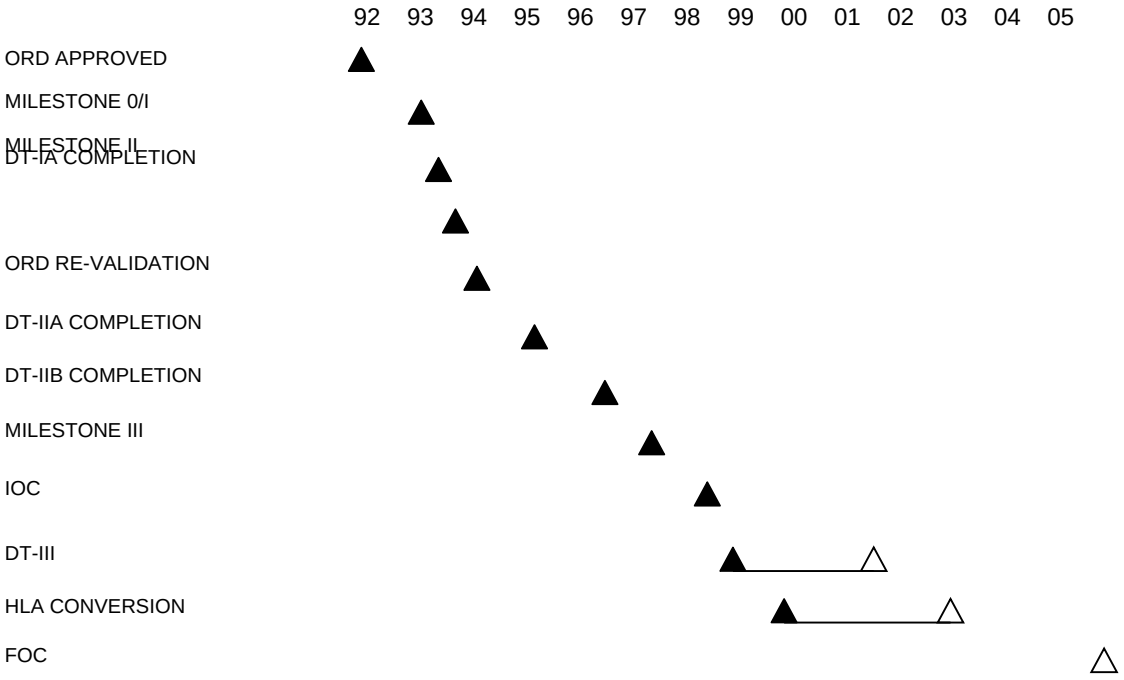
CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	Program Element (PE) No. and Name 0204571N CTSD	21427 Surface Tactical Team Trainer (STTT)/22449 Battle Force Tactical Trainer (BFTT)

(U) D. ACQUISITION STRATEGY: * The BFTT Program is designated as an ACAT IV-M Program consisting of four (4) phases - Concept Exploration and Definition, Demonstration and Validation, Engineering and Manufacturing Development, and Production and Deployment.

(U) E. SCHEDULE PROFILE:

BFTT SCHEDULE



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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT Program Element (PE) No. and Name 0204571N CTSD				PROJECT NUMBER AND NAME 21427 Surface Tactical Team Trainer (STTT)/22449 Battle Force Tactical Trainer (BFTT)						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	*	AAI/MD & EWA/WV	11.514							0.000	11.514	11.514
Ancillary Hardware Development	WR	PHD/NSWC	1.000							0.000	1.000	1.000
Systems Engineering	**	PHD NSWC/NUWC/GSA	17.696	0.700		1.000		0.000		Continuing	Continuing	N/A
Licenses	WR/RCP	PHD NSWC	2.037	0.035		0.100		0.000		Continuing	Continuing	N/A
Tooling											0.000	
GFE			2.500							0.000	2.500	2.500
Award Fees			0.357							0.000	0.357	0.357
Subtotal Product Development			35.104	0.735		1.100		0.000		Continuing	Continuing	

Remarks:
* AAI Contract Award 3/98 CPIF; EWA Contract Award 6/98 CPFF
**WR/RCP/MIPR

Development Support Equipment											0.000	
Software Development	*	PHDNSWC/NAWCTSD/GSA	26.210	10.506		2.868		0.000		Continuing	Continuing	N/A
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data	*	PHDNSWC/NAWCTSD/GSA	7.709	0.385		0.725		0.000		Continuing	Continuing	N/A
GFE											0.000	
Subtotal Support			33.919	10.891		3.593		0.000		0.000	48.403	

Remarks:

*WR/RCP/MIPR

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)

DATE: **June 2001**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-7**

PROGRAM ELEMENT: Program Element (PE) No. and Name 0204571N CTSD

PROJECT NUMBER AND NAME: 21427 Surface Tactical Team Trainer (STTT)/22449 Battle Force Tactical Trainer (BFTT)

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	*	NSWC Crane/PHD/NAWC	3.257	0.050		0.400		0.000		Continuing	Continuing	N/A
Operational Test & Evaluation											0.000	
Tooling											0.000	
GFE											0.000	
Subtotal T&E			3.257	0.050		0.400		0.000		0.000	3.707	

Remarks:

*WR/RCP/MIPR
**NSWC PHD/Crane/NAWC TSD/GSA

Contractor Engineering Support											0.000	
Government Engineering Support	*	NSWC PHD/GSA	2.183			0.500		0.000		Continuing	Continuing	N/A
Program Management Support											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			2.183	0.000		0.500		0.000		0.000	2.683	

Remarks:

*WR/RCP/MIPR

Total Cost			74.463	11.676		5.593		0.000		Continuing	Continuing	

Remarks:

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204571N Consolidated Training Systems Development					PROJECT NUMBER AND NAME W0431 Tactical Aircrew Combat Training System (TACTS)					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	* **52.672**	**0.987**	**1.569**	**0.000**	**Continuing**	**Continuing**	**Continuing**	**Continuing**	**Continuing**	**Continuing**	**Continuing**
RDT&E Articles Qty											

This amount includes FY90 - FY99.

(U) A. 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. FY 2000 ACCOMPLISHMENTS:

- (U) ($.200)) Weapons Integration - Completed development and integration of the Joint Stand-Off Weapon (JSOW) training capability for the F/A-18.

- (U) ($.662) System Upgrades- Continued development of block 5.2 software for Control and Computation Subsystem (CCS). Completed enhancements to Advance Display and Debriefing Subsystem (ADDS) in accordance with fleet requirements. Completed development and integration of A05 and K05 Aircraft Instrumentation Subsystem AIS/AIS internal (AISI) software variants.

- (U) ($.125) Studies/Analysis/T&E – Completed test procedures, testing, and acceptance of A05/K05 AIS/AISI upgrades. Completed test procedures, testing and acceptance of ADDS enhancements.

2. FY 2001 PLANS:

- (U) ($.587) Weapons Integration - Complete development and integration of block 5.2 CCS software.

- (U) ($.725) Systems Upgrades – Commence and complete development and integration of AIS A10 software.

- (U) ($.220) Studies/Analysis/T&E – Complete testing and acceptance of block 5.2 CCS software. Commence and complete testing and acceptance of AIS A10 software.

- (U) ($.037) Portion of extramural program reserved for Small Bussiness Innovation Research Assessment in accordance with 15 USC 68.

3. FY 2002 PLANS: Not Applicable

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204571N Consolidated Training Systems Development	W0431 Tactical Aircrew Combat Training System (TACTS)

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	2.732	1.585	
(U) Adjustments from the President's Budget:	-1.745	-0.016	0.000
(U) FY 2002/2003 President's Budget Submit:	0.987	1.569	

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net decrease of $1.745 million reflects a $1.734 million decrease for reprioritization of requirements within the Navy and a $.011 million decrease for a Congressional Recission. The FY2001 net decrease of $.016 million reflects a $.002 million decrease for a reprioritization of requirements within the Navy, a $.011 million decrease for a Congressional reduction, and a $.003 million decrease for a Congressional recission.

(U) Schedule: The following milestones have been changed due to program restructure:

From	To
A10 DT-II 4Q99/2Q00	A10 DT-II 2Q01/4Q01
Blk 5.2 DT-II 4Q99/2Q00	Blk 5.2 DT-II 1Q/01/4Q01
A05/K05 DT-II 2Q/3Q01	A05/K05 DT-II 2Q/00

Deleted
Blk 6.0 DT-II 2Q/3Q 01

(U) Technical: Not Applicable

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

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-7	0204571N Consolidated Training Systems Development	W0431 Tactical Aircrew Combat Training System (TACTS)	

(U) D. ACQUISITION STRATEGY: The TACTS program is a non-ACAT program. The integrated program teams that develop new TACTS capabilities include contractors whose products and services are obtained by means of competitive award, indefinite deliveries/indefinite quantity, and cost-type contracts. Individual delivery orders are awarded for specific development efforts.

(U) E. SCHEDULE PROFILE:

	FY 2000	FY 2001	FY 2002	TO COMPLETE
(U) Program Milestones				
(U) Engineering Milestones				
(U) T&E Milestones	2Q-00 A05/K05 DT-II	2Q01/4Q01 A10 DT II 1Q01/4Q01 Blk 5.2 DTII		
(U) Contract Milestones				

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)							DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0204571N Consolidated Training Systems Development			PROJECT NUMBER AND NAME W0431 Tactical Aircrew Combat Training System (TACTS)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Systems/Software Development	Various	Various	34.982	1.188	1Q/01						36.170	
Systems Engineering (Misc. < $1M)												
Subtotal Product Development			34.982	1.188		0.000				0.000	36.170	
Remarks:												
Software Development (Misc. <$1M)	Various	Various	3.695	0.104	1Q/01						3.799	
Subtotal Support			3.695	0.104		0.000				0.000	3.799	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0204571N Consolidated Training Systems Development			PROJECT NUMBER AND NAME W0431 Tactical Aircrew Combat Training System (TACTS)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various	Various	14.982	0.220	1Q/01					Continuing	Continuing	
(Misc. <$1M)												
Subtotal T&E			14.982	0.220		0.000				Continuing	Continuing	
Remarks:												
Travel				0.020	1Q/01					Continuing	Continuing	
SBIR				0.037								
Subtotal Management			0.000	0.057		0.000				Continuing	Continuing	
Remarks:												
Total Cost			53.659	1.569		0.000				#VALUE!	#VALUE!	
Remarks:												

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification									DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204571N Consolidated Training Systems Development					PROJECT NUMBER AND NAME W0604 Training Range and Instrumentation Development (TRID)					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		**0.145**	**1.741**	**3.600**	**Continuing**	**Continuing**	**Continuing**	**Continuing**	**Continuing**	**Continuing**	**Continuing**
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project develops specialized instrumentation systems for fleet readiness training while minimizing life cycle costs. Tasks include development of the following: electronic warfare simulators and associated subsystems, target control systems, Large Area Tracking Range (LATR) improvements, combat training systems improvements, underwater technology, ranges interoperability and information architecture, shallow water range activity which includes establishment of capability at Pacific Missile Range Facility Shallow Water Training Range (PMRF SWTR) and assorted Advanced Weapons Training Systems (AWTS), such as Imaging Weapons Training System (IWTS), Remote Strafe Scoring System (RSSS), and weapon and countermeasure simulations for use with various range training systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) ($.145) Continued study of platform interfaces and methods for joint use of frequencies. Obtained MS III decision for RSSS Product Improvement Program (PIP).

2. FY 2001 PLANS:

- (U) ($.646) Complete integration of LATR Block 3.0 software upgrade. Commence development of Block 4.0 software upgrade. Continue aircraft integration requirements analyses, prototype development and testing, and developing LATR system hardware upgrades.

- (U) ($.113) Develop and integrate platform interface improvements for combat training systems.

- (U) ($.365) Develop and integrate display system improvements for combat training systems.

- (U) ($.396) Develop and integrate new weapons training capabilities for combat training systems.

- (U) ($.186) Study platform interfaces and methods for joint use of frequencies.

- (U) ($.035) Portion of extramural program reserved for Small Bussiness Innovation Research Assessment in accordance with 15 USC 68.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204571N Consolidated Training Systems Development	W0604 Training Range and Instrumentation Development (TRID)

3. FY 2002 PLANS:

-(U) ($.913) Continue development of Block 4.0 software upgrade, analyses of range integration requirements, and development of hardware upgrades for the LATR system. Redesign, integrate and test modules to eliminate obsolete components.

- (U) ($1.298) Develop additional training capabilities for the Control and Computational Subsystem (CCS).

- (U) ($.637) Develop additional training capabilities for the Personal Computer Advanced Display and Debriefing Subsystem (PCADDS).

- (U) ($.510) Develop an interface between the CCS and the LATR conforming to the high level architecture standard.

- (U) ($.242) Analyze existing range instrumentation to determine where technology upgrades are needed to ensure that training ranges are able to support readiness objectives.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204571N Consolidated Training Systems Development	W0604 Training Range and Instrumentation Development (TRID)

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	1.626	1.759	3.552
(U) Adjustments from the President's Budget:	-1.481	-0.018	0.048
(U) FY 2002/2003 President's Budget Submit:	0.145	1.741	3.600

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net decrease of $1.481 million reflects a $1.475 million decrease for reprioritization of requirements within the Navy and a $.006 million decrease for a Congressional Recission. The FY 2001 net decrease of $.018 million reflects a $.002 million decrease for a reprioritization of requirements within the Navy, a $.012 million decrease for a Congressional reduction, and a $.004 million decrease for a Congressional recission. The FY 2002 net increase of $.048 million reflects a $.015 million decrease for a reprioritization of requirements within the Navy and a $.063 million increase for economic assumptions.

(U) Schedule: The following milestones have changed due to program restructure.

From:	To:
Block 3.0 LATR Upgrade IOC 2Q/00	Block 3.0 LATR Upgrade IOC 1Q/01
Block 4.0 LATR Upgrade IOC 1Q/01	Block 4.0 LATR Upgrade IOC 2Q/03
Block 4.0 LATR Upgrade DT III 4Q/00	Block 4.0 LATR Upgrade DT III 1Q/03
RSSS PIP MS III 2Q/00	RSSS PIP MS III 4Q/00

Deleted:
AIM-7/9 SIM Upgrade SRR 4Q/01
AIM-7/9 Upgrade PDR 2Q/02
IWTS IOC 4Q/02

(U) Technical: Not Applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
Related OPN:	2.758	1.040	1.650	0.000	0.000	0.000	0.000	0.000	0.000	5.448

Related RDT&E: Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-7	0204571N Consolidated Training Systems Development	W0604 Training Range and Instrumentation Development (TRID)	

(U) D. ACQUISITION STRATEGY: The TRID program is a non-ACAT program. The integrated program teams that develop new TRID capabilities include contractors whose products and services are obtained by means of competitive award, indefinite deliveries/indefinite quantity (IDIQ), and cost-type contracts. Individual delivery orders are awarded for specific development efforts.

(U) E. SCHEDULE PROFILE:

	FY 2000	FY 2001	FY 2002	TO COMPLETE
(U) Program Milestones	4Q RSSS PIP MS III	1Q Block3.0 LATR Upgrade IOC		2Q/03 Block 4.0 LATR Upgrade IOC
(U) Engineering Milestones				
(U) T&E Milestones				1Q/03 Block 4.0 LATR Upgrade DT III
(U) Contract Milestones				

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Exhibit R-3 Cost Analysis (page 1)							DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0204571N Consolidated Training Systems Development			PROJECT NUMBER AND NAME W0604 Training Range and Instrumentation Development (TRID)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering and Software	Various	Various	79.890	1.372	1Q/01	2.362	1Q/02			Continuing	Continuing	
Development (Misc. < $1M)												
Subtotal Product Development			79.890	1.372		2.362				Continuing	Continuing	
Remarks:												
Development Support (Misc. <$1M)	Various	Various	5.898	0.302	1Q/01	0.585	1Q/02			Continuing	Continuing	
Subtotal Support			5.898	0.302		0.585				Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0204571N Consolidated Training Systems Development				PROJECT NUMBER AND NAME W0604 Training Range and Instrumentation Development (TRID)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various	Various	3.638	0.000		0.606	1Q/02			Continuing	Continuing	
(Misc. <$1M)												
Subtotal T&E			3.638	0.000		0.606				Continuing	Continuing	
Remarks:												
Mangement Support	WX	NAWCAD Patuxent River	1.641	0.033	1Q/01	0.047	1Q/02			Continuing	Continuing	
SBIR				0.034								
Subtotal Management			1.641	0.067		0.047				Continuing	Continuing	
Remarks:												
Total Cost			91.067	1.741		3.600				Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification									DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204571N Consolidated Training Systems Development					PROJECT NUMBER AND NAME W1998 Joint Tactical Combat Training System (JTCTS)					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		**14.472**	**10.163***	**0.000**	**Continuing**	**Continuing**	**Continuing**	**Continuing**	**Continuing**	**Continuing**	**Continuing**
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
*FY01 control includes a Congressional Add for $4.0 million which will be executed under W2982.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS: The Joint Tactical Combat Training System (JTCTS) is planned to provide fixed, transportable, and mobile range instrumentation for the USN and USAF for both shore-based and deployable applications. The fixed application provides 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, the JTCTS instrumentation is being designed to develop and transmit exercise scenarios; simulate/stimulate all exercise participants sensors and weapons with the exercise scenario, track all exercise participants and events, e.g., weapons engagements; and provide accurate, realistic, and timely exercise feedback. JTCTS is building on technology developed for existing Tactical Training Range Systems.

The E&MD contract experienced a significant schedule slip resulting in the government's decision to re-examine the acquisition plan.

1. FY 2000 ACCOMPLISHMENTS:

- (U) ($8.626) Completed software build 3A and 3B testing. Conducted a portion of DT-II C, Captive Carry testing.

- (U) ($3.542) Monitored contractor hardware/software development .

- (U) ($.904) Conducted government testing.

- (U) ($1.400) Conducted government engineering support .

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EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204571N Consolidated Training Systems Development	W1998 Joint Tactical Combat Training System (JTCTS)

2. FY 2001 PLANS:

- (U) ($4 .245) Monitor contractor hardware/software development.

- (U) ($.500) Close-out Raytheon contract.

- (U) ($1.224) Develop acquisition strategy and identify risk mitigation efforts.

- (U) ($4.000) As per Navy direction, to be used in FY02 for program planning and technical evaluation in preparation for an acquisition.

- (U) ($.194) Portion of extramural program reserved for Small Business Innovation Research Assessment in accordance with 15 USC 68.

3. FY 2002 PLANS:

- (U) Non-add FY-01 $4.000 for program planning and technical evaluation in preparation for an acquisition.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204571N Consolidated Training Systems Development	W1998 Joint Tactical Combat Training System (JTCTS)

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	7.828	7.783	5.909
(U) Adjustments from the President's Budget:	6.644	3.880	-5.909
(U) FY 2002/2003 President's Budget Submit:	14.472	11.663	0.000

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net increase of $6.644 million reflects a $6.675 million increase for reprioritization of requirements with the Navy offset by a $.031 decrease for a Congressional Recission. The FY 2001 net increase of $3.880 million reflects a $4.0 million Congressional add offset by a $.012 million decrease for a reprioritization of requirements within the Navy, a $.082 million decrease for a Congressional Reduction and a $.026 million decrease for a Congressional Recission. The FY 2002 decrease of $5.909 million reflects a reprioritization of requirements within the Navy.

(U) Schedule: The following milestones have changed. The JTCTS program is in the process of realigning the acquisition strategy. This action is focused toward the Navy, as the lead activity, awarding a contract in FY02 which will satisfy an Air Force requirement.

(U) Technical: Not Applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
(U) OPN BLI 420400 Weapons Range Support Equipment	0.000	5.426	0.000	2.810	2.852	2.850	2.936	2.998	Continuing	
(U) APN BLI 072500 Other Production Charges	9.619	13.289	0.153	13.421	11.263	11.793	12.301	13.086	Continuing	

Related RDT&E: Joint program with USAF Program Element 0604735F

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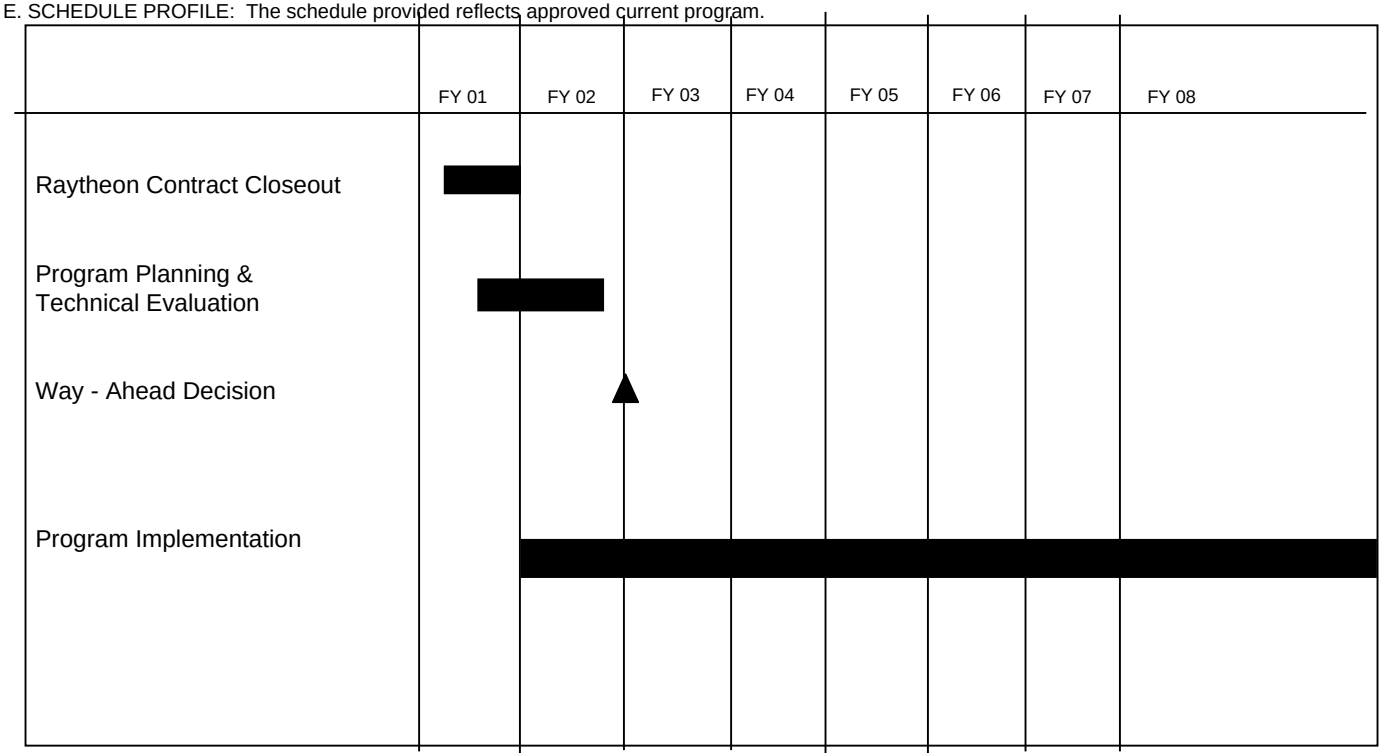
CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204571N Consolidated Training Systems Development	W1998 Joint Tactical Combat Training System (JTCTS)

(U) D. ACQUISITION STRATEGY: The JTCTS program is in the process of realigning the acquisition strategy. This action is focused toward the Navy, as the lead activity, awarding a contract in FY02 which will satisfy an Air Force requirement.

(U) E. SCHEDULE PROFILE: The schedule provided reflects approved current program.



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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0204571N Consolidated Training Systems Development				PROJECT NUMBER AND NAME W1998 Joint Tactical Combat Training System (JTCTS)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Mobile Rangeless EMD Developmen	C/CPAF	Raytheon	90.539							Continuing	Continuing	Continuing
Award Fee	C/CPAF	Raytheon	5.714							Continuing	Continuing	Continuing
Mobile Rangeless EMD	C/FFP	Raytheon	4.701							Continuing	Continuing	Continuing
										Continuing	Continuing	Continuing
										Continuing	Continuing	Continuing
System Engineering (Mis. <$1M)	Various	Various	25.961	6.919	1Q/01					Continuing	Continuing	Continuing
												Continuing
Rangeless Training System	C/CPFF	Raytheon	1.873							Continuing	Continuing	Continuing
	C/CPFF	SAIC	2.392							Continuing	Continuing	Continuing
	C/CPFF	Metric Sys Corp	0.588							Continuing	Continuing	Continuing
	Various	Various	3.201							Continuing	Continuing	Continuing
Contract Close-out	C/CPFF	Raytheon		0.500	1Q/01					Continuing		
Program Planning and Technical	Various	Various/TBD		4.000	1Q/02					Continuing		
Evaluations												
Subtotal Product Development			134.969	11.419		0.000				Continuing	Continuing	

Remarks: Percent of award fee that was actually awarded in prior years is 54% (3.1M).

* $4.0M in FY01 will be used in FY02 for program planning and technical evaluations.

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Exhibit R-3 Cost Analysis (page 1)										DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0204571N Consolidated Training Systems Development				PROJECT NUMBER AND NAME W1998 Joint Tactical Combat Training System (JTCTS)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Miscellaneous	Various	Various	10.937							Continuing	Continuing	
Subtotal Support			10.937	0.000		0.000				Continuing	Continuing	

Remarks:

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Exhibit R-3 Cost Analysis (page 2)										DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0204571N Consolidated Training Systems Development			PROJECT NUMBER AND NAME W1998 Joint Tactical Combat Training System (JTCTS)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various	Various	2.927	0.000						Continuing	Continuing	
Subtotal T&E			2.927	0.000		0.000				Continuing	Continuing	
Remarks:												
Program Management Support	Various	Various								Continuing	Continuing	
Travel	WR	Various		0.050						Continuing	Continuing	
SBIR				0.194								
Subtotal Management			0.000	0.244		0.000				Continuing	Continuing	
Remarks:												
Total Cost			148.833	11.663		0.000				Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **June 2001**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204571N/Consolidated Training Systems Development					PROJECT NUMBER AND NAME W2124/Air Warfare Training Development					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**0.000**	**2.061**	**2.134**	**1.904**	**Continuing**	**Continuing**	**Continuing**	**Continuing**	**Continuing**	**Continuing**	**Continuing**
RDT&E Articles Qty	0	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**		

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

This project develops new training system technologies for use in naval aviation training. Products from this effort directly support the Marine Corps Aviation Simulation Master Plan, and will support the development and design of future naval aviation training/Mission rehearsal systems. Tasks include: 1) Advanced training systems development to provide for transportable, modular, High Level Architecture (HLA) compliant, high fidelity Mission rehearsal capabilities. 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, advanced environmental effects models, radar/infra-red/electro-optic and acoustic sensor simulations; and 2) the Aviation Training Technology Integration Facility (ATTIF), which is a man-in-the-loop testbed for the integration of software, hardware, and networked systems. ATTIF will include a HLA node for participation in fleet exercise synthetic battlespace. This ATTIF capability provides a window to fleet aviators for critical comment, evaluation, and fine tuning of new and innovative technology before it is fielded.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) ($.447) Developed initial night vision device (NVD) simulation performance specifications for legacy systems integration.
- (U) ($.282) Demonstrated combat special effects modeling (ATTIF).
- (U) ($.120) Developed draft performance specifications for combat special effects modeling.
- (U) ($.624) Demonstrated low-cost, networkable, PC-based image generators (IG's) with photo-realistic databases (ATTIF).
- (U) ($.588) Developed initial performance specifications for modular weapons systems simulation.

2. FY 2001 PLANS:

- (U) ($.480) Demonstrate forward looking infrared (FLIR) sensor, water NVD effects, and integration of night vision training system (NVTS) with a PC IG.
- (U) ($.180) Continue to analyze and integrate performance specifications for modular weapons systems/deployable simulator systems.
- (U) ($.906) Analyze, develop, integrate (ATTIF) modular architecture components for threat generation, instructor operating station (IOS), visuals, E-2C station, and intelligent synthetic forces.
- (U) ($.534) Integrate (ATTIF) and demonstrate low-cost/PC-based technologies.
- (U) ($.034) Portion of extramural program reserved for Small Business Innovation Research asessment in accordance with 15 USC 68.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204571N/Consolidated Training Systems Development					PROJECT NUMBER AND NAME W2124/Air Warfare Training Development					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**0.000**	**2.061**	**2.134**	**1.904**						**Continuing**	**Continuing**
RDT&E Articles Qty	0	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**		

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

3. FY 2002 PLANS:

- (U) ($.857) Analyze, develop, and integrate (ATTIF) modular architecture components for weather, intelligent wingman, E-2C platform, intelligent synthetic forces, and digital communications.
- (U) ($.400) Integrate FLIR sensor simulation with sensor host.
- (U) ($.170) Demonstrate (ATTIF) low-cost training and Mission rehearsal configurations, while maintaining or increasing fidelity.
- (U) ($.307) Develop applications for texture storage, and volumetric weather on PC video cards.
- (U) ($.170) Upgrade common IOS to the Joint Mission Planning System (JMPS) version.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204571N/Consolidated Training Systems Development	W2124/Air Warfare Training Development

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	2.119	2.157	1.918
(U) Adjustments from the President's Budget:	-0.058	-0.023	-0.014
(U) FY 2002 President's Budget Submit:	2.061	2.134	1.904

CHANGE SUMMARY EXPLANATION:

(U) Funding:
FY 2000 adjustment of -$.058 million reflects a decrease of $.050 million for reprioritization of requirements within the Navy and a decrease of $.008 million for a Congressional Recission.
FY 2001 adjustment of -$.023 million reflects a decrease of $.003 million for a reprioritization of requirements within the Navy and a decrease of $.015 million for a Congressional Reduction, and a decrease of $.005 million for Congressional Recission.
FY 2002 adjustment of -$.014 million reflects a decrease of $.007 million for a reprioritization of requirements within the Navy and a decrease of $.007 million for economic assumptions.

(U) Schedule: Not Applicable

(U) Technical: Not Applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
APN Line 51 BA-7 (47C2) Common Ground Equipment (USMC Aviation Simulation Master Plan)	7.929	29.214	0	22.397	0	0	0	0	59.540	59.600

Related RDT&E
(U) P.E. 0603707N, Project #R1773, Sub-Project Title: Transportable Strike Assault Rehearsal System (T-STARS)
(U) P.E. 0604245N, Project #H2279, Sub-Project Title: USMC H-1 Upgrades

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204571N/Consolidated Training Systems Development	PROJECT NUMBER AND NAME W2124/Air Warfare Training Development	

(U) D. ACQUISITION STRATEGY:

(U) E. SCHEDULE PROFILE:

	FY 2000	FY 2001	FY 2002	TO COMPLETE
(U) Program Milestones	*Implement 00-02 NAPDD (1Q)		*Develop 03-05 NAPDD (2Q)	*Initiate NAPDD (1Q)
(U) Engineering Milestones	ATTIF w/ visual system & F/A-18 cockpit delivery (4Q) PC image generator perf specifications (2Q)	Modular architecture for common IOS, E-2C station, visuals (4Q) Modular architecture = reconfigurable	Modular architecture for weather, intelligent forces (4Q)	Modular architecture for cockpit avionics. (4Q)
(U) T&E Milestones	Initial components integration and test (4Q) PC image generator photo-realistic database (3Q)	Modular architecture components integration and test for I/ITSEC. (1Q)	Modular architecture components integration and test. (2Q)	Modular architecture components integration & test (2Q)
(U) Contract Milestones				

* Non-Acquisition Program Definition Document for Air Warfare Training Development.

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Exhibit R-3 Cost Analysis (page 1)								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0204571N/Consolidated Training Systems Development			PROJECT NUMBER AND NAME W2124/Air Warfare Training Development							
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	MIPR	Air Force Research Lab		0.415	01/01	0.405	01/02			Continuing	Continuing	
Systems Engineering	WX & WR	NAWCTSD, NAMRL		0.907	01/01	0.751	01/02			Continuing	Continuing	
											0.000	
											0.000	
											0.000	
											0.000	
Award Fees											0.000	
Subtotal Product Development			0.000	1.322		1.156		0.000		0.000	2.478	
Remarks:												
											0.000	
											0.000	
Trainer Development Support	FP/C	NAWC-AD		0.110	12/00	0.120	12/01			Continuing	Continuing	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			0.000	0.110		0.120		0.000		0.000	0.230	
Remarks:												

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Exhibit R-3 Cost Analysis (page 2)								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0204571N/Consolidated Training Systems Development			PROJECT NUMBER AND NAME W2124/Air Warfare Training Development							
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NAWC-AD		0.637	01/01	0.593	01/02			Continuing	Continuing	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.637		0.593		0.000		Continuing	Continuing	
Remarks:												
											0.000	
											0.000	
											0.000	
Travel	WX	NAWC-AD		0.031	12/00	0.035	12/01			Continuing	Continuing	
SBIR Assessment				0.034						Continuing	Continuing	
											0.000	
Subtotal Management			0.000	0.065		0.035		0.000		0.000	0.100	
Remarks:												
Total Cost			0.000	2.134		1.904		0.000		#VALUE!	#VALUE!	
Remarks:												

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204571N/Consolidated Training Systems Development					PROJECT NUMBER AND NAME X1823/Training & Modeling Systems (TMS)					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		**8.635**	**9.491**	**11.310**	**Continuing**	**Continuing**	**Continuing**	**Continuing**	**Continuing**	**Continuing**	**Continuing**
RDT&E Articles Qty											

(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. This requirement is fulfilled by the Joint Simulation System (JSIMS), which will replace the Enhanced Naval Warfare Gaming System (ENWGS), a legacy modeling and simulation training system.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Joint Simulation System (JSIMS) will replace ENWGS and provide expanded functionality. The mission of JSIMS is to provide a readily available, operationally valid synthetic environment for the Commanders-in-Chief (CINCs), their components, other Joint organizations and the Services to: Jointly train, educate, develop doctrine and tactics, formulate and assess operational plans, assess warfighting situations, define operational requirements, and provide operational inputs to the acquisition process. In short, JSIMS will provide not only an improved certified capability for inter-Service operability but also an enhanced Joint Battle Staff training capability for the warfighting CINCs. All service Executive Agents (EAs) and Development Agents (DAs) are required to contribute to the initial population of the JSIMS architecture with facilities, services and tools, to meet an Initial Operational Capability (IOC) for Joint Task Force (JTF) training of no later than November 2002. In keeping with the premise that the Services/components are best able to define their own capabilities and functionality, the JSIMS Alliance Executive Office (AEO) is working in concert with the Services to import Service-provided functionality such as land, air, and naval and littoral warfare to JSIMS. The AEO will integrate these functionalities for use by Joint Army/Marine/Navy/Air Force exercise. JSIMS development is incremental.

In June 1994 the Services and Director Joint Program Office signed a Memorandum of Agreement (MOA) to establish JSIMS; a critical next-generation Modeling and Simulation (M&S) system. The long-term goal of the agreement is to integrate the range of missions of the Armed Forces within a common framework. That framework provides a balanced melding of live, virtual and constructive M&S representations, with Command, Control, Communications, Computers and Intelligence (C4I) fully supported, and interfaces using real-world equipment. As the Maritime Warfare EA, OPNAV N7, on 29 August 1995, assigned NAVSEA as the JSIMS Maritime Development Agent (DA). The objective of the JSIMS Maritime portion of the JSIMS Program is to train at all levels of command, in all warfare areas, including joint and service specific training. JSIMS Maritime is developing the Maritime Mission Space Objects for the JSIMS Program, as well as selected portions of the core infrastructure and services to be determined when the Joint Object Model is partitioned. JSIMS was transferred from NAVSEA to SPAWAR PD13 at the beginning of FY 1999. On 16 December 1999, USD (AT&L) published a memorandum directing that JSIMS be reorganized per the recommendations made by the JSIMS Senior Review Board. These recommendations were detailed in a 19 November 1999 Senior Review Board memorandum. Specifically, JSIMS was directed to convert system architecture to the High-Level Architecture (HLA) standard, establish a JSIMS Alliance Executive Office, develop a new Acquisition Program Baseline (APB), and transfer Program Executive Office (PEO) responsibilities from Air Force to Army. USD (AT&L) has also designated JSIMS as an ACAT-1D program. The JSIMS Alliance was directed to develop a new JSIMS Alliance MOA by March 2000.

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EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204571N/Consolidated Training Systems Development	PROJECT NUMBER AND NAME X1823/Training & Modeling Systems (TMS)

(U) B. PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS:

· ($1.128) - Continued Build N3, which included all the models and functionality required to fully meet the JSIMS ORD for IOC and conduct demonstration of functionality. This effort was abandoned and redirected by the JSIMS Alliance.

· ($ .421) - Conducted Database Development, Software Construction, and Integration and Test. Continued work on Software Version 1.1. This effort was abandoned and redirected by the JSIMS Alliance.

· ($ .506) - Continued Security Engineering & Development for Build N2 Collaborative Event. Conducted Build N2 and N3 Collaborative Events until this effort was abandoned and redirected by the JSIMS Alliance.

· ($6.580) - Completed rebaselining of the Maritime portion of the JSIMS program to comply with DUSD (AT&L) direction. Completed first two increments of Maritime Models and Code, which included amphibious movement to shore, sensor detections, and naval gun engagements. Completed data element description documents for Increment 1, 2, and 3 data elements. Completed Increments 1 & 2 of the Visual Basic and Java database tools. Completed attribute database libraries for ships, boats, submarines, and amphibious craft. Wrote increment 1-7 test procedures.

2. (U) FY 2001 PLAN:

· ($0) - Complete post-Collaborative Event Development, Integration, and Testing. This planned effort was abandoned for the revised program as directed by the JSIMS Alliance.

· ($0) - Complete security development for IOC exercise; Develop and Conduct IOC exercise. This planned effort was abandoned for the revised program as directed by the JSIMS Alliance.

· ($0) - Continue Engineering & Development of Version 1.1 for release to Navy training sites. Begin Engineering & Development of Software Version 1.2. This planned effort was abandoned for the revised program as directed by the JSIMS Alliance.

· ($7.990) – Complete all Object Oriented Analysis for Increments 3, 4, 5 and 6 models which include Close in Weapons System (CIWS), cruise Missiles, Fixed Wing aircraft, flight deck operations, Identify Friend or Foe (IFF), rockets, surface to air missiles, battle damage assessment, infrared sensors, radar, torpedoes, towing, ship and submarine kinematics, tactical organizations, platform track processing, dipping sonar, flight deck operations part 2, logistics, and mine-laying.

· ($ .851) - Conduct testing of Icrements 1-3.

· ($ .096) - Conduct Federation Integration events 1-3.

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EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204571N/Consolidated Training Systems Development	PROJECT NUMBER AND NAME X1823/Training & Modeling Systems (TMS)

(U) B. PROGRAM ACCOMPLISHMENTS AND PLANS (CONTINUED):

· ($ .554) - Develop database attribute libraries for fixed wing aircraft, rotary wing aircraft, and naval bases. Develop databases for sensors, weapons and countermeasures.

3. (U) FY 2002 PLAN:

· ($9.007) - Complete Object Oriented Analysis (OOA)/Object Oriented Design (OOD) of all Increment 7 models including C4I formatted report, chemical warfare, IFF part 2, radar jamming, mine detection, small arms, magazine reload, and naval bases/ports/harbors. In conjunction with other JSIMS Alliance partners, attain Version Release Milestone (VRM) 1.0

· ($1.258) - Conduct Increment 7 testing.

· ($ .689) - Conduct attribute databases for Increment 7 models.

· ($ .354) - Conduct Federation Integration events 4 and 5.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **May 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204571N/Consolidated Training Systems Development	PROJECT NUMBER AND NAME X1823/Training & Modeling Systems (TMS)

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002	FY2003
(U) FY 2001 President's Budget:	8.223	9.579	9.077	
(U) Adjustments from the President's Budget:	0.412	-0.088	2.233	
(U) FY 2002/2003 OSD/OMB Budget Submit:	8.635	9.491	11.310	

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net increase of $ .412 million is for Across -the-Board Reduction (-.046M); FY2000 Midyear Review Adjustments (+.572M); Section 8055: Proportionate Recissions (-.032M); Miscellaneous Navy Adjustments (-.082M).
The FY 2001 decrease of $.088 million is for a Section 8086: .7% Pro-Rata Reduction (-.067M); Government-Wide Rescission: PL 106-554, Sec. 14 (-.021M).
The FY 2002 increase of $2.231 million is for FINAL POM02 BALANCE (-.011M); NWCF RATES - NCCOSC (+.009M); NWCF RATES - Naval Surface Warfare Centers (-.002M);
PDM-Joint Simulation Systems (JSIMS) (+2.100M); PBD 604: Non-Pay Inflation Base (+.014M); Program Support (+.179M); PBD 604: Non-Pay Residual (+.001M); NWCF Rates-NCCOarch Laboratory (-0.58M); NWCF Rates-Naval Surface Warfare Centers (-.001M).

(U) Schedule: Previous schedule and program structure abandoned. Complete revised schedule displayed in D., below.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
BLI: 2760 / Other SPAWAR Training	0.979	1.329	1.793						Continuing	Continuing
BA: 1 AGSAG: 1C4C JSIMS-M	0.195	2.155	4.808						Continuing	Continuing

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204571N/Consolidated Training Systems Development	PROJECT NUMBER AND NAME X1823/Training & Modeling Systems (TMS)	

(U) D. ACQUISITION STRATEGY: N/A

(U) E. SCHEDULE PROFILE:

	FY 2000	FY 2001	FY 2002	FY 2003	TO COMPLETE
(U) Program Milestones					
(U) Engineering Milestones	Federate Integration Events 1-3	Federation Integration Events 1-3	Federation Int Events 4 and 5 VRM 1.0		
(U) T&E Milestones		Functional Assessment 1	Functional Assessment 2		
		Systems Functional Assessment	Early Operational Assessment Domain Validation Security Test & Evaluation Functional Testing Operational Assessment Operational Test and Eval	Operational Test and Eval	
(U) Contract Milestones	N/A				

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0204571N/Consolidated Training Systems Development			PROJECT NUMBER AND NAME X1823/Training & Modeling Systems (TMS)							
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	WR/RCP	Various	5.615	2.112	11/00	2.954	11/01			Continuing	Continuing	
Licenses	WR/RCP	SSCSD, CA	0.408	0.000	11/00					Continuing	Continuing	
Subtotal Product Development			6.023	2.112		2.954		0.000		Continuing	Continuing	
Remarks:												
Software Development	WR/RCP	SSCSD, CA	17.956	3.040	11/00	3.613	11/01			Continuing	Continuing	
Technical Data	WR/RCP	SSCSD, CA	2.318	0.554		0.689				Continuing	Continuing	
Subtotal Support			20.274	3.594		4.302				Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0204571N/Consolidated Training Systems Development			PROJECT NUMBER AND NAME X1823/Training & Modeling Systems (TMS)							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR/RCP	Various	2.419	0.846	11/00	1.468	11/01			Continuing	Continuing	
Operational Test & Evaluation	WR/RCP	Various	0.134	0.101	11/00	0.144	11/01			Continuing	Continuing	
Subtotal T&E			2.553	0.947		1.612				Continuing	Continuing	
Remarks:												
Contractor Engineering Support	WR/RCP	SSCSD, CA	2.193	1.234	11/00	1.056	11/01			Continuing	Continuing	
Government Engineering Support	WR/RCP	SSCSD, CA	2.029	1.539	11/00	1.333	11/01			Continuing	Continuing	
Travel	WR/RCP	SSCSD, CA	0.093	0.065	11/00	0.051	11/01			Continuing	Continuing	
Subtotal Management			4.315	2.838		2.440				Continuing	Continuing	
Remarks:												
Total Cost			33.165	9.491		11.308		0.000		Continuing	Continuing	
Remarks:												

APPROPRIATION/BUDGET ACTIVITY : RDT&E,N/7					R-1 ITEM NOMENCLATURE INFORMATION WARFARE 0204575N					
Exhibit R-2, RDT&E Budget Item Justification									Date: June 2001	
COST ($ in Millions)	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	FY 07	Cost to Complete	Total Cost
TOTAL PE COSTS	8.853	9.833	7.659						CONT	CONT.
Z2263 Information Warfare	3.421	4.414	4.635						CONT	CONT
Z2462 Retract Barley*	5.432	5.419	3.024						CONT	CONT
Quantity of RDT&E Articles	VAR	VAR	TBD	TBD	TBD	TBD	TBD	TBD	CONT.	CONT.

*Details held at a higher classification.

Details below for project Z2263 only.

A. Mission Description and Budget Item Justification :The Naval Information Warfare Activity (NIWA) serves as the Program Manager for the OFFENSIVE IW program. As such NIWA is tasked as the Navy's principal technical agent to research, assess, develop and prototype Information Warfare (IW) capabilities. The key focus is to provide tactical commanders with both an IW Mission Planning, Analysis, and Command and Control Targeting System (IMPACTS) tool and state-of-the-art Electronic Attack hardware and software. FY01 will initiate design to modify and incorporate the second generation jammer into the USQ-146. This project will continue with upgrades to the USQ-146 through the out-years. Ongoing efforts are to identify and develop new IW tools.

B. Program Change Summary: Miscellaneous funding adjustments are detailed below.

COST ($ in Millions)	FY 00	FY 01	FY02	FY 03	FY 04	FY 05	FY 06	FY 07
Carryover from Audit Trail 99	3.494	4.455	5.405					
FY01 Pres Bud Adjustments	-0.019	-0.000	-0.058					
ASN(RDA) BTR #00-18	-0.130	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SBIR	-0.086	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Reverse NWCF Rates	0.000	0.000	-0.001	-0.000	-0.000	-0.000	0.000	0.000
POM 02	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Final POM 02 Adj.	0.000	0.000	-0.007	0.000	0.000	-0.000	-0.000	0.000
Section 8086 (.7% Pro-rata)	0.000	-0.031	0.000	0.000	0.000	0.000	0.000	0.000
BTR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Section 8055 (Pro-rata)	-0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NWCF Adj. – Spawar	0.000	0.000	0.002	0.000	-0.000	0.000	-0.000	-0.000
IW adjustment	0.000	0.000	-0.700	-0.000	-0.000	-0.000	-0.000	0.000
FMB Adj	0.000	0.000	0.000	0.000	-0.000	-0.000	0.000	0.000
PBD 604 (Non-pay adj.)	0.000	0.000	0.007	0.000	0.000	0.000	0.000	0.000
P.L. 106-554	0.000	-0.010	0.000	0.000	0.000	0.000	0.000	0.000
NWCF Adj.	0.000	0.000	-0.013	-0.000	-0.000	-0.000	-0.000	-0.000
SBIR	0.000	- 0.043	0.000	0.000	0.000	0.000	0.000	0.000
2000 Actuals	0.176	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gov't Wide Rescission	0.000	-0.010	0.000	0.000	0.000	0.000	0.000	0.000
PBD 807	0.000	0.000	0.000	-0.000	0.000	0.000	-0.000	-0.000
Total Funding	3.421	4.414	4.635					

Exhibit R-2a, RDT&E Project Justification									Date: June 2001	
RDT&E,N BA-7		0204575N			INFORMATION WARFARE Z2263					
Cost ($ in Millions)	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	FY 07	Cost to Complete	Total Cost
Project Cost	3.421	4.414	4.635						CONT.	CONT.
RDT&E Articles Qty	VAR	VAR	VAR	TBD	TBD	TBD	TBD	TBD	CONT.	CONT.

A. Mission Description and Budget Item Justification

FY 2000 Accomplishments
(1.550) IMPACTS GCCS-M
(0.771) Perception Management
(1.100) Electronic Attack
FY 2001 Plan
(2.000) IMPACTS Updates
(0.759) Perception Management
(1.655) Electronic Attack
FY 2002 Plan
(2.930) IMPACTS Updates
(0.005) Perception Management
(1.700) Electronic Attack
FY 2003 Plan
(2.900) IMPACTS Updates
(0.101) Perception Management
(1.800) Electronic Attack

B. Other Program Funding Summary

	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	ToTotal Complete	Cost
OMN Line 4B7N	1.789	1.985	2.340						CONT.	CONT.
OPN 23400/6	4.003	3.866	2.908						CONT.	CONT.

Acquisition Strategy: This is a non-ACAT program.

D. Schedule Profile: Convert IMPACTS/GCCS-M software (RFMP and CM+) operating system format and support laboratory and shipboard tests of converted software. Continue transition to PC based software in addition to current, UNIX based GUI. Instituted and federated object model into all IW mission planning support software. Initiated inclusion of EMPIRE, RFMP, C2WC, CM+ into Mission Planning Manager. This software will be delivered in April 2001 as part of initial SPAWAR test of GCCS-M version 4.0.

PSYOP/Tactical Deception: Completed the Shipalt for the Transportable AM/FM Radio Broadcast System (TARBS) in support of FIWC PSYOP Operations. Field testing of the TARBS system and the purchase of spares kit has been completed. Initiated modification of the NIWA/NRL software suite to provide visual evaluation of the impact of Tactical Deception plans on an enemy's ability to detect ship movements using RADAR.

Electronic Attack: Initiated design of HF modification to AN/USQ-146 and changed the format to VME configuration. This is an ongoing process. In FY00 completed procurement of three AN/USQ-146 units and associated spares. The program has also provided carry-on ESM systems for deploying battle groups, supported USMC (MEWS) evaluation and adoption of AN/USQ-146 and JSOC evaluation of modified AN/USQ-146 in a helicopter.

Cost ($ in Millions)	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07
IMPACTS	1.550	2.000	2.930					
Perception Mgmt	0.771	0.759	0.005					
Electronic Attack	1.100	1.655	1.700					

Exhibit R-3 Cost Analysis												Date: June 2001
RDT&E,N/7			Program Element: 0204575N									INFORMATION WARFARE/Z2263
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	Var	Var	1.675	0.743	Var	.900	Var	0.000	Var	Cont.	Cont.	
Held Under Higher Classification			0									
Subtotal Product Development			1.675	0.743	Var	.900	Var	0.000	Var	Cont.	Cont.	
Development Support	Var	Var	0.500	1.500	Var	1.900	Var	0.000	Var	Cont.	Cont.	
Software Development	CPFF	SAIC	0.487	1.069	1Q00	1.302	1Q01	0.000	1Q02	Cont.	Cont.	
Subtotal Support			.987	2.569	Var	3.202	Var	0.000	Var	Cont.	Cont.	
Remarks												

R-1 Shopping List - Items from R-1

Exhibit R-3 Cost Analysis												Date: June 2001
RDT&E,N/7			Program Element: 0204575N									INFORMATION WARFARE/Z2263
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Var	Var	0.300	0.600	Var	0		0		0		
Subtotal T&E			0.300	0.600	Var							
Remarks												
AIS Support	Var	Var	0	0.102	Var	0	0	0	0	Cont.	Cont.	
Government Engineering Support	Var	Var	0.200	0.200		0.243	Var	0.000	Var	Cont.	Cont.	
Program Management Support	Var	Var	0.259	0.200		0.290	Var	0.000	Var	Cont.	Cont.	
Subtotal Management			0.459	0.502	Var	0.533	Var	0.000	Var	Cont.	Cont.	
Remarks												
Total Cost			3.421	4.414	Var	4.635	Var	0.000	Var	Cont.	Cont.	
Remarks												

R-1 Shopping List - Items from R-1

(Exhibit R-3, page 2 of 2)

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification										DATE: **June 2001**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0205601N HARM Improvement					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	**0.000**	**36.773**	**39.409**	**13.630**							
A1780* HARM Improvement	**0.000**	**10.713**	**9.368**	**12.330**							
A2185* Advanced Anti-Radiation Guided Missile (AARGM)	*** **109.475**	**** **24.959**	***** **27.717**	**0.000**							
A2211* Modernized Hellfire**	**0.000**	**1.101**	****** **2.324**	**1.300**							
Quantity of RDT&E Articles **Not Applicable**											

*Funding for FY00 was executed under Project Units E1780, E2185, E2661 (Congressional Add) and E2211. Project Units A1780, A2185, A2661 (Congressional Add), A2983 (Congressional Add), and A2211 will be effective beginning FY01 due to realignment from PEO(T) to PEO(W).
**Funding for FY00 was executed under Joint Advanced Weapons Systems (JAWS) RDT&E line.
***Prior years funding was executed under project units E2185 and W2185.
****The FY00 budget reflects a $15M Congressional Add for AARGM executed under E2661, which has been revised by $.452M for Congressional undistributed reductions.
*****The FY01 budget reflects a $20M Congressional Add for AARGM executed under A2661 ($15M for AARGM) and A2983 ($5M for QuickBolt)
******$294k has been identified as a reprogramming source for other high priority Navy requirements.
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) A1780/HIGH-SPEED ANTI-RADIATION (HARM) IMPROVEMENT: The International HARM Upgrade Program (IHUP) (Block IIIB/VI) is a tri-national Precision Navigation Unit (PNU) cooperative program consisting of a USN-unique tactical software upgrade and a hardware upgrade which includes an Inertial Measurement Unit (IMU) and a Global Positioning System (GPS) receiver. This upgrade will provide a much improved guidance capability for the current AGM-88B missile (in German and Italian inventories) and AGM-88C missile (in U.S. inventory). This IMU/GPS system will be retrofitted into existing missiles, as a kit.

(U) A2185/ADVANCED ANTI-RADIATION GUIDED MISSILE (AARGM) and A2661/AARGM (Congressional Add): AARGM is a Phase III Small Business Innovative Research (SBIR) program designed to demonstrate an advanced multi-mode seeker on an existing High speed Anti-Radiation Missile (HARM) airframe. A2983/QuickBolt (QB) is an advanced concept technology demonstration of Joint-suppression of Enemy Air Defense (J-SEAD) technology enhancements applicable to AARGM. For ease of tracking, Project Units W2661, E2661, A2661, and A2983 ar e included in the A2185 funding profile.

(U) A2211/MODERNIZED HELLFIRE: Modernized Hellfire (MH) is the joint service program to support approved Army and USMC Mission Need Statements for future multi-role precision guided weapons. To fulfill these needs, the DON is participating with the Army in joint trade studies, requirements validation analysis, Advanced Technology Demonstration programs, hardware development, Analysis of Alternatives (AOA), and the development of Milestone support documentation. Specific potential applications include development of a single multi-role weapon to replace the legacy TOW, Maverick, and Hellfire missiles, as well as development of a low cost guidance capability for the legacy unguided 2.75" rocket system.

(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.

R-1 SHOPPING LIST - Item No. 188

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement					PROJECT NUMBER AND NAME A1780 HARM Improvement					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**0.000**	**10.713***	**9.368**	**12.328**							
RDT&E Articles Qty											

*Funding for FY00 was executed under Project Unit E1780. PU A1780 will be effective beginning FY01 due to realignment from PEO(T) to PEO(W).

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

The High-speed Anti-Radiation Missile (HARM) is a joint service program with the Air Force (NAVY lead). The program has been in full production since FY 1983. Program Element 0205601N was used until FY 1990 to develop and test one hardware and two software upgrades to the HARM as Engineering Change Proposals (ECPs). Another ECP software program (Block V) was recently developed (FY96 through FY99) to modify HARM software in order to meet operational requirements. The Block V tactical software upgrade gives HARM improved geographic specificity and improved capability against advanced waveforms. HARM Block V software was distributed to the Fleet in FY00.

The International HARM Upgrade Program (IHUP) is a tri-national (U.S., Italy, and Germany) cooperative program designed to improve the HARM's effectiveness by enhancing the missile's probability of kill and reducing the potential for fratricide while making the missile easier to employ. The Program consists of significant hardware and software modifications to the missile's control and guidance sections. The USN frequently refers to the IHUP upgrade as Block IIIB/VI. The three nations involved have agreed to jointly fund the design, development, testing and production of hardware kits to be installed in the missile control section along with an improved software version to be installed in the missile guidance section. The HARM Block IIIB/VI program started development in FY98 and will commence production in FY03. Funding in FY00 through FY03 is dedicated to the HARM Block IIIB/IV program.

1. FY 2000 ACCOMPLISHMENTS:

(U) ($7.100) Continued design/development of Inertial Measurement sub-systems and development of hardware and software associated with Block IIIB/VI. Continued development of Block VI USN unique software sub-routines.

(U) ($.059) Continued Engineering and Project Management Services in support of the HARM Upgrade Program (Block IIIB/VI) contract.

(U) ($.866) Continued Government engineering support of the HARM Upgrade Program (Block IIIB/VI) including preparation for Critical Design Review of Block VI software/hardware design. Effort includes further engineering studies, threat analysis, 6 Degrees of Freedom (DOF) analysis, documentation analysis, interface definition, precision navigation engineering, and software quality evaluation.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME **0205601N HARM Improvement**	PROJECT NUMBER AND NAME **A1780 HARM Improvement**

2. FY2001 PLAN:

(U) ($5.266) Continue design/development of Inertial Measurement sub-systems and development of hardware and software associated with Block IIIB/VI. Continue development of Block VI USN unique software sub-routines.

(U) ($.256) Continue Engineering and Project Management Services in support of the HARM Upgrade Program (Block IIIB/VI) contract.

(U) ($1.027) Continue Government engineering support of the HARM Upgrade Program (Block IIIB/VI) including preparation for Critical Design Review of Block VI software/hardware design. Effort includes further engineering studies, threat analysis, 6 Degrees of Freedom (DOF) analysis, documentation analysis, interface definition, precision navigation engineering, and software quality evaluation.

(U) ($.145) Continue Government support of contractor testing including evaluation of test plans, reports, and preparation of detailed test planning documentation, and captive flight testing. Coordinate/attend/chair the Joint Test Plan Working Group and coordinate necessary program activities in support of future year Development Test/Operational Test (DT/OT).

(U) ($.176) Continue Government logistic support including logistics support analyses, maintenance engineering, support equipment engineering, and evaluating contractor designs.

(U) ($2.190) Continue Government and contractor participation in integration efforts. Continue developing the aircraft avionics updates required by the HARM Upgrade Program (Block VI) in addition to Command Launch Computer (CLC)/TAMPS upgrade efforts. Continue to develop HARM TAMPS/Mission Planning Module (MPM) rehost.

(U) ($0.308) Portion of extramural program reserved for Small Business Innovative Research assessment in accordance with 15 USC 68.

3. FY 2002 PLAN:

(U) ($3.003) Continue design/development of Inertial Measurement sub-systems and development of hardware and software associated with Block IIIB/VI. Continue development of Block VI USN unique software sub-routines.

CLASSIFICATION: **Unclassified**

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	**0205601N HARM Improvement**	**A1780 HARM Improvement**

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	11.260	9.469	5.057
(U) Adjustments from the President's Budget:	-0.547	-0.101	7.273
(U) FY 2002/2003 President's Budget Submit:	10.713	9.368	12.330

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net decrease of $.547 million reflects a decrease of $.226 million for repriorization of requirements within the Navy, a decrease of $.277 million for Small Business Innovative Research assessment, and a decrease of $.044 million for a Congressional Recission.
The FY 2001 net decrease of $.101 million reflects a decrease of $.014 million for reprioritization of requirements within the Navy, a decrease of $.066 million for a Congressional Reduction, and a .021 million decrease for a Congressional Recission.
The FY 2002 net increase of $7.273 million reflects a decrease of $.051 million for reprioritization of requirements within the Navy, an increase of $7.300 million for HARM IHUP EMD Integration, and an increase of $.022 million for economic assumptions.

(U) Schedule: One quarter slip in the Flight Test Readiness Review (FTRR) from 4Q/2001 to 1Q/2002 reflects an administrative refinement of schedule.
The original FTRR date of 30 Sep 00 is now mid-Oct 01.

(U) Technical: Not applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002
WPN BLI 232700, HARM MODS	89.058	0	0

Related RDT&E: Not applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	**0205601N HARM Improvement**	**A1780 HARM Improvement**

(U) D. ACQUISITION STRATEGY:

The HARM Block IIIB/VI Upgrade program is an ACAT III Program and will consist of three separate phases (EMD, Production, and Technology Evaluation and Assessment). The acquisition strategy for the HARM Block IIIB/VI Program is complete and is based upon a signed international Memorandum of Agreement with Germany, Italy, and the U.S. Navy; a tri-national Cooperative Operational Requirements Document (CORD) details German, Italian, and U.S. Navy common requirements; and a Cooperative Test and Evaluation Master Plan (CTEMP) summarizes all test requirements. These three documents drive the overall acquisition approach to the HARM Block VI project.

Management of the Block IIIB/VI upgrade will be directed by a trilateral Steering Committee, however, the U.S. Navy Project Manager (in concert with Project Managers from Germany and Italy) is responsible for Program execution. Each partner will share one-third of "common costs," the U.S. Navy will fund Block VI unique costs, and the German and Italian participants will fund Block IIIB unique costs. Each country will pay its own aircraft integration costs.

The acquisition strategy delineates Industry and Government responsibilities. The contract strategy (i.e. hardware and software for missile, upgraded missile sections, contractor team responsibility for missile performance) assigns unique work tasks to each firm. Contract strategy is to issue contracts to Bodenseewerk Geratetechnik GmbH (BGT) (German), Alenia Marconi System (AMS) (Italian), and Raytheon Missile Systems (RMS) (U.S.) firms and will maximize use of commercial-off-the-shelf (COTS)/government-off-the-shelf (GOTS)/non-development items (NDI). Each Phase I (EMD) contract type and structure is tailored to the product of each firm.

(U) E. SCHEDULE PROFILE:

	FY 2000	FY 2001	FY 2002
(U) Program Milestones			
(U) Engineering Milestones	PDR (1Q/00)	CDR(1Q/01)	FTRR(1Q/02)
(U) T&E Milestones		Combined DT/OT (Start 4Q/01)	Combined DT/OT (End 2Q/02)
(U) Contract Milestones			

* BGT and AMS Contracts are not funded with U.S. funds, but are significant milestones in the Block IIIB/VI contract schedule.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0205601N HARM Improvement				PROJECT NUMBER AND NAME **A1780 HARM Improvement**						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Block IIIB/VI Development	C/CPIF	RSC, Tuc AZ - BGT, GE		5.266	11/00	5.536	11/01					
Block VI Development	WX	NAWC WD, China Lake, CA		1.027	10/00	0.595	10/01					
Block VI ILS	WX	NAWC WD, Point Mugu, Ca		0.176	10/00	0.891	10/01					
Subtotal Product Development			0.000	6.469		7.022						
Remarks:												
SBIR Assessment				0.308								
Subtotal Support			0.000	0.308		0.000						
Remarks:												

R-1 SHOPPING LIST - Item No. 188

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)											DATE: **June 2001**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0205601N HARM Improvement				PROJECT NUMBER AND NAME **A1780 HARM Improvement**						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Block IIIB/VI	WX	NAWC WD, China Lake, CA		0.145	10/00	0.779	10/01					
HARM Technical/Integration Studies	WX	NAWC WD, China Lake, CA		2.190	10/00	4.317	10/01					
Subtotal T&E			0.000	2.335		5.096						
Remarks:												
Block VI Travel	WX	NAWCAD, Patuxent, MD		0.087	10/00	0.052	10/01					
Block VI Tech Assess/Mgmt Sup	RX	DCS, Norfolk VA		0.169	02/01	0.160	12/01					
Subtotal Management			0.000	0.256		0.212						
Remarks:												
Total Cost			0.000	9.368		12.330						
Remarks:												

R-1 SHOPPING LIST - Item No. 188

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement					PROJECT NUMBER AND NAME A2185* Advanced Anti-Radiation Guided Missile (AARGM)					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	** **109.475**	*** **24.959**	**** **27.717**	**0.000**							
RDT&E Articles Qty											

*Funding for FY00 was executed under Project Unit E2185/E2661 for Congressional Add.
**Prior years' funding was executed under project units E2185, W2185 and W2661 for Congressional Add.
***The FY00 budget reflects a $15M Congressional Add for AARGM executed under E2661, which has been revised by $.452M for Congressional undistributed reductions.
****The FY01 budget reflects a $20M Congressional Add for AARGM executed under A2661 ($15M for AARGM) and A2983 ($5M for QuickBolt)

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

The Advanced Anti-Radiation Guided Missile (AARGM) Project is a Phase III Small Business Innovative Research (SBIR) program to develop and demonstrate a multi-mode guidance section on a HARM airframe. The AARGM Phase III technology demonstration program is designed to demonstrate that a Multi-mode (passive Anti-Radiation Homing (ARH)/active Millimeter Wave (MMW) Radar/Global Positioning system/Inertial Navigation System (GPS/INS)) missile can engage and destroy enemy air defenses in the event that these systems "shut-down" or employ other countermeasures.

The issue of emitter "shut-down" as a defensive tactic has been a major shortcoming in the joint suppression of enemy air defenses (J-SEAD) element of the offensive counter air mission area for the United States Navy and Air Force. Program objectives are to demonstrate an effective and affordable lethal SEAD capability against mobile, relocatable, or fixed air defense threats even in the presence of emitter shutdown or other Anti-Radiation Missile (ARM) countermeasures. The multi-mode technology being developed in the AARGM program has very high potential to solve the problem of "shut-down" not only in the primary weapon for J-SEAD, the High Speed Anti-Radiation Missile (HARM), but it could be integrated with many other missile airframes.

The AARGM technology demonstration program is an outgrowth of a Phase I and II competitive SBIR program. Phase I and II SBIR efforts successfully demonstrated the feasibility of a multi-mode seeker to address radar "shut-down" issues. Science and Applied Technology (SAT), Inc. (San Diego, CA), was awarded Phase I and II contracts (FY90-93) and was subsequently selected for a Phase III demonstration in FY94. Phase III work is being performed by SAT under NAVAIR contract N00019-94-C-0078. This contractual effort will continue to be incrementally funded, under program element 0205601N, resulting in a cumulative contract value of $150.4M.

From FY93 through FY98, the AARGM program was a Congressionally mandated program which received its funding as an annual Congressional add. Starting in FY99, AARGM received its program funding through the standard DoD budget appropriation process. The FY99 funds added by Congress are being used to perform risk reduction tasks in preparation for a potential Milestone B (II) Decision in FY 2003. Additionally, in FY00 the AARGM program was selected as the vehicle for the Quick Bolt Advanced Concept Technology Demonstration (ACTD). This ACTD is planned for execution from FY00 through FY03.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	**0205601N HARM Improvement**	**A2185 Advanced Anti-Radiation Guided Missile (AARGM)**

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

(U) ($5.890) Contractor conducted chamber tests of the software evaluation station/brassboard. Contractor continued unique AARGM design and commenced captive flight test preparation. Contractor completed Control Test Vehicle integration, testing, and test analysis. Contractor finalized development of AARGM prototype, including hardware/software design upgrades, subsystems assembly and test, prototype integration and testing, and prototype captive carry test. Contractor completed Control Test Vehicle (CTV) flights 1 and 2.

(U) ($3.287) Field activity provided AARGM system engineering support of development and systems integration efforts. Continued weapon system testing studies to assess weapons technology performance and deficiencies.

(U) ($.739) Contractor performed program management and engineering services in support of the AARGM technology demonstration program. Provided technical management support and coordination of AARGM Program weapons system technology studies.

(U) ($.043) Continued Government technical management, engineering support, and coordination of AARGM Program weapons system technology development program.

(U) ($15.000) Contractor continued risk reduction, producibility enhancements, and Quick Bolt Advanced Concept Technology Demonstration (ACTD) acitivities. Activities include performance and affordability enhancements of the Anti-Radiation Homing (ARH) receiver, the MillimeterWave (MMW) Radar Transceiver, the AARGM battery, and the Low-Band Antenna Array Receiver. Related efforts include radome material trade studies, aircraft integration studies, tactical software enhancements, and tactical sensitivity and Electro-Magnetic Interference (EMI) enhancements.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	**0205601N HARM Improvement**	**A2185 Advanced Anti-Radiation Guided Missile (AARGM)**

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

2. FY 2001 PLAN:

(U) ($3,358) Contractor to complete captive flight testing of the AARGM brassboard. Contractor to complete development of AARGM prototype Guided Test Vehicle, to include hardware/software design upgrades, subsystems assembly and test, prototype integration and testing, and prototype captive carry test and data analysis.

(U) ($3,469) Field activity to complete AARGM system engineering support of development and systems integration efforts. Complete weapon system testing studies to assess weapons technology performance and deficiencies.

(U) ($.703) Contractor to perform program management and engineering services in support of the AARGM technology demonstration program. Provide technical management support and coordination of AARGM Program weapons system technology studies

(U) ($14,371) Contractor continued risk reduction and producibility enhancements acitivities including performance and affordability enhancements of the Anti-Radiation Homing (ARH) receiver, the MillimeterWave (MMW) Radar Transceiver, the AARGM battery, and the Low-Band Antenna Array Receiver. Related efforts include radome material trade studies, aircraft integration studies, tactical software enhancements, and tactical sensitivity and Electro-Magnetic Interference (EMI) enhancements .

(U) ($4,790) Contractor commenced Quick Bolt Advanced Concept Technology Demonstration (ACTD) acitivities to demonstrate the utility of integrating off board sensor cueing into a new HARM seeker and the utility of providing Weapon Impact Assessment data for BDA cueing.

(U) ($.080) Complete Government technical management, engineering support, and coordination of AARGM Program weapons system technology development program.

(U) ($.946) Portion of extramural program reserved for Small Business Innovative Research assessment in accordance with 15 USC 68.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	**0205601N HARM Improvement**	**A2185 Advanced Anti-Radiation Guided Missile (AARGM)**

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	25.700	8.979	0
(U) Adjustments from the President's Budget:	-0.741	18.738	0
(U) FY 2002 President's Budget Submit:	24.959	27.717	0

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net decrease of $.741million reflects a $.641 million reprioritization of requirements within the Navy and a $.100 million decrease for a Congressional recission. The FY 2001 net increase of $18.738 million reflects a $15.000 million Congressional add for Advanced Anti-Radiation Guided Missile risk reduction and producibility enhancements; to be executed under A2661; a $5.000 million Congressional add for the QuickBolt Advanced Concept Technology Demonstration (ACTD) to be executed under A2983, offset by a decrease of $.996 million for a reprioritization of requirements within the Navy; a $.202 million decrease for Congressional reduction, and a $.064K decrease for a Congressional Recission.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY: Not applicable.
Related RDT&E: Not applicable.

(U) D. ACQUISITION STRATEGY:

The HARM AARGM program is an advanced technology demonstration program. AARGM started as a Phase I Small Business Innovative Research (SBIR) program and has evolved into a Phase III SBIR program. The acquisition strategy for the AARGM Program is based upon U.S. Navy operational requirements; the AARGM program is driven by the conclusion derived from an Analysis of Alternatives for advanced Suppression of Enemy Air Defenses (SEAD) technology. Current acquisition strategy is consistent with the FY98 independent program review forwarded to Congress by SECNAV and the FY99 Authorization Report. The innovative research AARGM demonstration is fully funded and executable and will result in fabrication of research articles and limited flight testing of the AARGM multi-mode seeker with moderate risk. The U.S. Navy Project Manager is responsible for Program management and execution. AARGM's acquisition strategy delineates Industry and Government responsibilities. The contract strategy (i.e. software evaluation, control test vehicle development and testing, guided test vehicle development and testing) assigns work package tasks to a primary contractor, Science and Applied Technology (SAT) Corp. The SAT contract is funded on an incremental basis with work scope defined in contract options and contract modification statements of work. Government responsibilities include monitoring, technical assessment and validation of contractor technology development. The AARGM technology demonstration is expected to be completed by the 4th qtr of FY01. In FY00, the AARGM Project pursued enhanced system capabilities including AARGM producibility improvements as well as a Quick Bolt Advanced Concept Technology Development (ACTD) Initiative. Enhancements will effect major AARGM subsystems and interfaces as well as software and hardware.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	**0205601N HARM Improvement**	**A2185 Advanced Anti-Radiation Guided Missile (AARGM)**

(U) E. SCHEDULE PROFILE

The AARGM program is an Advanced Technology Program and therefore does not have a standard detailed Milestone Plan. A list of key actions appears below.

AARGM PROGRAM	FY 2000	FY 2001	FY2002	To Complete
Software Evaluation Station/Brassboard				
Hardware/Software Development	Complete 1Q/00			
Chamber Tests	Complete 1Q/00			
Brassboard Captive Flight Tests (CFTs)				
Unique Design and CFT Preparation	Complete 1Q/00			
Contractor Managed Testing	Complete 1Q/00			
Captive Flight Testing	Begin 3Q/00	Complete 3Q/01		
Control Test Vehicles (CTVs)				
Integration and Test	Complete 2Q/00			
CTV Flights Test and Anaysis	Complete 3Q/00			
Prototype of Guided Test Vehicles (GTVs)				
Hardware/Software Design Upgrades	Complete 1Q/00			
Subsystems Assembly and Test	Complete 1Q/00			
Integration and Testing	Complete 4Q/00			
Captive and Carry Test	4Q/00			
Guided Test Vehicles (GTVs)				
Hardware/Software Design Upgrades	Continue	Complete 3Q/01		
Subsystems Assembly and Test	Continue	Complete 3Q/01		
Integration and Test	Begin 1Q/00	Complete 4Q/01		
GTV Live Fire Test and Analysis		4Q/01		
Contractor Design and Trade Studies	4Q/00	4Q/01		

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0205601N HARM Improvement			PROJECT NUMBER AND NAME A2185 Advanced Anti-Radiation Guided Missile (AARGM)							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Adv Tech Dev and Risk Reduction	CPFF	SAT, Woodland Hills, CA	95.214	3.358	12/00							
Engineering Support	WX	NAWC WD, China Lake, CA	12.152	3.469	10/00							
Engineering/Tech Assessment	CPIF	JHU/APL, MD	0.615									
Risk Reduction	CPFF	SAT, Woodland Hills, CA	23.805	14.371	04/01							
Quick Bolt	CPFF	SAT, Woodland Hills, CA	0.000	4.790	07/01							
Subtotal Product Development			131.786	25.988		0.000						
Remarks:												
SBIR Assessment				0.946								
Subtotal Support			0.000	0.946		0.000						
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)							DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT 0205601N HARM Improvement		PROJECT NUMBER AND NAME A2185 Advanced Anti-Radiation Guided Missile (AARGM)								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E			0.000	0.000		0.000						
Remarks:												
Travel	WX	NAWCAD, Patuxent, MD	0.280	0.080	10/00							
Technical Assessment/Mgmt Supp	RX/LOE	DCS Alexandria, VA	2.468	0.703	12/00							
Subtotal Management			2.748	0.783		0.000						
Remarks:												
Total Cost			134.534	27.717		0.000						
Remarks:												

R-1 SHOPPING LIST - Item No. 188

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement					PROJECT NUMBER AND NAME A2211 MODERNIZED HELLFIRE*					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**0.000**	**1.101**	**2.324****	**1.300**							
RDT&E Articles Qty											

*Funding for FY00 was executed under Project Unit E2211 and the Joint Advanced Weapons Systems (JAWS) RDT&E line. PU A2211 will be effective beginning FY01 due to the realignment from PEO(T) to PEO(W)
**$294K has been identified as a reprogramming source for other high priority Navy requirements.

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

Modernized Hellfire (MH) is the joint service program to support approved Army and USMC Mission Need Statements for future multi-role precision guided weapons. DON efforts support joint trade studies, requirements validation analysis, Advanced Technology Demonstration programs, hardware development, AOAs, and the development of Milestone support documentation. Through Memorandums of Understanding, the Army is assigned as the lead service for these follow-on weapon efforts, and service responsibilities are established for the Concept Exploration phase. The DON participates in technology modeling and simulation efforts at the Army's Advanced Prototyping, Engineering, and eXperimentation (APEX) Laboratory. The APEX Lab supports requirements validation and hardware development efforts to explore weapon system component capabilities. As a simulator, the APEX Lab also allows operator input using mission-oriented Tactics, Techniques and Procedures to prove-out proposed capabilities and to validate desired requirements. All MH efforts support the DON's requirements for state-of-the-art weapon capabilities to complement the next generation of aircraft and to best defeat the threats of the post-2000 battlefield.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

-(U) ($1.101) Expanded APEX evaluation of Military Operations in Urban Terrain (MOUT), as well as incorporation of fixed wing parameters into the APEX model. Continued flight modeling evaluations of the Advanced Precision Kill Weapon System (APKWS) guided rocket system for the unguided 2.75" rocket. Evaluated potential hardware component technical solutions. Performed initial validation of proposed requirements for the MH and APKWS. ($.850 Army and $.251 government in-house)

2. FY 2001 PLAN:

-(U) (**$1.937) Initiate formal validation of proposed requirements for the MH. Effort to include rotary and fixed wing evaluation using Man-in-the-Loop modeling and simulation facilities at the APEX Lab and at NAWC-WD. Effort will establish requirements for the draft NH Joint ORD. Participate with the Army in their studies related to the Joint Common Missile (JCM). Evaluate potential component technical solutions for future weapons via joint modeling and hardware development efforts. ($.924 Army and $1.860 government in-house).
-(U) ($0.093) Portion of extramural program reserved for Small Business Innovative Research assessment in accordance with 15 USC 68.

3. FY 2002 PLAN:

-(U) ($1.300) Initiate the formal AOA to recommend a material solution to satisfy the MNS for MH. Evaluate potential component technical solutions for future weapons via joint modeling and hardware development efforts. Participate with the Army in their studies related to the JCM. Participate with the Army on development, integration, and testing efforts for the APKWS. ($.085 Army and $1.215 government in-house).

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	**0205601N HARM Improvement**	**A2211 MODERNIZED HELLFIRE**

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	1.467	2.907	3.819
(U) Adjustments from the President's Budget:	-0.366	-0.583	-2.519
(U) FY 2002 President's Budget Submit:	1.101	2.324	1.300

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net decrease of $.366 million reflects a $.324 million decrease for repriorization of requirements within the Navy, a decrease of $.036 million for a Small Business Innovative Research (SBIR) Assessment, and a decrease of $.006 for a Congressional recission.
The FY 2001 net decrease of $.583 million is due to a 1415-1 Prior Approval Reprogramming Action for Single Integrated Air Picture (-$533K) and Congressional reductions ($30K)
The FY 2002 net decrease of $2.519 million reflects an increase of $1.993 million to begin the Program Definition Risk Reduction (PDRR) Phase, a decrease of $.014 million for reprioritization of requirments within the Navy, a decrease of $4.500 for a Congressional reduction, and an increase of $.002 for economic assumptions.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:
Related RDT&E: U. S. Army P.E. 0603313A PROJ D263 Future Missile Technology Insertion (FMTI).

(U) D. ACQUISITION STRATEGY: Not an ACAT program with no specific acquisition strategy.

(U) E. SCHEDULE PROFILE: Not applicable.
Related RDT&E: U. S. Army P.E. 0603313A PROJ D263 Future Missile Technology Insertion (FMTI).

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)							DATE: **June 2001**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0205601N HARM Improvement			PROJECT NUMBER AND NAME A2211 Modernized Hellfire						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
APEX Lab	MIPR	AAMCOM, Huntsville, AL	0.000	0.485	12/00	0.085	12/01					
Tech evaluation & Development	MIPR	TRADOC Norfolk, VA	0.000	0.185	12/00							
Subtotal Product Development			0.000	0.670		0.085						
Remarks:												
Engineering Technical Services	C/TMM	DCS Corp, Alexandria VA	0.000	0.215	01/01	0.160	01/02					
Engineering Technical Services	C/TMM	Whitney, Bradley and Brown	0.000	0.363	01/01	0.240						
Subtotal Support			0.000	0.578		0.400						
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)							DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0205601N			PROJECT NUMBER AND NAME A2211 Modernized Hellfire						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Testing	WX	NAWC WD, China Lake, CA	0.000	0.607	11/00	0.772	11/01					
SBIR Assessment				0.093								
Subtotal T&E			0.000	0.700		0.772						
Remarks:												
Travel	WX	NAWC AD, Patuxent River	0.000	0.072	11/00	0.033	11/01					
Travel	MIPR	AAMCOM, Huntsville, AL	0.000	0.010	11/00	0.010	11/01					
Subtotal Management			0.000	0.082		0.043						
Remarks:												
Total Cost			0.000	2.030		1.300						
Remarks:												

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N
PROJECT TITLE: Tactical Data Links

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X1743 Link-16 Improvements	3,509	4,138	15,207							
X2126 ATDLS Integration	39,197	21,867	24,155							
TOTAL	42,706	26,005	39,362							

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) This program element (PE) develops and improves the Navy's tactical data link systems. It includes the Link-16 Improvements and Advanced Tactical Data Link Systems (ATDLS) Integration Programs.

(U) Link-16 Improvements extends Link-16 technological improvements to existing and developing U.S. Navy data link systems, including Link-11 and Link-22. Near term Link-11 improvements include: Mobile Universal Link Translator System (MULTS) upgrade, Common Shipboard Data Terminal Set (CSDTS), Link-11 Baseline Freeze message standard work, and the NATO Improved Link-11 (NILE) Project. Link-22 will pass TADIL-J data elements beyond the line of sight (HF) using a Time Division Multiple Access (TDMA) protocol and the improved Link-11 waveform. The Common Data Link Monitoring System (CDLMS) will be upgraded to Next Generation Command and Control Processor (C2P) to accommodate the higher CPU speeds, update rate and memory capacity required for multi-TADIL processing functions. The Multi-TADIL Capability (MTC) is the initial phase of the Next Generation C2P architecture. Next Generation C2P will be based on open system hardware and software architecture, providing a system capable of supporting critical data link functions, including Link-22, Link-16 Joint Range Extension (JRE) and high throughput Link-16. These projects will allow more effective employment of fleet units by increasing timeliness, accuracy, and content of tactical data transfer.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N
PROJECT TITLE: Tactical Data Links

(U) The ATDLS Integration Program will integrate the Multifunctional Information Distribution System – Low Volume Terminal (MIDS-LVT) Link-16 terminal into U.S. Navy platforms. This multinational (U.S., France, Germany, Italy, and Spain) cooperative development program was established to design, develop, and deliver low-volume lightweight tactical information system terminals for U.S. and foreign fighter aircraft, helicopters, ships and ground sites. The terminals are designed as a pre-planned product improvement of the Joint Tactical Information Distribution System (JTIDS) Time Division Multiple Access (TDMA) Class II terminal. The goal of the MIDS-LVT 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 TDMA Class II equipment. This project includes the costs to integrate and test MIDS on the Navy's F/A-18 and selected ship platforms. ATDLS Integration of the MIDS-LVT will also provide selected U.S. Navy and U.S. Marine Corps 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 MIDS-LVT or JTIDS Class II/IIA.

(U) ATDLS Integration Program also develops new and improved capabilities for Navy TADIL-J users. The Command and Control Processor is a software development effort that provides an interface between the TADILs (Links 4A, 11, and 16) and major surface ship Command and Control Systems (Advanced Combat Direction System (ACDS) and AEGIS Command and Decision (C&D)). The Common Data Link Management System is a pre-planned product improvement of the Command and Control Processor. The CDLMS 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 database for translating various link formats while remaining completely independent of communications equipment and tactical data computing systems. Development of new capabilities in ATDLS includes Low Cost Integration and Dynamic Network Management. Low Cost Integration effort develops a Link-16 transmit capability that will be provided to Navy aircraft platforms as a positive Combat ID method of identifying friendly units in the battlespace. Dynamic Network Management will provide automatic reconfiguration of Link-16 networks that respond instantly to emergent warfighter requirements in the field.

(U) This program element also funds: (1) the development required to accommodate expanded Link-16 operational capabilities for additional warfare areas, (2) development of automated network management aids, and (3) related systems engineering and contractor support efforts.

(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.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N
PROJECT TITLE: Tactical Data Links

B. (U) PROGRAM CHANGE SUMMARY:

(U) Funding:
FY 2000: Transfer to SBIR (-$680K), Federal Technology and Advancement Act (-$15K), WINSAT (-$300K), IWARS (-$230K), NSS (-$1,000), ASN (RDA) Execution Adjustment (-$828K), Section 8055: Congressional Proportionate Rescission (-$182K), and miscellaneous department adjustments (-$469K).

FY 2001: Section 8086: .7% Pro-Rata Reduction (-$183K) and PL 106-554, Section 1403 Government-Wide Rescission (-$57K).

(U) Schedule:
NILE software test slipped from 2Q/00 to 4Q/00 due to the additional development required for the multi-link test tool. Link-22 design validation slipped from FY 00 to FY 02 as a result of the change in technical approach.
F/A-18 MIDS DT/OT testing has been realigned with F/A-18 master schedule

(U) Technical:
Analysis of CDLMS/Link-22 program enhancements indicated that current CDLMS system configuration would not support Link-22 processing requirements. Hosting Link-22 capability in U.S. systems requires that current CDLMS be upgraded to Next Generation C2P configuration to accommodate the higher CPU speeds, update rate and memory capacity required for multi-TADIL processing functions.

Multi-TADIL Capability (MTC) is the initial phase of Next Generation C2P that will provide multi-TADIL functionality for command ships, submarines and shore sites.
Phase one of MTC will support Link-11 and Link-16.

Next Generation C2P is required to provide Link-22 and Link-16 functionality joint range extension and high through put enhancement that will support all fleet requirements across diverse platforms in a common software baseline.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: X1743
PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: Link-16 Improvements

(U) COST (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY2006 ESTIMATE	FY2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X1743 Link-16 Improvements	3,509	4,138	15,207							

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Link-16 Improvements extends Link-16 technological improvements to existing and developing U.S. Navy data link systems, including Link-11 and Link-22. Near term Link-11 improvements include: Mobile Universal Link Translator System (MULTS) upgrade, Common Shipboard Data Terminal Set (CSDTS), Link-11 Baseline Freeze message standard work, and the NATO Improved Link-11 (NILE) Project. Link-22 will pass TADIL-J data elements beyond the line of sight (HF) using a Time Division Multiple Access (TDMA) protocol and the improved Link-11 waveform. The Common Data Link Monitoring System (CDLMS) will be upgraded to Next Generation Command and Control Processor (C2P) to accommodate the higher CPU speeds, update rate and memory capacity required for multi-TADIL processing functions. The Multi-TADIL Capability (MTC) is the initial phase of the Next Generation C2P architecture. Next Generation C2P will be based on open system hardware and software architecture, providing a system capable of supporting critical data link functions, including Link-22, Link-16 Joint Range Extension (JRE) and High Throughput Link-16. These projects will allow more effective employment of fleet units by increasing timeliness, accuracy, and content of tactical data transfer.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: X1743
PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: Link-16 Improvements

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHED

- (U) ($1,979) Continue to design and develop combined CDLMS/Link-22 program enhancements which includes Multi-TADIL Capability (MTC) and Next Generation Command Control Processor (C2P). Develop systems level requirements and baseline CDLMS/Link-22 specifications/designs for systems integration.

- (U) ($1,213) Complete Link-22 System Network Controller (SNC) software development. Link-22 program shall perform final SNC beta software verification and performance tests. Message standards and signal processing controller functions will be defined for U.S. implementation.

- (U) ($317) Continue design and development of Subphase 2 software for the NILE Reference System (NRS).

2. (U) FY 2001 PLAN

- (U) ($2,383) Continue to design and develop combined CDLMS/Link-22 program enhancements which includes design and development of Multi-TADIL Capability (MTC) and Next Generation Command Control Processor (C2P). Develop system specifications and performance baselines for MTC and Next Generation C2P. Conduct Preliminary Design Review.

- (U) ($1,505) Complete Link-22 unique crypto designs, message standard and test tools for CDLMS/Link-22 system.

- (U) ($250) Complete design and development of Subphase 2 software for the NILE Reference System (NRS).

3. (U) FY 2002 PLAN

- (U) ($6,906) Continue to develop combined CDLMS/Link-22 program enhancements. Integrate NILE SNC and System Processor Controller (SPC) developed software with CDLMS/Link-22 system. Develop and validate hardware and software design changes into CDLMS and CSDTS to implement Link-22. Complete MTC development and perform MTC system certification.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: X1743
PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: Link-16 Improvements

- (U) ($7,901) Continue Next Generation Command Control Processor (C2P) development. Complete development of detailed Next Generation C2P software design. Conduct Critical Design Review.

- (U) ($400) Commence validation of Link-22 design to ensure interoperability with NILE Reference System (NRS) under NILE In-Service Support Phase III MOU.

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

NUMBER TITLE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE
OPN Line 2614 ATDLS	18,402	18,977	11,715

Note: OPN includes procurement of hardware developed under Link-16 Improvements and ATDLS Integration Programs.

C. (U) ACQUISITION STRATEGY: NILE Reference System, Link-22 system development, CDLMS/Link-22 program enhancements and Next Generation C2P are utilizing existing cost plus contracts.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: X1743
PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: Link-16 Improvements

D. (U) SCHEDULE PROFILE:

	FY 2000	FY 2001	FY2002	TO COMPLETE
Program Milestones				Link 22 IOC 1Q/04 Next Gen C2P 1Q/04
Engineering Milestones		Next Gen C2P PDR 2Q/01	Next Gen C2P CDR 3Q/02	
T&E Milestones	NILE SNC S/W Test 4Q/00		CDLMS/Link-22 S/W test 4Q/02 MTC Certification 3Q/02	Link-22 DT 4Q/03 OT 1Q/04
Contract Milestones				

FY 2002 RDT&E,N PROJECT COST ANALYSIS DATE: JUNE 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: X1743

PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: Link-16 Improvements

Exhibit R-3 Cost Analysis (page 1)												
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02Cost	FY02 Award Date	FY 03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
NATO Improved Link Eleven	CPFF	Logicon	2,476	250	12/00							
Link-22	WX	SPAWARSYSCTR San Diego, CA	3,261	620	Various	1,718	Various					
Link-22	CPFF	GAC, Inc.				1,000	Various					
Link-22	Various	Various	345	163	Various	1,125	Various					
C2P Improvements	Various	Various	2,377									
Multi-TADIL Capability (MTC)	Various	Various	855	491	Various	1,575						
Next Generation C2P	CPFF	APC	1,325	971	Various	4,443	Various					
Next Generation C2P Support	WX	SPAWARSYSCTR San Diego, CA				500	Various					
Next Generation C2P TDA	CPFF	APL/JHU		1,356	Various	2,906	Various					
NILE ISS/Interoperability	Various	Various				400	Various					
Subtotal Product Development			10,639	3,851		13,667						
Remarks												

FY 2002 RDT&E,N PROJECT COST ANALYSIS DATE: JUNE 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: X1743

PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: Link-16 Improvements

Exhibit R-3 Cost Analysis (page 2)												
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY 03 Cost	FY03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Test and Evaluation	Various	Various	272			500	Various					
Subtotal T&E			272			500						
Remarks												
Engineering Support and Travel	Various	Various	547	287	Various	1,040	Various					
Subtotal Management			547	287		1,040						
Remarks												
Total Cost			11,458	4,138		15,207						
Remarks												

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: X2126
PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: ATDLS Integration

(U) COST (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X2126 ATDLS Integration	39,197	21,867	24,155							

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The ATDLS Integration program will integrate the Multifunctional Information Distribution System – Low Volume Terminal (MIDS-LVT) Link-16 terminal into U.S. Navy platforms. This multinational (U.S., France, Germany, Italy, and Spain) cooperative development program was established to design, develop, and deliver low-volume lightweight tactical information system terminals for U.S. and foreign fighter aircraft, helicopters, ships and ground sites. The terminals are designed as a Pre-Planned Product Improvement (P^3I) of the Joint Tactical Information Distribution System (JTIDS) Time Division Multiple Access (TDMA) Class II terminal. The goal of the MIDS-LVT 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 TDMA Class II equipment. This project includes the costs to integrate and test MIDS on the Navy's F/A-18 and selected ship platforms. ATDLS Integration of the MIDS-LVT will also provide selected U.S. Navy and U.S. Marine Corps 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 MIDS-LVT or JTIDS Class II/IIA.

(U) ATDLS Improvement program also develops new and improved capabilities for Navy TADIL-J users. The Command and Control Processor (C2P) is a software development effort that provides an interface between the TADILs (Link 4A, 11, and 16) and major surface ship Command and Control Systems (Advanced Combat Direction System (ACDS) and AEGIS C&D). Common Data Link Management System (CDLMS) is a Pre-planned Product Improvement (P3I) of the C2P. The CDLMS 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 database for translating various link formats while remaining completely independent of communications equipment and tactical data computing systems. Development of new capabilities in ATDLS includes Low Cost Integration and Dynamic Network Management. Low Cost Integration effort develops a Link-16 transmit capability that will be provided to Navy aircraft platforms as a positive Combat ID method of identifying friendly units in the battlespace. Dynamic Network Management will provide automatic reconfiguration of Link-16 networks that respond instantly to emergent warfighter requirements in the field.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: X2126
PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: ATDLS Integration

(U) This project also funds: (1) the development required to accommodate expanded Link-16 operational capabilities for additional warfare areas, (2) development of automated network management aids, and (3) related systems engineering and contractor support efforts.

(U) Additional terminal development costs are funded in program element 0604771D.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHED

- (U) ($29,009) Continue F/A-18 MIDS integration; software development; and aircraft modifications and testing.
- (U) ($2,682) Continue TADIL-J System Engineering to include investigating future capabilities and enhancements and ensuring Naval upgrades are interoperable with Joint U.S. and allied forces such as joint range extension and enhanced throughput.
- (U) ($4,246) Continue Performance Upgrades including C2P Model 5 improvements, Common Data Link Management System (CDLMS) development, and Satellite-TADIL-J development.
- (U) ($3,260) Continue MIDS on Ship development and operational testing.

2. FY 2001 PLAN

- (U) ($17,190) Continue F/A-18 MIDS integration; software development; aircraft modifications and testing; and interoperability certification testing.
- (U) ($1,503) Continue TADIL-J System Engineering to include investigating future capabilities and enhancements and ensuring Naval upgrades are interoperable with Joint U.S. and allied forces such as joint range extension and enhanced throughput.
- (U) ($1,945) Complete Performance Upgrades including C2P Model 5 improvements, Common Data Link Management System (CDLMS) development, and Satellite-TADIL-J development.
- (U) ($1,229) Complete MIDS on Ship development and operational testing.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: X2126
PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: ATDLS Integration

3. FY 2002 PLAN

- (U) ($19,972) Complete F/A-18 MIDS integration software, flight, development and certification testing.
- (U) ($1,863) Continue TADIL-J System Engineering to include investigating future capabilities and enhancements and ensuring Naval upgrades are interoperable with Joint U.S. and allied forces such as joint range extension and enhanced throughput.
- (U) ($2,320) Integrate MIDS on Ship with Model 5 Combat System and conduct testing.

.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: X2126
PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: ATDLS Integration

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

NUMBER TITLE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE
APN LINE LI 052500 F/A-18	51,555	49,392	7,834
RDT&E,DA	28,544	16,100	16,572
	18,402	18,977	11,715

Note: OPN includes procurement of hardware developed under Link-16 Improvements and ATDLS Integration Programs.

SCN - Funding for ATDLS hardware is not separately identified in the SCN budget exhibits.

RELATED RDT&E:

PE 0604771D/P771 - Link-16: Link-16 systems engineering support.
PE 0604771D/P773 - MIDS: MIDS-LVT terminal development.

C. (U) ACQUISITION STRATEGY: F/A-18 MIDS aircraft integration is utilizing cost plus fix fee contracts on an R&D Basic Ordering Agreement with Boeing. MIDS integration and testing, TADIL-J systems engineering, and performance upgrades development are utilizing existing cost plus contracts.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: X2126
PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: ATDLS Integration

D. (U) SCHEDULE PROFILE

	FY 2000	FY 2001	FY2002	TO COMPLETE
Program Milestones	LRIP Rvw 3Q/00	DAB MS III 3Q/01		IOC 3Q/03 Air
Engineering Milestones				
T&E Milestones	F/A-18-OT-IIA-2-2Q/00 F/A-18 DT-IIA-5 3Q/00	F/A-18 DT-IIA-6 2Q/01 F/A-18 OT-IIA-3 1Q/01 F/A-18-OT-IIA-4-4Q/01	F/A-18 DT-IIA-7 1Q/02 F/A-18 TECHEVAL 3Q/02	F/A-18 OPEVAL 1Q/03 F/A-18 EMI/EMC 3Q/03 F/A-18 FOT&E 2Q/04
	Ship DT/OT-IIB-1 4Q/00	Ship DT/OT-IIB-2 2Q/01	Ship FOT&E 2Q/02	
Contract Milestones	MIDS LRIP contract 3Q/00			

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: X2126
PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: ATDLS Integration

Exhibit R-3 Cost Analysis (page 1)												
APPROPRIATION: RDT&E,N BUDGET ACTIVITY: 7		PROGRAM ELEMENT: 0205604N						Tactical Data Links				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
F/A-18 Integration	PD	NAVAIRSYSCOM PAX River, MD	121,701	12,346	Various	14,588	Various					
TADIL-J System Engineering	WX	SPAWARSYSCTR San Diego,CA	25,082	1,228	Various	1,605	Various					
TADIL-J System Engineering	Various	Various	3,315									
MIDS on Ship	CPIF	BAE Systems Wayne, NJ	11,488	500	Various							
MIDS on Ship	Various	Various	43,078	365	Various	1,150	Various					
Performance Upgrades	WX	SPAWARSYSCOM San Diego, CA	9,157	1,876	Various	138	Various					
Performance Upgrades	Various	Various	4,783	410	Various	565	Various					
Air Defense System Integrator	CPFF	Adv Programming Concepts, TX	2,059									
Dual Net Link-11	WX	Various	1,866									
Korean Air Defense Sys Impr	CPFF	JHU/APL	900									
Low Cost Integration	Various	Various										
Dynamic Network Management	Various	Various										
Subtotal Product Development			223,429	16,725		18,046						
Remarks												

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: X2126
PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: ATDLS Integration

Exhibit R-3 Cost Analysis (page 2)												
APPROPRIATION: RDT&E,N BUDGET ACTIVITY: 7			PROGRAM ELEMENT: 0205604N						Tactical Data Links			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal Support												
Remarks												
Test and Evaluation	Various	Various	3,975	185	Various	150	Various	150				
MIDS F/A-18 T&E	WX	SPAWARSYSCOM San Diego, CA	5,479	2,804	Various	2,933	Various	3,281				
MIDS F/A-18 T&E	Various	Various	5,190	362	Various	565	Various	725				
MIDS on Ship T&E	WX	SPAWARSYSCOM San Diego, CA	665	220	Various	900	Various					
MIDS Test Assets	SS/CPAF /IF	MIDSCO Fairfield, NJ	6,594									
Subtotal T&E			21,903	3,571		4,548		4,156				
Remarks												

FY 2002 RDT&E,N PROJECT COST ANALYSIS DATE: JUNE 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: X2126

PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: ATDLS Integration

Exhibit R-3 Cost Analysis (page 2)												
APPROPRIATION: RDT&E,N BUDGET ACTIVITY: 7			PROGRAM ELEMENT: 0205604N						Tactical Data Links			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
ATDLS Engineering	MP	MITRE	1,216	60								
Engineering Support and Travel	Various	Various	2,479	1,511	Various	1,561	Various	1,764				
Subtotal Management			3,695	1,571		1,561		1,764				
Total Cost			249,027	21,867		24,155		26,824				

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/ 07**					R-1 ITEM NOMENCLATURE Surface ASW Combat System Integration/ 0205620N					
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Total PE Cost	22.544	29.314	28.119							
ASW Combat Systems Integration/ V0896 *	2.794	0.000	0.000							
ASW Combat Systems Integration/ Q0896 *	0.000	0.000	0.000							
Surface ASW System Improvements/ V1916 *	12.967	0.000	0.000							
Surface ASW System Improvements/ Q1916 *	0.000	29.314	28.119							
High Dynamic Range Low Cost Towed Array Receiver/ V2662	6.783	0.000	0.000							
Quantity of RDT&E Articles										

* The PEO identification changes from PEO(USW) to PEO(MUW) starting in FY 2001 due to the transfer of PEO(USW) into PEO(MUW). Therefore, the project prefix changes from V to Q beginning in FY 2001.

A. Mission Description and Budget Item Justification: The objective of this Program Element (PE) is to significantly improve existing AN/SQQ-89(V) and Surface Ship Sonar System capabilities. It will improve AN/SQQ-89(V) Measures of Performance (MOP) by enhancing detection, tracking, classification, data processing and display capabilities, and increasing acoustic sensor frequency bandwidth. This PE will take advantage of the AN/SQQ-89(V) open system architecture to develop and integrate the Multi-Function Towed Array (MFTA) with active sonar bistatics (Echo Tracker Classifier - ETC) and torpedo defense capabilities into the AN/SQQ-89(V) as a backfit program for DDG51 class ships (AN/SQQ-89A(V)15). Funds were added to this PE as part of POM-02 to enhance the AN/SQQ-89A(V)15 system architecture to support technology refresh, maximize software portability, and modify external interfaces to support interoperability with multiple AEGIS baselines. Finally, this PE, under Project V2662 in FY 2000, will produce a single Towed Array Acoustic Intercept Subsystem (AISS) ship set and transition the AISS technology to the surface combatant AN/SQQ-89A(V)15 baseline for integration.

B. Program Change Summary:

	FY 2000	FY 2001	FY 2002
FY 2001 President's Budget:	23.504	29.585	24.240
Appropriated Value:	23.633	29.585	
Adjustments to FY 2000/2001 Appropriate Value/			
FY 2001 President's Budget:	-1.089	-0.271	+3.879
FY 2002 PRES Budget Submit:	22.544	29.314	28.119

Funding: FY 2000 decrease for Congressional Across-the-Board reductions (-0.129), decrease for Small Business Innovative Research (SBIR) transfer (-0.506), Midyear Review Adjustment (-0.321), FY 2000 Actuals (-0.041), and Congressional Proportionate reductions (-0.092). FY 2001 decrease for Congressional Across-the-Board reductions (-0.207), Govtwide Recission -0.064. FY 2002 changes include decreases for Navy Working Capital Fund (NWCF) Rate Adjustments (-0.032), sponsor directed transfer to fund Distant Thunder program (-2.986) and balancing of program to POM-02 controls (-0.035), and increase for AN/SQQ-89A(V)15 program (+6.800) and inflation adjustments (+0.132).

EXHIBIT R-2a, RDT&E Project Justification							DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/ 07**	Surface ASW Combat System Integration/ 0205620N				Surface ASW System Improvements/ V1916/ Q1916					
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost	**12.967**	**29.314**	**28.119**						**CONT.**	**CONT.**
RDT&E Articles Qty										

A. Mission Description and Budget Item Justification: The Surface ASW System Improvements project will support essential performance enhancements on AN/SQQ-89(V) and Surface Ship Sonar Systems. This project will develop and refine active classification and display upgrades to support implementation in both the AN/SQQ-89(V) hull subsystem and the MFTA. This Project will integrate the MFTA, completed in Project V0896, with active sonar bistatics (ETC) and torpedo defense capablities into the AN/SQQ-89(V) as a backfit program on DDG51 class ships (AN/SQQ-89A(V)15). Funds were added to this Project as part of POM-02 to enhance the AN/SQQ-89A(V)15 system architecture to support technology refresh, maximize software portability, and modify external interfaces to support interoperability with multiple AEGIS baselines. Finally, this Project will develop the AN/SQQ-89(V) design and interface with the Light Airborne Multi-Purpose System (LAMPS) Mk III Blk II system.

PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 Accomplishments:

($2.484) Developed active sonar bistatic processing (ETC) to support implementation with the AN/SQQ-89A(V)15.

($1.336) Developed torpedo DCL software to support implementation with the AN/SQQ-89A(V)15.

($8.897) Began integration of MFTA, active sonar bistatic processing (ETC), and torpedo DCL software into the AN/SQQ-89A(V)15.

($0.250) Conducted Computer Aided Dead Reckoning Tracer (CADRT) TECHEVAL and operational test and evaluation, OT-IIA, of an AN/SQQ-89(V)6 system with active adjunct processing and improved contact management.

2. (U) FY 2001 Plan:

($3.237) Complete active sonar bistatic processing (ETC) to support implementation with the AN/SQQ-89A(V)15.

($1.153) Complete torpedo DCL software to support implementation with the AN/SQQ-89A(V)15.

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/ 07**	Surface ASW Combat System Integration/ 0205620N	Surface ASW System Improvements/ V1916/ Q1916

($22.914) Continue integration of MFTA, active sonar bistatic processing (ETC), and torpedo DCL software into the AN/SQQ-89A(V)15.

($1.000) Begin integration of LAMPS Mk III Blk II KuBand into the AN/SQQ-89(V).

($0.080) Complete analysis of CADRT TECHEVAL and OT-IIA at-sea test of an AN/SQQ-89(V)6 system with active adjunct processing and improved contact management.

($0.300) Coordinate and conduct MFTA sea test.

($0.630) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

3. (U) FY 2002 Plan:

($8.500) Enhance AN/SQQ-89A(V)15 system architecture to support technology refresh, maximize software portability, and modify external interfaces to support interoperability with multiple AEGIS baselines.

($18.019) Continue integration of MFTA, active sonar bistatic processing (ETC), and torpedo DCL software into the AN/SQQ-89A(V)15.

($0.300) Coordinate and conduct MFTA sea test.

($1.300) Continue the integration of the LAMPS Mk III Blk II KuBand into the AN/SQQ-89(V).

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/ 07**	Surface ASW Combat System Integration/ 0205620N	Surface ASW System Improvements/ V1916/ Q1916

B. Other Program Funding Summary:

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY2007	To Complete	Total Cost
OPN Budget Line Item 213600/5	31.3	14.2	16.6							

Related RDT&E: N/A

C. Acquisition Strategy: Development work in this project is performed primarily by:

- Naval Undersea Warfare Center, Newport - AN/SQQ-89(V) Technical Direction Agent
- Naval Surface Warfare Center, Dahlgren - AN/SQQ-89(V) Technical Direction Agent
- Lockheed Martin Corporation - Incumbent AN/SQQ-89(V) Design Agent. This contract was awarded competitively and will extend through FY 2002
- Digital System Resources, Inc. - SBIR Phase III contract for common acoustic processor

Award new competitive AN/SQQ-89(V) contract in FY 2002.
Complete AN/SQQ-89A(V)15 Engineering Development Model (EDM) in FY 2003 (RDT&E PE 0205620N) .
Procurement of production AN/SQQ-89A(V)15 ship sets will commence in FY 2004 (OPN BLI 213600).

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/ 07**	Surface ASW Combat System Integration/ 0205620N	Surface ASW System Improvements/ V1916/ Q1916	

D. Schedule Profile

	FY 2000	FY 2001	FY2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Program Milestones	Began AN/SQQ-89A(V)15 Integration	Begin LAMPS Mk III Blk II Integration		Complete AN/SQQ-89A(V)15 EDM	AN/SQQ-89A(V)15 EDM Install			Complete LAMPS Mk III Blk II Integration
Engineering Milestones		2Q Integrated MFTA Sea Test	3Q Integrated MFTA Sea Test	1Q Integrated MFTA Sea Test				
T&E Milestones	2Q CADRT TECHEVAL	1Q CADRT OT-IIA Sea Test			3Q AN/SQQ-89A(V)15 DT Sea Test	2Q AN/SQQ-89A(V)15 OT Sea Test		
Contract Milestones			Award new competitive AN/SQQ-89(V) contract					

Exhibit R-3 Cost Analysis (page 1) | DATE: **June 2001**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N/ 07** | Surface ASW Combat Systems Integration/ 0205620N | Surface ASW System Improvement/ V1916/ Q1916

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary H/W & S/W Development	WR	NSWC/Dahlgren, VA	4.466	1.043	11/99	1.400	11/00	1.350	11/01	CONT.	CONT.	
Primary H/W & S/W Development	WR	NUWC/Newport, RI	19.487	0.115	03/00	2.630	11/00	2.200	11/01	CONT.	CONT.	
Primary H/W & S/W Development	C/CPFF	Digital Systems Resources,VA	0.267	0.222	01/00	0.987	12/00	1.678	12/01	CONT.	CONT.	
Primary H/W & S/W Development	C/CPAF	Lockheed Martin, NY	5.381	8.784	11/99	15.042	11/00	9.498	12/01	0.000	38.705	38.705
Primary H/W & S/W Development	Var.	Misc.	19.828	1.641	Var.	8.156	Var.	12.358	Var.	CONT.	CONT.	
Common Systems Engineering	Var.	Misc.	0.580							CONT.	CONT.	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			50.009	11.805		28.215		27.084		CONT.	CONT.	

Remarks:
Budgeted for Lockheed Martin award fees ($M): 1.242 in FY01 and 0.780 in FY02. Lockheed Martin's performance has been excellent in prior years, earning close to 100% of possible award fee for the most recent award fee periods.

Studies, Analysis, & Evaluations	Var.	Misc.	0.900							0.000	0.900	
Engineering & Technical Services	Var.	Misc.	1.500							0.000	1.500	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			2.400	0.000		0.000		0.000		0.000	2.400	

Remarks:

Exhibit R-3 Cost Analysis (page 2)										DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/ 07**			Surface ASW Combat Systems Integration/ 0205620N			Surface ASW System Improvement/ V1916/ Q1916						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development & Operational T&E	Var.	Misc.	4.010	0.250	Var.	0.080	Var.			CONT.	CONT.	
Miscellaneous T&E	Var.	Misc.	2.447							CONT.	CONT.	
											0.000	
											0.000	
Subtotal T&E			6.457	0.250		0.080		0.000		CONT.	CONT.	
Remarks:												
Program Management Support	Var.	Misc.	4.073	0.742	Var.	0.869	Var.	0.885	Var.	CONT.	CONT.	
Travel	Var.	Misc.	0.684	0.170	Var.	0.150	Var.	0.150	Var.	CONT.	CONT.	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			4.757	0.912		1.019		1.035		CONT.	CONT.	
Remarks:												
Total Cost			63.623	12.967		29.314		28.119		CONT.	CONT.	

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7**					R-1 ITEM NOMENCLATURE MK48 ADCAP/0205632N					
COST ($ in Millions)	FY 2000	FY 2001	FY 2002							
Total PE Cost	**19.400**	**15.707**	**17.130**							
MK48 ADCAP/V0366/F0366[1]	**19.400**	**15.707**	**17.130**							
Quantity of RDT&E Articles										

Note[1]: Due to realignment of Program Executive Office, FY2000 and FY2001 funds allocated under V0366 and FY2002 and beyond funds allocated under F0366 for display purposes.

A. (U) Mission Description and Budget Item Justification: The MK 48 ADCAP (ADvanced CAPability) torpedo R&D program focuses on two specific areas near term: Torpedo Advanced Processor Builds (APBs) and wideband sonar capability. The 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. 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 Torpedo APB program.

(U) Countermeasure (CM) sophistication and availability on the open market directly affects ADCAP kill proficiency and its ability to counter rapidly evolving threats. The focus of the MK 48 ADCAP torpedo R&D program for FY01 and out has shifted from being primarily concentrated on Software Block Upgrade efforts towards coordinated hardware upgrades, rapid Commercial-Off-the-Shelf insertion, and Torpedo APBs to rapidly upgrade the ADCAP to counter evolving threats and maintain robust performance. The Common Broadband Advanced Sonar System (CBASS) program will develop and field a wideband sonar capable of identifying CMs and discriminating them from the target. CBASS will develop 23 test articles (2 test vehicles and 21 Engineering Development Models (EDMs)). CBASS met Milestone II requirements on 6 March 1998 and received MDA approval to proceed into EMD. The intent of the CBASS program is to acheive improvements in shallow water torpedo performance over current (MK48 Mod 5) capability.

(U) The introduction of the Stealth Torpedo Enhancement Program (STEP) will provide for incremental stealth torpedo improvements and upgrades (including the development and test of New Technology Concepts from the R&D community (6.2/6.3) and contractor Independent Research and Development (IR&D)). This approach will incorporate developmental testing of the Future Naval Capability (FNC) transitioning technologies for ADCAP upgrades and help to provide the foundation for Next Generation Torpedoes. These efforts will continue torpedo development investment at a lower cost and shorter term than traditional torpedo programs.

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7**	R-1 ITEM NOMENCLATURE MK48 ADCAP/0205632N

FY 2000 ACCOMPLISHMENTS:

- (U) ($6.023) Completed the development of G&C Software Block IV efforts in support of OT. Initiated Operational Evaluation of Software Block Upgrade IV. Efforts included software coding, modeling and simulation of software releases (including development and validation of models) and engineering tests in water for evaluation of proposed releases. Conducted validation of safety features for submarine crew safety.

- (U) ($0.318) Provided for COMOPTEVFOR Software Block Upgrade IV test support.

- (U) ($12.849) Continued CBASS design development and fabrication of test vehicles. Continued development of advanced wideband algorithms, signal processing, and tactical software. Continued to develop of interim test equipment. Completed integration of test vehicles and software components. Began in-water testing to support algorithm development and initial software builds.

- (U) ($0.210) Continued to develop, design and prototype new propulsion concepts. Continue land-based testing of alternate fuels and reduced maintenance propulsion components.

EXHIBIT R-2, RDT&E Budget Item Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7**	R-1 ITEM NOMENCLATURE MK48 ADCAP/0205632N	

FY 2001 PLANS:

- (U) ($4.642) Torpedo Advanced Processor Build begin in order to address Software Block Upgrade IV OPEVAL results. Efforts include software coding, modeling and simulation of software releases (including development and validation of models) and engineering tests in water for evaluation of proposed maintenance release. Conduct validation of safety features for submarine crew safety.

- (U) ($0.100) Provide for COMOPTEVFOR trusted agent test support and data analysis.

- (U) ($10.764) Completed CBASS design development and fabrication of test vehicles. Continue development of advanced wideband algorithms, signal processing, and tactical software. Conduct Preliminary and Critical Design Reviews. Continue in-water testing to support algorithm development and initial software builds.

- (U) ($0.201) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

EXHIBIT R-2, RDT&E Budget Item Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7**	R-1 ITEM NOMENCLATURE MK48 ADCAP/0205632N	

FY 2002 PLANS:

- (U) ($5.571) Torpedo Advanced Processor Build efforts continue in order to address fleet identified performance priorities for MK48 ADCAP MODS. Efforts include software coding, modeling and simulation of software releases (including development and validation of models) and engineering tests in water for evaluation of proposed releases. Conduct validation of safety features for submarine crew safety.

- (U) ($0.351) Provide for COMOPTEVFOR trusted agent test analysis and model validation support.

- (U) ($11.208) Initiate fabrication and delivery of CBASS EDM hardware. Continue development of advanced wideband algorithms, signal processing, and tactical software. Continue integration of CBASS prototype hardware and software components and test equipment. Continue in-water testing to support algorithm development and initial software builds.

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7**	R-1 ITEM NOMENCLATURE MK48 ADCAP/0205632N

B. (U) Program Change Summary:

	FY 2000	FY 2001	FY 2002
(U) FY 2001 President's Budget:	20.314	15.853	17.227
(U) Appropriated Value:	20.314	15.853	
(U) Adjustments to FY2000/2001 Appropriated Value/ FY2001 President's Budget:	-0.914	-0.146	-0.048
(U) FY 2002 PRES Budget Submit:	19.400	15.707	17.130

Funding:
FY00: Net reduction of -$0.914M is due to -$0.626M USN directed undistributed general reductions, $.208M SBIR reduction, and a $0.080M Congressional directed undistributed reduction.
FY01: Net reduction of -$.146M is due to -$0.111M Congressional directed undistributed reduction and -$0.035M Government-Wide rescission.
FY02: Net reduction of -$0.048 is due to $0.068M USN directed undistributed general increases and -$0.116M Naval Working Capital Fund rate adjustment.

Schedule: The CBASS program in-water test program has been extended six months to coincide with EDM fabrication and software development. This results in a one year extension of developmental testing, technical and operational testing.

Technical: Due to unanticipated design complexities and results from trade study analysis, additional engineering tests are necessary to complete algorithm downselect and software development prior to commencement of in-water developmental testing with prototypes.

C. Other Program Funding Summary ($ in millions)

	FY 2000	FY 2001	FY 2002
MK48 ADCAP MODS (WPN/PE0204284N/BA-3/P-1 Item 322500)	44.966	43.523	42.386

D. (U) Acquisition Strategy: CBASS EMD contract was competitively awarded among qualified ADCAP producers.

Exhibit R-3 Cost Analysis (page 1)								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-7**			PROGRAM ELEMENT **MK48 ADCAP/0205632N**			PROJECT NAME AND NUMBER MK48 ADCAP/V0366						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			
Primary Hardware Development	WR	NUWC Newport, RI	CONT.	0.977	10/99	1.002	10/00	0.940	10/01			
Primary Hardware Development	C,CPFF	ARL/PSU State College, PA	CONT.	0.000		0.000		0.000				
Primary Hardware Development	C,CPFF	Northrop Grumman	7.101	6.357	11/99	6.310	10/00	4.089	10/01			
Ancillary Hardware Development												
Systems Engineering	WR	NUWC Newport, RI	CONT.	3.516	10/99	2.506	10/00	3.383	10/01			
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			CONT.	10.850		9.818		8.412				
Remarks: Total Cost and Target Value of Contract represents adjusted Latest Revised Estimate (currently under negotiation) following completion of design trade studies.												
Development Support Equipment												
Software Development	WR	NUWC Newport, RI	CONT.	2.319	10/99	1.865	10/00	3.407	10/01			
Software Development	C,CPFF	ARL/PSU State College, PA	CONT.	0.415	11/99	0.250	10/00	0.450	10/01			
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
GFE												
Subtotal Support			CONT.	2.734		2.115		3.857				
Remarks:												

Exhibit R-3 Cost Analysis (page 2)								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
RDT&E, N/BA-7			**MK48 ADCAP/0205632N**			MK48 ADCAP/V0366						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			
Test & Evaluation	WR	NUWC Newport, RI	CONT.	2.993	10/99	1.218	10/00	2.468	10/01			
Developmental	Various	Various	CONT.	0.608	11/99	0.296	10/00	0.351	10/01			
Modeling & Simulation	WR	NUWC Newport, RI	CONT.	1.542	10/99	1.449	10/00	1.132	10/01			
Modeling & Simulation	C,CPFF	ARL/PSU State College, PA	CONT.	0.499	11/99	0.519	10/00	0.505	10/01			
GFE												
Subtotal T&E			CONT.	5.642		3.482		4.455				
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support	Various	Various	CONT.	0.120	MISC.	0.272	MISC.	0.274	MISC.			
Travel				0.054		0.020		0.045				
Labor (Research Personnel)												
Overhead				0.000		0.000		0.086				
Subtotal Management			CONT.	0.174		0.292		0.405				
Remarks:												
Total Cost			CONT.	19.400		15.707		17.130				
Remarks:												

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification										DATE: **June 2001**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0205633N, AVIATION IMPROVEMENTS					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost		**48.959**	**50.475**	**41.423**							
W0601 Common Ground Equipment		**3.985**	**3.224**	**3.358**							
W0852 Consolidated Automated Support System (CASS)		**8.117**	**7.890**	**6.741**							
W1041 Aircraft Equip Reliability/Maintainability Improvement Program		**0.867**	**0.739**	**0.628**							
W1355 Aircraft Engine CIP		**35.990**	**38.622**	**30.696**							
Quantity of RDT&E Articles **Not Applicable**											

(U) A. 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 multiple aircraft. CASS is a standardized Automated Test Equipment (ATE) with computer assisted, multi-function 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 Component Improvement Program 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 , 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.

R-1 SHOPPING LIST - Item No. 192

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements					PROJECT NUMBER AND NAME W0601 Common Ground Equipment					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		**3.985**	**3.224**	**3.358**							
RDT&E Articles Qty											

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

This project introduces effective, efficient fleet support equipment through the application of new technology, thereby improving fleet supportability and aircraft readiness.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) ($. 271) Continued Advanced Boresight Equipment (ABE) development Low Rate Initial Procurement (LRIP) program.
- (U) ($. 261) Continued development of USAF Next Generation Munitions Handler (NGMH).
- (U) ($ .554) Completed Joint Service Electronic Combat Tester (JSECT).
- (U) ($ 2.899) Continued development of Joint Engine Test Initiative (JETI).

2. FY 2001 PLANS:

- (U) ($ .380) Continue ABE program.
- (U) ($. 490) Continue NGMH program.
- (U) ($ 1.484) Complete JETI program.
- (U) ($. 300) Continue new Aircraft Axle Jack program.
- (U) ($ .1 70) Initiate Aviator Breathing Oxygen (ABO) program.

R-1 SHOPPING LIST - Item No. 192

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME **0205633N Aviation Improvements**	PROJECT NUMBER AND NAME W0601 Common Ground Equipment

1. FY 2001 PLANS (CONT):

- (U) ($ .200) Initiate Composite Material Inspection program.

- (U) ($. 200) Intitate Non-Destructive Inspection (NDI) Ultrasonics program.

3. FY 2002 PLANS:

- (U) ($ .980) Initiate Fuel Cell Application program.

- (U) ($ .270) Continue ABE program.

- (U) ($.950) Continue NGMH program.

- (U) ($.915) Initiate Shaft Engine Test Instrumentation program.

- (U) ($ .100) Initiate Electronic Warfare (EW) Threat Simulator Study.

- (U) ($ .143) Initiate Thermal Image Non-Destructive Inspection (NDI) study.

R-1 SHOPPING LIST - Item No. 192

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W0601 Common Ground Equipment

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	4.088	3.259	3.410
(U) Adjustments from the President's Budget:	-0.103	-0.035	-0.052
(U) FY 2002 President's Budget Submit	3.985	3.224	3.358

CHANGE SUMMARY EXPLANATION

(U) Funding:

The FY 2000 net decrease of $.103 million reflects decrease of $.016 for a Congressional Recission, a decrease of $.005 million for Small Business Innovative Research assessment, and a decrease of $.082 million for reprioritization of requirements within the Navy. The FY 2001 net decrease of $.035 million reflects a decrease of $.005 million,for reprioritization of requirements within the Navy,a decrease of $.023 million for a Congressional Reduction,and a decrease of $.007 for a Congressional Recission. The FY 2002 net decrease of $.052 million reflec decrease of $.039 million for economic assumptions and decrease of $.013 for reporitization of requirements within the Navy.

(U) Schedule: FY 2000 Joint Engine Test Initiative was erroneously stated as (9/00MSIII) under Contract Milestones, which should have been (9/00MSII) under Program Milestones.

(U) Technical: Not Applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
APN 070500 Ground Support Eq	140.531	102.144	146.705							

Related RDT&E: Not Applicable

R-1 SHOPPING LIST - Item No. 192

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W0601 Common Ground Equipment

(U) D. ACQUISITION STRATEGY: * This is a non-ACAT program. Field activities propose tentative RDT&E projects. Internal panel merits and selects projects. Field activities develop projects and submit results. Operational Advisory Group (OAG) process selects projects to transition to procurement (APN-7).

(U) E. SCHEDULE PROFILE:

	FY 2000	FY 2001	FY 2002
(U) Program Milestones			
Advanced Boresight Equipment			12/01 (MSIII)
Next Generation Munitions Handler			
Joint Engine Test Initiative	9/00 (MSII)		12/01 (MSIII)
(U) Engineering Milestones			
(U) T&E Milestones			
Joint Engine Test Initiative		4/01 (DT)	
Shaft Engine Test Instrumentation			
(U) Contract Milestones			
Joint Engine Test Initiative	2/00 (Pre-Production Contract Award)		12/01 (Contract Award)

R-1 SHOPPING LIST - Item N192

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0205633N Aviation Improvements			PROJECT NUMBER AND NAME W0601 Common Ground Equipment							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Hardware Development	Various	Various	11.955	0.050	10/00	0.800	01/02					
Subtotal Product Development			11.955	0.050		0.800						
Remarks:												
Miscellaneous Support	Various	Various		2.324	01/01	2.258	01/02					
Subtotal Support			0.000	2.324		2.258						
Remarks:												

R-1 SHOPPING LIST - Item No. 192

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)											DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0205633N Aviation Improvements			PROJECT NUMBER AND NAME W0601 Common Ground Equipment							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Miscellaneous Test & Evaluation	Various	Various		0.850	01/01	0.300	01/02					
Subtotal T&E			0.000	0.850		0.300						
Remarks:												
Subtotal Management			0.000	0.000		0.000						
Remarks:												
Total Cost			11.955	3.224		3.358						
Remarks:												

R-1 SHOPPING LIST - Item No. 192

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements					PROJECT NUMBER AND NAME W0852 Consolidated Automated Support System					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		**8.117**	**7.890**	**6.741**							
RDT&E Articles Qty											

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

The Consolidated Automated Support System (CASS) project designs, and develops modular 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 standarization; (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.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) ($ .337) Continued development of DOD Automated Test System (ATS) standard interfaces and architectures.

- (U) ($. 177) Continued development of A Board Base Environmental, for Test (ABBET) standards instrument control software.

- (U) ($. 366) Continued CASS station upgrades to include tunable lasers.

- (U) ($ 6.919) Continued development of instrument control upgrades and virtual instruments (RTCASS).

- (U) ($ .318) Continued development of advanced digital/video process.

2. FY 2001 PLANS:

- (U) ($ 7.000) Continue development of instrument control upgrades and virtual instruments (RTCASS).

- (U) ($ .661) Continue CASS station upgrades.

-(U) ($.229) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.

R-1 SHOPPING LIST - Item No. 192

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W0852 Consolidated Automated Support System

3. FY 2002 PLANS:

- (U) ($ 5.617) Initiate development of a Synthetic Instrument Package.

- (U) ($ 1.124) Continue CASS station upgrades.

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	8.523	7.974	8.614
(U) Adjustments from the President's Budget:	-0.406	-0.084	-1.873
(U) FY 2002 President's Budget Submit:	8.117	7.890	6.741

CHANGE SUMMARY EXPLANATION

(U) Funding:

The FY 2000 net decrease of $.406 million reflects a decrease of $.293 million for reprioritization of requirements within the Navy, a decrease of $.80 million for a Small Business Innovative Research (SBIR) assessment, and a decrease of $.033 million for a Congressional Recission.

The FY 2001 net decrease of $.084 million reflects a decrease of $.011 million for reprioritization of requirements within the Navy, a decrease of $.017 million for a Congressional Recission, and decrease of $.056 million for a Congressional Reduction.

The FY 2002 net decrease of $1.873 million reflects a decrease of $1.841 million for reprioritization of requirements within the Navy and a decrease of $.032 for economic assumptions.

(U) Schedule: Not Applicable

(U) Technical: Not Applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
APN 070500 CASS	94.634	120.567	106.832							

Related RDT&E: Not Applicable

R-1 SHOPPING LIST - Item No. 192

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-7	0205633N Aviation Improvements	W0852 Consolidated Automated Support System	

(U) D. ACQUISITION STRATEGY: The stragtegy for Parts Obsolescence is a combined effort with the contractor, any changes to present strategy will add additional risks to achieving a continuous production schedule, and will cause technical uncertainty. For new technologies we will have competitive studies to ascertain the market technology; which, will result in maximum information for minimum expenditure.

(U) E. SCHEDULE PROFILE:

	FY 2000	FY 2001	FY 2002	TO COMPLETE
(U) Program Milestones				
(U) Engineering Milestones				
(U) T&E Milestones				
(U) Contract Milestones				
RTCASS	11/99 (Contract Award)	4/01 (Contract Award)		
Synthetic Instrument Package			3/02 (Contract Award)	

R-1 SHOPPING LIST - Item No. 188

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0205633N Aviation Improvements			PROJECT NUMBER AND NAME W0852 Consolidated Automated Support System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Hardware Development	C/FFP	LMC	12.900	7.000	03/01							19.900
Hardware Development	Various	Various		0.661		1.124	01/02					
Hardware Development	C/FFP	TBD				5.617	03/02					9.450
Subtotal Product Development			12.900	7.661		6.741						
Remarks:												
SBIR Assessment				0.229								
Subtotal Support			0.000	0.229		0.000						
Remarks:												

R-1 SHOPPING LIST - Item No. 192

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0205633N Aviation Improvements			PROJECT NUMBER AND NAME W0852 Consolidated Automated Support System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E			0.000	0.000		0.000						
Remarks:												
SBIR Assessment												
Subtotal Management			0.000	0.000		0.000						
Remarks:												
Total Cost			12.900	7.890		6.741						
Remarks:												

R-1 SHOPPING LIST - Item No. 192

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements					PROJECT NUMBER AND NAME W1041 Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP)					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		**0.867**	**0.739**	**0.628**							
RDT&E Articles Qty											

(U) A. 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 improvements to existing systems and equipment installed in Naval aircraft. It also provides a transition vehicle to deploy Total Ownership Cost (TOC) reduction initiatives through flight-test support and Fleet Test & Evaluation. It meets affordable readiness objectives by providing a cost-effective solution to obsolescence problems encountered when service lives are extended. AERMIP promotes commonality and standardization across aircraft platform lines and among the services through extension of application and use of non-developmental items. AERMIP also decreases life c costs through reduced operational and support 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.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) ($.867) Completed multi-platform application of SKYFLEX with approval for use on all platforms. Completed Airborne Air Removal Device (EA-6B application) and Multi-Place Life Raft Improvement Program. Continued with the extension of application of the Replacement Attitude Heading Reference System (RAHRS). Investigated high value pay back return on investment candidates.

2. FY 2001 PLANS:

- ($.737) Continue Total Ownership Cost (TOC) reduction corrosion initiatives. Continue with extension of RAHRS application. Investigate high value return on investment candidates and transition of TOC reduction initiatives. Complete RAHRS.

- ($.002) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.

3. FY 2002 PLANS:

- ($.628) Complete the Corrosion Preventative Compound initiative by developing a best practices plan to be implemented by all Naval Aircraft. Initiate the Common Instrument Program. Investigate high value pay back return on investment candidates and transition of TOC reduction initiatives.

R-1 SHOPPING LIST - Item No. 192

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W1041 Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP)

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	0.894	0.747	0.641
(U) Adjustments from the President's Budget:	-0.027	-0.008	-0.013
(U) FY 2002 President's Budget Submit:	0.867	0.739	0.628

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net decrease of $.027 million consists of $.005 million decrease for Small Business Innovative Research assessment, a $.004 million decrease for a Congressional recission and a $.018 million decrease for reprioritization of requirements within the Navy. The FY 2001 net decrease of $.008 million consists of $.001 million decrease for reprioritization of requirements within the Navy, a $.005 decrease for a Congressional reduction, and a $.002 million decrease for a Congressional recission. The FY 2002 net decrease of $.013 million consists of a $.003 million decrease for a reprioritization of requirements within the Navy and a $.010 million decrease for economic assumptions.

(U) Schedule: Not Applicable

(U) Technical: Not Applicable

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

(U) D. ACQUISITION STRATEGY: This is a non-ACAT program with no specific acquisition strategies.

(U) E. SCHEDULE PROFILE: Not Applicable

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification										DATE: June 2001	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements					PROJECT NUMBER AND NAME W1355 Aircraft Engine Component Improvement Program					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		**35.990**	**38.622**	**30.696**							
RDT&E Articles Qty											

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

The Aircraft Engine Component Improvement Program (CIP) provides the only source of critical design and development engineering support to resolve safety, reliability and maintainability deficiencies of in-service Navy aircraft propulsion systems. The highest priority issues CIP addresses concern safety-of-flight deficiencies which account for approximately 80% of CIP efforts. The program also corrects service-revealed deficiencies, improves Operational Readiness (OR) and Reliability and Maintainability (R&M), and reduces platform Life Cycle Cost (LCC). Budgets are allocated across platform-specific teams and multi-platform product support teams based upon long term strategies to achieve safety and affordable readiness goals; the R-3 exhibit details annual portions of those long-term plans. CIP tasks have reduced the rate of in-flight aborts, safety incidents, non-mission capable rates, scheduled and unscheduled engine removals, maintenance work hours, and overall cost of ownership. This is accomplished through the maintenance and validation of specification performance, testing to qualify engineering changes, verifying life limits, and improving the inherent reliability of the propulsion system as an integral part of Reliability Centered Maintenance (RCM) initiatives. Historically, the missions, tactics, and environmental exposure of military aircraft systems change 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 those experienced during DESERT SHIELD/DESERT STORM operations due to sand erosion. In addition, new problems arise through actual use during deployment of the aircraft. 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, particularly when aircraft missions vary from those the aircraft was designed to perform. Therefore, it has been found that CIP can provide an immediate engineering response to these flight-critical problems and accelerated engine testing can avoid potential problems. CIP starts after development and Navy acceptance of the first production article and addresses usage and life problems not covered by warranties. CIP addresses engines, transmissions, propellers, starters, auxiliary power units, electrical generating systems, and fuel and lubricant systems. CIP efforts continue over the system's life, gradually decreasing to a minimum level sufficient to maintain the reliability, and decrease the operating costs, of older inventory. CIP is a highly leveraged and cooperative tri-service program with Foreign Military Sales participation.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

(U) ($32.005) Platform-specific efforts:

T56 engine (P-3, E-2, C-2, C-130) Maintained safety margins by investigating turbine coatings and developing new designs, continued propeller integration efforts with potential propeller designs, performed engine hot section corrosion and fatigue analysis, and continued bearing improvements.

E-2/C-2/C-130 Continued propeller safety improvement program, initiated pump housing improvement, performed Hub Internal Supply System development, eliminated starter failures, continued generator improvement program to triple durability.

S-3 Established and implemented an engineering plan to improve TF34 reliability, performed analysis to obtain better performance from existing hardware, redesigned low reliability parts, conducted control system reliability and maintainability analysis, validated and implemented recommended part life changes.

F/A-18C/D Identified obsolescence problems, continued efforts on aft cooling plate, low pressure turbine nozzle and fan stage 3 shroud redesigns. Continued life management issues including the fleet leader program, engine analysis studies, and improved analytical models, analyzed engine performance data and updated mission analysis.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements	PROJECT NUMBER AND NAME W1355 Aircraft Engine Component Improvement Program

1. FY 2000 ACCOMPLISHMENTS (CONT):

Mature Aircraft Addressed the top readiness degraders and Aviation Depot Logistic Repair (AVDLR) costs; implemented efforts on the J52 engine (EA-6B) ASMET test, corrected deficiencies in #3 hub, continued to study and implement solutions to aging aircraft and future obsolescence problems.

H-2/H-60 Implemented I-level screening techniques for the Digital Electronic Control Unit (DECU) and Hydro-Mechanical units, continued the Advanced Helicopter Transmission Lubricant Program, extended transmission component lives, increased readiness by reducing corrosion, continued Mission Profile Data Collection and Dynamic Component Life Limit efforts.

AV-8B Addressed top readiness degraders and AVDLR costs; safety of flight issues, engine removal drivers, and mission failure drivers, assessed life management program issues for engine components.

H-53/H-46/H-3 Continued efforts on the top cause for engine removals; completed transition of program to reliability-centered maintenance; implemented goals at depot level to improve compressor performance and engine power, resolved oil consumption and leakage problems, and improved on wing times.

H-1 Addressed top safety concerns as ranked by the Operational Advisory Group (OAG) and System Safety Working Group, updated Navy maintenance manuals, continued to improve time-between-overhaul and reduced impact of high-time parts, continued improvements on tail rotor drive system.

T-45 Completed four year engine surge recovery program, addressed platform safety, increased predicted part life confidence, provided mission profile updates and life cycle management.

F-14A Performed minimal level of sustaining engineering to address safety-of-flight issues.

F-14B/D Addressed extension of component life and the reduction of maintenance hours, improved propulsion system safety through an active life management program for critical rotating components, reduced the engine Non-recoverable In-Flight Shutdown Rate by 75%, reduced the propulsion system related mission abort rate by 50%.

F/A-18E/F and V-22 Closed out ongoing efforts.

(U) ($3.985) Multi-Platform Product Support Teams Continued projects designed to provide common support to multiple platforms in the areas of improved drive systems, secondary power and mechanical systems; improved tools for performance analysis, modeling and simulation, diagnostics, engine reliability assessment, and structural integrity; improved products and processes for fuels, lubricants, and refueling equipment; improved blade and vane repair processes and life cycle support; and improved electrical system product support and battery systems.

2. FY 2001 PLAN:

(**U) ($33.626) Platform-specific efforts:**

T56 engine (P-3, E-2, C-2, C-130) Begin and implement the Engine Monitory System version 7.0 upgrade. Maintain safety margins by investigating turbine coatings and develop new designs, continue propeller integration efforts with potential propeller designs, perform engine hot section corrosion and fatigue analysis, and continue bearing improvements.

E-2/C-2/C-130 Begin incorporation of improved blade heaters. Begin development of improved propeller control system.

S-3 Complete new fan blade design. Complete safety related fan High Pressure Compressor (HPC) life limit analysis. Complete Main Fuel Control (MFC) durability investigation. Perform analyses on commercial hardware incorporation analyses. Continue validation and implementation on recommended part life changes.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements	PROJECT NUMBER AND NAME W1355 Aircraft Engine Component Improvement Program

2. FY 2001 PLAN (CONT):

F/A-18C/D Identify obsolescence problems, continue efforts on bushing, aft cooling plate, low pressure turbine nozzle and bolted dome combustor redesign efforts. Continue life management issues including the fleet leader program, engine analysis studies, and improved analytical models, analyze engine performance data and update mission analysis.

Mature Aircraft Address the top readiness degraders and AVDLR costs; implement efforts on the J52 engine (EA-6B) ASMET test, perform annual maintenance awareness brief and annual P-408A major engine inspection program. Continue to study and implement solutions to aging aircraft issues and future obsolescence problems. Begin redesign of diffuser case for increased life.

H-2/H-60 Complete integrating of the improved Digital Electronic Control Unit (DECU) to the H-60 fleet. Complete implementation of I-level screening techniques for the DECU and Hydro-Mechanical units, continue the Advanced Helicopter Transmission Lubricant Program, extend transmission component lives, increase readiness by reducing corrosion, continue Mission Profile Data Collection and Dynamic Component Life Limit efforts. Continue time on wing and Mean Time Between Removals (MTBR) cost drivers initiatives including compressor durability, Titanium Nitrates (TiN) coating and three-stage turbine.

AV-8B Complete design efforts associated with the exhaust duct cracking, and failure of the Low Pressure Compressor (LPC) and HPT blade cracking and shaft sulfidation. Complete Shell Deer Park fuel burner rig testing to eliminate all risk associated with fuel incompatibility in the F402 engines. Address top readiness degraders and AVDLR costs; safety of flight issues, engine removal drivers, and mission failure drivers, assess life management program issues for engine components.

H-53/H-46/H-3 Start Bleed Valve redesign. Continue efforts on the top cause for engine removals; complete transition of program to reliability-centered maintenance; implement goals at depot level to improve compressor performance and engine power, resolve oil consumption and leakage problems, and improve on wing times.

H-1 Address top safety concerns as ranked by the OAG and System Safety Working Group, continue to update Navy maintenance manuals, continue to improve time-between-overhaul and reduce impact of high-time parts. Continue improvement program to the Bleed Valve, T5 Harness, Gas Generator Case Diffuser Inlet, and Compressor Stub Shaft. Initiate development of environmentally friendly repairs such as High Velocity OXY fuel coatings to replace chrome and nickel plate repairs.

T-45 Continue investigation of engine vibration problems to resolve safety issue. Address platform safety, increase predicted part life confidence, provide mission profile updates and life cycle management. Continue Critical Parts Life management to ensure no overfly of parts, continue life management to double most expensive parts life, and address obsolescence issues.

F-14B/D Complete final life limit updates for F110-GE-400 engine. Complete High Pressure Compressor Spool life improve redesign. Address extension of component life and the reduction of maintenance hours. Continue improvements to propulsion system safety through an active life management program for critical rotating components, reduce the engine Non-recoverable In-Flight Shutdown Rate by 75% by 2003, reduce the propulsion system related mission abort rate by 50% by 2003.

F/A 18-E/F and V-22 These platforms are unfunded in FY 2002 due to budget shortfalls.

(U) ($4.210) Multi-Platform Product Support Teams Continue projects designed to provide common support to multiple platforms in the areas of improved drive systems, secondary power and mechanical systems; improved tools for performance analysis, modeling and simulation, diagnostics, engine reliability assessment, and structural integrity; improved products and processes for fuels, lubricants, and refueling equipment; improved blade and vane repair processes and life cycle support; and improved electrical system product support and battery systems.

(U) ($.786) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.

R-1 SHOPPING LIST - Item No. 192

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements	PROJECT NUMBER AND NAME W1355 Aircraft Engine Component Improvement Program

3. FY 2002 PLANS:

(U) (**$25.797**) **Platform-specific efforts:**

T56 engine (P-3, E-2, C-2, C-130) Continue the implementation of the Engine Monitory System version 7.0 upgrade. Maintain safety margins by investigating turbine coatings and develop new designs, continue propeller integration efforts with potential propeller designs, perform engine hot section corrosion and fatigue analysis, and continue bearing improvements.

E-2/C-2/C-130 Continue incorporation of improved blade heaters. Continue development of improved propeller control system.

S-3 Initiate High Pressure Compressor (HPC) life limit implementation. Continue validation and implementation of High Pressure Turbine (HPT), Low Pressure Turbine (LPT), and Fan critical part life limit changes. Initiate the development of Combustion Chamber Frame (CCF) and HPT physics based thermal models. Complete the development of LPT physics based thermal models. Collect engine parameter flight data required to perform updated engine mission analysis. Initiate the development of improved Eddy Current (EC) inspection techniques for small holes and specific features. Analyze and correlate HPC EC inspection requirements to critical part Fracture Mechanics (FM) capabilities. Investigate propulsion and power system obsolescence. Conduct engine component and propulsion and power electrical system reliability/maintainability analysis. Conduct commercial critical part hardware commonality analysis.

Mature Aircraft Address the top readiness degraders and AVDLR costs; implement efforts on the J52 engine (EA-6B) ASMET test, perform annual maintenance awareness brief and annual P-408A major engine inspection program. Continue to study and implement solutions to aging aircraft issues and future obsolescence problems. Continue redesign of diffuser case for increased life.

H-2/H-60 Continue the Advanced Helicopter Transmission Lubricant Program, extend transmission component lives, increase readiness by reducing corrosion, continue Mission Profile Data Collection and Dynamic Component Life Limit efforts. Continue time on wing and Mean Time Between Removals (MTBR) cost drivers initiatives including compressor durability, Titanium Nitrates (TiN) coating and three-stage turbine.

AV-8B Address top readiness degraders and AVDLR costs; safety of flight issues, engine removal and mission failure drivers, assess life management program issues for engine components. Projects will include but not be limited to: ASMET testing, support of a Fleet Leader Program, Analytical Condition Insepction (ACI), Engine Life Management Program (ELMP) execution and design fixes for any service revealed deficiencies.

H-53/H-46/H-3 Complete bleed valve redesign. Continue efforts on the top cause for engine removals; improve on wing times; address top safety concerns as ranked by the Operational Advisory Group (OAG); continue reliability-centered maintenance program; improve compressor blade retention design; and initiate development of corrosion resistant bearing designs.

H-1 Address top safety concerns as ranked by the OAG and System Safety Working Group, continue to update Navy maintenance manuals, continue to improve time-between-overhaul and reduce impact of high-time parts (T700 and T400); address Blisk, Rear Shaft, Spacer & Tierod Life Update (T700), Continue development of environmentally friendly repairs such as High Velocity OXY fuel coatings to replace chrome and nickel plate repairs; and initiate development of Durability Project (T700-401/-401C), N5 Blades w/ tip cap & Nozzles, T700 TiN Coating (Test Articles, Corrosion/Erosion/Full Sand Engine Testing), T700 Diagnostics Life Mgt Performance Evaluation (IMD), T700 Diagnostics (Performance Evaluation), Durability Project (T700-401/-401C), T700 TiN Coating (Pending Pass/Fail... Incorp TiN), EPAMs Mission Update to 4BN, T700 Diagnostics (Performance Evaluation), T400 Improved Compressor Turbine Stub Shaft, T400 Improved Gas Generator Case Diffuser Inlet, T400 Improved Compressor Coating, T400Life Management, Study T400 Parts Obsolescence.

F-14B/D Address obsolescence of electrical components. Complete high pressure turbine redesign efforts. Address extension of component life and the reduction of maintenance hours. Continue improvements to propulsion system safety through an active life management program for critical rotating components. Continue efforts to reduce the engine non-recoverable in-flight shutdown Rate and propulsion system related mission abort rate.

F/A-18 C/D This program is unfunded in FY 2002 due to budget shortfalls.

F/A-18 E/F and V-22 These programs are unfunded in FY 2002 due to budget shortfalls.

T-45 This program is unfunded in FY 2002 due to budget shortfalls.

(**U) ($4.899) Multi-Platform Product Support Teams** Continue projects designed to provide common support to multiple platforms in the areas of improved drive systems, secondary power and mechanical systems; improved tools for performance analysis, modeling and simulation, diagnostics, engine reliability assessment, and structural integrity; improved products and processes for fuels, lubricants, and refueling equipment; improved blade and vane repair processes and life cycle support; and improved electrical system product support and battery systems.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W1355 Aircraft Engine Component Improvement Program

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	39.495	39.038	38.827
(U) Adjustments from the President's Budget:	-3.505	-0.416	-8.131
(U) FY 2002 President's Budget Submit:	35.990	38.622	30.696

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net decrease of $3.505 million reflects a decrease of $.593 million for Small Business Innovative Research assessment, a decrease of $2.757 million for reprioritization of requirements within the Navy, and a decrease of $.155 million for a Congressional Recission.
The FY 2001 net decrease of $.416 million reflects a decrease of $.058 million is for reprioritization of requirements within the Navy, a decrease of $.273 million for a Congressional Reduction, and a decrease of $.085 million for a Congressional recission.
The FY 2002 net decrease of $8.131 million reflects a decrease of $7.930 million for reprioritization of requirements within the Navy, and a decrease of $.201 million for economic assumptions.

(U) Schedule: Not applicable

(U) Technical: The FY 2002 reduction will require vertical cuts to the CIP program specifically safety-related efforts in support of the F/A 18 C/D, F/A 18 E/F, V-22 and the T-45 aircraft. The remaining CIP funds will be utilized to support safety-related efforts for out-of-production legacy aircraft.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

PE 0203752A (Aircraft Engine CIP Army)
PE 0207268F (Aircraft Engine CIP Air Force)
PE 0602236N (Turbine Engine Improvement, TOC, FNC)
PE 0603236N (Turbine Engine Improvement, TOC, FNC)
PE 0602114N (UAV Propulsion Autonomous Operations FNC)
PE 0603114N (UAV Propulsion Autonomous Operations FNC)

(U) D. ACQUISITION STRATEGY: Not Applicable

(U) E. Schedule Pofile : Not Applicable

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)						DATE: **June 2001**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0205633N Aviation Improvements			PROJECT NUMBER AND NAME W1355 Aircraft Engine Component Improvement Program						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
F110 Engine Program*	SS/CPAF	GE - OHIO	12.786	1.890	12/00	2.100	12/01					16.776
F402 Engine Program	SS/CPFF	ROLLS ROYCE- UK	19.195	2.487	12/00	3.320	12/01					25.002
F404/T58/T64 Engine Programs	SS/CPFF	GE - MASS	20.873	7.813	04/00	1.672	10/01					30.358
J52 Engine Program	SS/CPFF	P&W - FLORIDA	6.406	2.500	12/00	2.600	12/01					11.506
T56 Engine Program	SS/CPFF	INDIANA	3.575	1.700	02/01	2.005	02/02					7.280
F405 Engine Program	SS/CPAF	ROLLS ROYCE- UK	4.544	1.940	12/00							6.484
F/A 18 E/F Engine Program	SS/CPFF	GE- MASS	0.664									0.664
T700 Engine Program	SS/CPFF	GE - MASS	3.092	1.050	11/01	1.255	01/02					5.397
TF34 Engine Program	SS/CPFF	GE - MASS	3.840	0.600	11/00	0.775	11/01					5.215
V22 Engine Program	SS/CPFF	GE- MASS	1.000									0.000
Props Program	SS/CPFF	HAM SUNSTRAND - CONN	3.395	1.000	12/00	1.155	12/01					5.550
Contracts under 1.0M aggregate	VARIOUS	VARIOUS	10.659	1.107	10/00	1.200	10/01					
Lab Field Activity (1.0M or more)	WX	NAWCAD-PAX	86.306	13.189	10/00	12.064	10/01					
Other in-house support (1.0M or less)	VARIOUS	VARIOUS	13.740	0.750	10/00	0.840	10/01					
GFP Fuel Increment	MIPR	KAFB - TEXAS	3.695	0.300	10/00	0.360	10/01					
Award Fees**				0.610		0.450						
Subtotal Product Development			193.770	36.936		29.796						

Remarks:

* F110 (F14 B/D) AF contract has a ten year period of performance.

**Award fees for F110 (.210), F402 (.240) and F405 (.160, FY 01 only).

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)											DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0205633N Aviation Improvmeents			PROJECT NUMBER AND NAME W1355 Aircraft Engine Component Improvement Program							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Other in-house less than 1.0M	VARIOUS	VARIOUS	3.146	0.650	10/00	0.650	10/01					
SBIR assessment				0.786								
Subtotal Support			3.146	1.436		0.650						
Remarks:												
Other in-house less than 1.0M	VARIOUS	VARIOUS	2.394	0.150	10/00	0.150	10/01					
Subtotal T&E			2.394	0.150		0.150						
Remarks:												
Other in house less than 1.0M	VARIOUS	VARIOUS	0.397	0.100	10/00	0.100	10/01					
Subtotal Management			0.397	0.100		0.100						
Remarks:												
Total Cost			196.561	38.622		30.696						
Remarks:												

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205658N
PROGRAM ELEMENT TITLE: Naval Fleet/Force Technology Innovation

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

PROJECT NUMBER & TITLE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R0834 Laboratory Fleet Support	6,542*	4,732*	4,945						CONT.	CONT.

* Funding was executed in PE 0603238N.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The purpose of Naval Fleet/Force Technology Innovation (NFFTI) is to ensure the Fleet/Force (F/F) helps shape the DoN investment in S&T, develop teaming relationships to rapidly demonstrate and transition technology, support development of technology-based capability options for naval forces, and enable warfighting innovations based on technical and conceptual possibilities. This is accomplished through proactive connectivity and collaboration between DoN S&T and Joint, Navy, and Marine Corps commands worldwide.
The program accomplishes this through several methods. It provides on-the-spot Naval Research Science Advisors (NRSAs) to Joint, Navy, and Marine Corps operational and strategic planning commands worldwide. In addition, NFFTI facilitates and disseminates command capability issues (CCIs) provided by the Fleet/Force Commanders to the Director of Navy Test and Evaluation and Technology Requirements (OPNAV N091). NFFTI also collaborates with the Fleet/Force to identify specific solutions to known operational capability needs and provides the means to develop and demonstrate prototype systems. The result is that NFFTI provides insight into issues associated with Naval Warfighting Capabilities, thereby influencing long term S&T programs. The program also develops a cadre of civilian scientists and engineers who, upon completion of their NFFTI NRSA tours, return to the Naval technical community with first hand knowledge of the Fleet/Force and warfighting issues. NFFTI enables a continuous collaboration between the warfighters, the technical community, and strategic development commands.

FY 2002 RDT&E,N PE/PROJECT COST BREAKDOWN DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205658N PROJECT NUMBER: R0834
PROGRAM ELEMENT TITLE: Naval Fleet/Force Technology Innovation PROJECT TITLE: Laboratory Fleet Support

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it leverages long-term S&T investments to meet operational capability needs, and it collaborates with the Fleet/Force to identify specific solutions to known operational capability needs and provides the means to develop and demonstrate prototype systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS

1. (U) FY 2000 ACCOMPLISHMENTS:

- (U) (6,542) NFFTI facilitated and disseminated the CCIs that were provided by the Fleet/Force Commanders to OPNAV N091. It managed the Office of Naval Research's Technologies for Rapid Response (Blue Book), a compendium of mature technologies, not yet in the acquisition portfolio, for Fleet/Force Commander early evaluation and concurrent development of new tactics and operational concepts. It also leveraged a 17 man-year investment to provide 22 NRSAs to Joint, Navy, and Marine Corps operational and strategic planning Commands worldwide. These 22 NRSAs have gained experience working with high level decision-makers and operators to develop technologies for transition to the Fleet/Force. In addition, NFFTI has collaborated with the Fleet/Force to identify specific solutions to known operational capability needs and provided the means to develop and demonstrate prototype systems. The program has helped move S&T to the operational Fleet/Force rapidly, leveraged long-term S&T investments to meet operational Fleet/Force capability needs, and provided a method for the RDT&E community to surge in response to real world crises. Several of the technology insertions that were initiated in prior years were transitioned this year to operational use and acquisition programs.

FY 2002 RDT&E,N PE/PROJECT COST BREAKDOWN DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205658N PROJECT NUMBER: R0834
PROGRAM ELEMENT TITLE: Naval Fleet/Force Technology Innovation PROJECT TITLE: Laboratory Fleet Support

2. (U) FY 2001 PLAN:

- (U) (4,732) Facilitate and disseminate the CCIs provided by the Fleet/Force Commanders to OPNAV N091. Leverage the investment to provide on the spot NRSAs to Joint, Navy, and Marine Corps operational and strategic planning Commands worldwide. Assist these NRSAs to obtain experience working with high-level decision-makers and operators to develop technologies for transition to the Fleet/Force. Collaborate with the Fleet/Force to identify specific solutions to known operational capability needs and provide the means to develop and demonstrate prototype systems. Help move S&T to the operational Fleet/Force rapidly, leverage long-term S&T investments to meet operational Fleet/Force capability needs, and provide a method for the RDT&E community to surge in response to real world crises. Transition the technology insertions that were initiated in prior years to operational use and acquisition programs.

3. (U) FY 2002 PLAN:

- (U) (4,945) Facilitate and disseminate the CCIs provided by the Fleet/Force Commanders to OPNAV N091. Leverage the investment to provide on the spot NRSAs to Joint, Navy, and Marine Corps operational and strategic planning Commands worldwide. Assist these NRSAs to obtain experience working with high-level decision-makers and operators to develop technologies for transition to the Fleet/Force. Collaborate with the Fleet/Force to identify specific solutions to known operational capability needs and provide the means to develop and demonstrate prototype systems. Help move S&T to the operational Fleet/Force rapidly, leverage long-term S&T investments to meet operational Fleet/Force capability needs, and provide a method for the RDT&E community to surge in response to real world crises. Transition the technology insertions that were initiated in prior years to operational use and acquisition programs.

FY 2002 RDT&E,N PE/PROJECT COST BREAKDOWN DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205658N PROJECT NUMBER: R0834
PROGRAM ELEMENT TITLE: Naval Fleet/Force Technology Innovation PROJECT TITLE: Laboratory Fleet Support

B. (U) PROGRAM CHANGE FOR TOTAL P.E.:

	FY 2000	FY 2001	FY 2002
(U) FY 2001 President's Budget:	4,688	4,775	4,943
- Appropriated Value:			
- Program Adjustment			- 6
- SBIR	- 4		
- Actual Execution Adjustment	1,876		
- Revised Economic Assumption	- 18	- 43	
- PBD 604 Non-Pay Inflation			8
FY 2002 President's Budget Submission:	6,542	4,732	4,945

C. (U) OTHER PROGRAM FUNDING SUMMARY:

(U) RELATED RDT&E: PE 0602236N Warfighter Sustainment Applied Research

D. (U) SCHEDULE PROFILE: Not applicable.

FY 2002 RDT&E,N PE/PROJECT COST BREAKDOWN DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205658N PROJECT NUMBER: R0834
PROGRAM ELEMENT TITLE: Naval Fleet/Force Technology PROJECT TITLE: Laboratory Fleet Support
Innovation

Exhibit R-3 Cost Analysis (page 1)												Date: July 2000
APPROPRIATION/BUDGET ACTIVITY RDT&E,N 7			PROGRAM ELEMENT 0205658N									PROJECT NAME AND NUMBER Laboratory Fleet Support R0834
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY-01 Cost	FY-01 Award Date	FY-02 Cost	FY-02 Award Date	FY-03 Cost	FY-03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Product Development*	Various	Various	6,542*	4,732*	TBD	4,945	TBD		TBD	Cont.	Cont.	Cont.
Subtotal Product Development			6,542	4,732		4,945				Cont.	Cont.	Cont.
Remarks: *Funding was executed in PE 0603238N												
Remarks:												
Total Cost			6,542	4,732		4,945				Cont.	Cont.	Cont.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification										DATE: **June 2001**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-07**						R-1 ITEM NOMENCLATURE 0205667N F-14 Upgrade					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	**1,823.011**	**1.354**	**11.122**								**1,835.487**
E1408 F-14 Upgrade	**1,823.011**	**1.354**	***11.122**								**1,835.487**
Quantity of RDT&E Articles **Not Applicable**											

* The FY2001 budget reflects a $9,000K Congressional add for Synthetic Aperture Radar Reconnaisance system demonstration executed under E2984 which has been decreased by $.301 million for Congressional undistributed reductions, and a $1.000 million Congressional add for Radar Warning Receiver Antenna Replacement and system enhancement executed under E2985 which has been decreased by $.033 for Congressional undistributed reductions.

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 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-14 weapons integration supports integration of EW improvements and correction of OPEVAL deficiencies. Funding is also provided for various software upgrades such as Global Positioning System, and accommodates the realignment of Aviation Depot Level Repairables (AVDLR) from Major Range and Test Facility Bases to direct project funding. FY2001 includes a Congressional plus up of $9 million for Synthetic Aperture Radar (SAR) Pod. These funds will be used to demonstrate a podded SAR system on the F-14. Additionally, a $1 million Congressional plus up is included for Radar Warning Receiver (RWR) Antenna Replacement and System Enhancement. These funds will be used to fund the research, development and test costs associated with procuring new RWR antennas system upgrade.

(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.

R-1 SHOPPING LIST - Item No. 194

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-07**	PROGRAM ELEMENT NUMBER AND NAME 0205667N F-14 Upgrade					PROJECT NUMBER AND NAME E1408 F-14 Upgrade					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**1,823.011**	**1.354**	***11.122**								**1,835.487**
RDT&E Articles Qty **Not applicable**											

* The FY2001 budget reflects a $9,000K Congressional add for Synthetic Aperture Radar Reconnaisance system demonstration executed under E2984 which has been decreased by $.301 million for Congressional undistributed reductions, and a $1.000 million Congressional add for Radar Warning Receiver Antenna Replacement and system enhancement executed under E2985 which has been decreased by $.033 for Congressio undistributed reductions.

(U) A. 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 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-14 weapons integration supports integration of EW improvements and correction of OPEVAL deficiencies. Funding is also provided for various software upgrades such as Global Positioning System, and accommodates the realignment of Aviation Depot Level Repairables (AVDLR) from Major Range and Test Facility Bases to direct project funding. FY2001 includes a Congressional plus up of $9 million for Synthetic Aperture Radar (SAR) Pod. These funds will be used to demonstrate a podded SAR system on the F-14. Additionally, a $1 million Congressional plus up is included for Radar Warning Receiver (RWR) Antenna Replacement and System Enhancement. These funds will be used to fund the research, development and test costs associated with procuring new RWR antennas system upgrade.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) ($1.354) Completed development and test of third PDU tape. Conduct operational evaluation.

2. FY 2001 PLANS:

- (U) ($1.213) Procure Aviation Depot Level Repairables for testing of aircraft.
- (U) ($8.699) Demonstrate Synthetic Aperture Radar Pod on F-14.
- (U) ($0.967) Procure new Radar Warning Receiver Antenna Replacement and System Enhancement.
- (U) ($0.243) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.

R-1 SHOPPING LIST - Item No. 194

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-07	0205667N F-14 Upgrade	E1408 F-14 Upgrade

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	1.383	1.228	0.000
(U) Adjustments from the President's Budget:	-0.029	9.894	0.000
(U) FY 2002 President's Budget Submit:	1.354	11.122	0.000

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net decrease of $.029 million reflects a $.005 million decrease for a Congressional Recission, a $.035 million decrease for reprioritization of requirements within the Navy, and an increase of $.011 million to procure AVDLR for testing of aircraft. The FY2001 net increase of $9.894 million reflects a $.079 million decrease for a economic assumption, a $.007 million decrease for reprioritization of requirements within the Navy, a decrease of $.024 million for a Congressional Recission, a $.004 million increase for reinvestment of NMCI savings, and a $10.000 million increase to demonstrate a SAR podded reconnaisance system.

(U) Schedule: Due to problems with JTIDS integration, deployment of tape D03B-2 slipped from 1Q/00-2Q/00 to 2Q/00-4Q/00.

(U) Technical: Not applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
APN-5	79.7	31.3	4.5							

(U) Related RDT&E:
(U) PE 0205604N (Tactical Data Links)
(U) PE 0604270N (EW Development)

R-1 SHOPPING LIST - Item No. 194

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-07**	PROGRAM ELEMENT NUMBER AND NAME 0205667N F-14 Upgrade	PROJECT NUMBER AND NAME E1408 F-14 Upgrade	

(U) D. ACQUISITION STRATEGY: Not applicable.

(U) E. SCHEDULE PROFILE:

	FY 2000	FY 2001	FY 2002	TO COMPLETE
(U) Program Milestones				
(U) Engineering Milestones				
(U) T&E Milestones	2Q/00-4Q/00 OT-III (Tape D03B-2)			
(U) Contract Milestones				

R-1 SHOPPING LIST - Item No. 194

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)						DATE: **June 2001**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-07**			PROGRAM ELEMENT 0205667N F-14 Upgrade			PROJECT NUMBER AND NAME E1408 F-14 Upgrade						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
AMRAAM Int.	SS/CPFF	Northrup Grumman,	9.924								9.924	9.924
		Bethpage, NY										
BLK 1/JDAM	SS/CPFF	Northrup Grumman,	6.506								6.506	6.506
		Bethpage, NY										
FSD Cont	SS/CPFF	Northrup Grumman,	994.378								994.378	994.378
		Bethpage, NY										
PDU	WX	NAWC Pt. Mugu CA	219.984								219.984	
Miscellaneous - Contracts	Various	Various	3.154								3.154	3.154
Miscellaneous - In House	Various	Various	26.650								26.650	
Repair of Repairables	WX	Various	11.078								11.078	
FY95 and other			551.354								551.354	
RWR (Congressional plus up)	SS/FFP	BAE, Lansdale, PA		0.967	05/01						0.967	0.967
SAR (Congressional plus up)	SS/FFP	TBD		4.150	05/01						4.150	4.150
SAR (Congressional plus up)	WX	NAWC(AD)		0.727	05/01						0.727	
Subtotal Product Development			1,823.028	5.844		0.000				0.000	1,828.872	

Remarks:

R-1 SHOPPING LIST - Item No. 194

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)					DATE: **June 2001**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-07**		PROGRAM ELEMENT 0205667 F-14 Upgrade			PROJECT NUMBER AND NAME E1408 F-14 Upgrade						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
PDU Systems Engineering/Test	WX	NAWC Pt Mugu CA	1.337	1.213	12/00						2.550	
and Evaluation												
SAR (Congressional plus up)	SS/FFP	TBD		3.286	05/01						3.286	3.286
SAR (Congressional plus up)	WX	NAWC (AD)		0.536	05/01						0.536	
Subtotal T&E			1.337	5.035		0.000				0.000	6.372	
Remarks:												
SBIR Assessment				0.243								
Subtotal Management			0.000	0.243		0.000				0.000	0.243	
Remarks:												
Total Cost			1,824.365	11.122		0.000				0.000	1,835.487	
Remarks:												

R-1 SHOPPING LIST - Item No. 194

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**				PROGRAM ELEMENT (PE) NAME AND NO. **0206313M Marine Corps Communications Sys**						
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	**89.355**	**107.102**	**104.835**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
C2270 Command Post Systems	**24.131**	**24.480**	**24.976**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
C2271 Maneuver C2 Systems	**1.407**	**1.935**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**3.342**
C2272 Intelligence C2 Systems	**13.553**	**8.555**	**18.449**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
C2273 Air Operations C2 Systems	**16.417**	**24.553**	**18.238**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
C2274 Warfare Systems	**9.306**	**7.592**	**5.429**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
C2276 Communications Switching & Control Systems	**1.766**	**0.224**	**0.986**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**2.976**
C2277 System Engineering & Integration	**6.731**	**7.904**	**12.316**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
C2278 Air Defense Weapons Systems	**6.880**	**20.081**	**11.240**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
C2315 Training Devices/Simulators	**8.104**	**10.714**	**8.599**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
C2510 MAGTF CSSE & SE	**1.060**	**1.064**	**4.602**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
Quantity of RDT&E Articles										

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

This program element provides funding to develop the command and control (C2) support and information infrastructures for the Fleet Marine Force and supporting establishment. Doctrina 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, 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. 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. The Coastal Battlefield Reconnaissance and Analysis (COBRA) system is a passive multi-spectral sensor system capable of operating in a PIONEER unmanned aerial vehicle (UAV). Imagery recorded on the UAV or disseminated via data link is analyzed by the COBRA ground station. Ground station algorithm processing provides near real-time automatic minefield detection with Differential Global Positioning System (DGPS) location accuracy.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT (PE) NAME AND NO. **0206313M Marine Corps Communications Sys**

This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

B. PROGRAM CHANGE SUMMARY

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	96.293	96.153	93.735
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-1.515		
(U) Execution Adjustment	-1.009	-7.733	
(U) Minor Affordability Adjustment	-0.485	-1.003	-1.602
(U) Program Adjustment	-3.929	19.685	12.702
(U) FY 2002 President's Budget:	89.355	107.102	104.835

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**				PROJECT NUMBER AND NAME **C2270 Command Post Systems**					
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**24.131**	**24.480**	**24.976**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
RDT&E Articles Qty										

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

(U) 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 Marine Air-Ground Task Force (MAGTF) to provide a shared understanding of the battlespace. Maneuver C2 is the executive layer of decision support that retrieves 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 that report unit status and location to the Tactical Combat Operations (TCO). They also disseminate maneuver information throughout the battlespace.

1. Decision support integrates information from the seven Command and Control (C2) functional areas and the support function. The information is tailored to support the users' specific needs. As a result of the MAGTF C4I Baseline subproject, an integrated migration strategy is being incorporated into the MAGTF software baseline, which will be common across and used by all MAGTF C4I programs.
2. The Tactical Command Operations (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.
3. The Intelligence Analysis Systems (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. A Marine Expeditionary Force (MEF) IAS variant will also process signal intelligence.
4. Advanced Field Artillery Tactical Data Systems (AFATDS) will consist of fire support command and control software fielded on Marine Corps common hardware. AFATDS will provide the MAGTF with an automated ability to rapidly integrate, all supporting arm assets into maneuver plans
5. The Expeditionary Integrated Combat Operations Center (EICOC)/Unit Operations Center (UOC) project develops and transitions two Command and Control Imperative ATDs (the Expeditionary Integrated Combat Operations Center (EICOC) and the Joint Tactical Communications ((JT COMMs) ATDs) into various Marine Corps and Joint Engineering and Manufacturing Development (E&MD) efforts. EICOC development efforts focus on: Cognitive Task Analysis (CTA); enhanced ergonomic physical design; evaluation of advanced multimedia hardware; integration and networking with advanced development communication systems; and advanced software development to support systems integration and advanced battlefield visualization concepts. EICOC developments are tailored to support transition of software and hardware developments as PIPs to the established MAGTF C4I baseline. EICOC is the interim name for the Unit Ops Center (UOC). The UOC name will replace the EICOC name starting with FY00. Unit Operations Center (UOC) will provide a facility and components for the integration of current and planned battlefield automation systems.

It will be, in essence a "system of systems" designed to optimize the positioning, interaction, and flow of information among the various staff agencies (G-2, G-3, Operations Directorate, etc.) their automated information systems and between the unit and higher, adjacent or subordinate units or headquarters. The Marine Corps deploys Component/Joint Task Force (JTF/Marine Air Ground Task Force (MAGTF) command elements throughout the world to fulfill operational requirements, often in joint/combined forces arenas. The UOC is designed in garrison and tactical versions. The tactical version is called the Combat Operations Center (COC) which is an outgrowth of the integrated COC (ICOC), COC-Interim (COC-(I), and the Enhanced COC (ECOC) developments over the last two years. The garrison version is called the Command Center (CC).

6. TCAC PIP is a Product Improvement Plan (PIP) based on the MEF IAS program. TCAC PIP is a semi-automated signals intelligence (SIGINT) processing, analysis and reporting system integrated in to one HMMWV mounted standard tactical shelter housing essential computer and communication resources. Internal and external workstations, when connected via a local area network, will extend functional capabilities to multiple users. The system is modular in design allowing stand-alone operations support during high mobility or contingency operations. Essential voice and data communications and SIGINT processing capabilities will support and automate the management and dissemination of SIGINT-derived intelligence reports.
7. GCCS-I3 (Global Command and Control System Integrated Imagery and Intelligence) comprises a core system infrastructure to access and store imagery and intelligence date on local database servers. The baseline segments are developed to comply with the Defense Information Infrastructure (DII) Common Operating Environment (COE). The core of this system is mandated by DoD and is paid via a tax levied on all services.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2270 Command Post Systems**

8. The Data Automated Communications Terminal (DACT) will extend situational awareness to echelons below the battalion level within the Marine Corps. The DACT will receive, store, retrieve, create, modify, transmit and display map overlays, operational messages/reports, and position information via tactical radios, networks, and/or wire lines. A phased approach for fielding the full functionality of the system will be used consisting of software upgrades and enhancements to allow interoperability with other C4I systems. The DACT program's FY00 and FY01 efforts are being procured out of project C2271 of the PE.

9. Marine Corps Training, Exercise, and Employment Plan (MCTEEP) is a Windows-based, Marine Corps developed scheduling tool, identified in the Commandant's Planning Guidance (CPG) to standardize the "TEEP" process. MCTEEP software was first fielded in July 1995 to every G-3/S-3 in the operating forces.

10. The JECCS will facilitate command and control capabilities by providing "first in" backbone connectivity to Defense Information Systems Network (DISN) services in support of the JTFE mission. JECCS is designed to augment the current and planned communications architecture and to provide seamless transition to Digital Technical Control/Tactical Digital Network (DTC/TDN) in support of follow on forces. The system's capabilities and functions include Non-Secure Internet Protocol Router Network (NIPRNET), Secure IP Router Network (SIPRNET), DSN, Video Teleconferencing (VTC), UHF TACSAT, INMARSAT and Defense Messaging System (DMS). The system will support three simultaneous digital trunk groups and uses the AN/TSC-93B, AN/TRC-170, and AN/MRC-142 as transmission interfaces. JECCS also supports switching, patching and technical control of all circuits entering or leaving the system. The system is housed in an S-788 shelter mounted on a heavy-variant High Mobility Multipurpose Wheeled Vehicle (HMMWV).

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2000 Accomplishments:

- (U) $ 0.460 TCO: Completed incorporating Phase V ORD requirements , completed Phase IV ORD requirements and integrated software changes into existing system.
- (U) $ 0.312 TCO: Forward financed efforts to incorporate Phase V ORD requirements, completed PHASE IV ORD requirements and integrated software changes into existing system.
- (U) $ 0.430 TCO: Continued Program Management Support.
- (U) $ 0.121 TCO: Conducted OT&E on previously integrated systems.
- (U) $ 0.400 TCAC: Developed software to maintain compatibility with Signals Intelligence systems.
- (U) $ 0.407 TCAC: Integrated signals intelligence correlator.
- (U) $ 0.160 IAS MOD: IAS AOA for hardware upgrade.
- (U) $ 0.818 IAS MOD: Continued Program Management Support.
- (U) $ 0.098 IAS MOD: Continued C2PC Intel software development.
- (U) $ 0.206 IAS MOD: Completed Intel Fusion software improvements.
- (U) $ 0.156 IAS MOD: Forward finances effort to continue C2PC Intel software development.
- (U) $ 1.618 MAGTF C4I BASELINE: Designed, and build legacy system software release.
- (U) $ 1.741 MAGTF C4I BASELINE: Completed trade studies, market surveys and functional assessments on Combat Information C2 System Applications from Squad Leader to MARFOROPFAC.
- (U) $ 1.425 MAGTF C4I BASELINE: Designed and built DII COE compliant prototype.
- (U) $ 0.270 MAGTF C4I BASELINE: Conducted an Early Operational Assessment of the DII/COE compliant prototype.
- (U) $ 0.277 MAGTF C4I BASELINE: Commenced disciplined risk management, requirements tracking and system engineering and analysis efforts for the DII/COE compliant prototype.
- (U) $ 1.795 MAGTF C4I BASELINE: Forward finances disciplined risk management, requirements tracking and system engineering and analysis efforts for the DII/COE compliant prototype.
- (U) $ 1.387 AFATDS: Began and completed development efforts on AFATDS 99 Software. Migrated to DII COE. Added additional fire support functionality to support Marine Corps fire support systems. Completed training of test beds users (designated Marine Units) for release of AFATDS 99 Software. Initiated development of interoperability with MAGTF C4I system (IOW, DACT, TLDHS, and TCO).
- (U) $ 0.543 AFATDS: Forward financed completion of development efforts on AFATDS 99 Software. Migrated to DII COE. Added additional fire support functionality to support Marine Corps fire support systems. Completed training of test beds users (designated Marine Units) for release of AFATDS 99 Software. Initiated development of interoperability with MAGTF C4I system (IOW, DACT, TLDHS, and TCO).
- (U) $ 5.569 UOC: Completed modeling and simulation, hardware and software system engineering, analysis and prototyping.
- (U) $ 1.866 UOC: Completed trade studies, market surveys and functional assessments and early development testing with operational forces.

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2270 Command Post Systems**

- (U) $ 1.314 UOC: Continued Program Management Support.
- (U) $ 2.758 UOC: Begin government lab prototyping of scalable UOC modules ranging in size from a small SUV, to larger HMMWV variants, and even larger expandable boxes.

(U) Total $ 24.131

FY 2001 Planned Program

- (U) $ 0.765 TCO: Develop and test new equipment for refresh.
- (U) $ 0.194 TCO: Develop and integrate common system software.
- (U) $ 0.140 TCO: Program management and engineering support.
- (U) $ 0.000 TCO: Incorporate Phase V ORD requirements, complete PHASE IV ORD requirements and integrate software changes into existing system. This effort forward financed with FY00 funding in the amount of $302K.
- (U) $ 0.147 IAS MOD: Begin integration lab support.
- (U) $ 0.287 IAS MOD: Continue Intel Fusion software improvements.
- (U) $ 0.136 IAS MOD: Begin interoperability assessment for IAS Systems.
- (U) $ 0.000 IAS MOD: Continue C2PC Intel software development. This effort was forward financed with $156 of FY00 funding.
- (U) $ 1.360 MAGTF C4I BASELINE: Complete all trade studies, market surveys and functional assessments.
- (U) $ 2.366 MAGTF C4I BASELINE: Continue designing and building DII COE compliant prototypes.
- (U) $ 1.513 MAGFT C4I BASELINE: Conduct an Early Operational Assessment of a multi-echelon environment of all prototypes
- (U) $ 1.261 MAGTF C4I BASELINE: Continue disciplined risk management, requirements tracking and system engineering and analysis efforts.
- (U) $ 0.100 MAGTF C4I BASELINE: Program Management Support.
- (U) $ 0.000 MAGTF C4I BASELINE: Continue disciplined risk management, requirements tracking and system engineering and analysis efforts for the DII/COE compliant prototype. This effort forward financed with $1,723 of FY00 funding.
- (U) $ 1.898 AFATDS: Begin development efforts on AFATDS 02 Software. Migrate to DII COE. Add additional fire support functionality to support Marine Corps fire support systems. Begin training of test beds users (designated Marine Units) for release of AFATDS 02 Software. Increase interoperability with MAGTF C4I system (IOW, DACT, TLDHS, and TCO) and Navy fire support control systems.
- (U) $ 0.000 AFATDS: Begin and complete development efforts on AFATDS 99 Software. Migrate to DII COE. Add additional fire support functionality to support Marine Corps fire support systems. Begin training of test beds users (designated Marine Units) for release of AFATDS 99 Software. Develop interoperability with MAGTF C4I system (IOW, DACT, TLDHS, and TCO). This effort forward financed with $521K of FY00 funding.
- (U) $ 7.461 UOC: Continue modeling and simulation, COTS/GOTS hardware and software system engineering, analysis and prototyping.
- (U) $ 2.046 UOC: Conduct an Early Operational Assessment of the prototypes.
- (U) $ 2.413 UOC: Continue Program Management Support.
- (U) $ 1.931 JECC: Produce a Low Rate Initial Production (LRIP) unit that incorporates modifications recommended for the Engineering Development Models (EDMs).
- (U) $ 0.462 SBIR: Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

(U) Total $ 24.480

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2270 Command Post Systems**

FY 2002 Planned Program

- (U) $ 0.430 TCO: Develop and test new Client Software.
- (U) $ 0.170 TCO: Incorporate software changes and test new releases into existing systems.
- (U) $ 0.450 TCO: Test Client workstations for refresh of existing hardware.
- (U) $ 0.166 TCO: Program management and engineering support.
- (U) $ 1.009 IAS MOD: Begin critical improvements to GCCS-I3 Intelligence Support software for USMC requirements.
- (U) $ 0.300 IAS MOD: Continue Intel Fusion software improvements.
- (U) $ 0.100 IAS MOD: Continue support of integration facility.
- (U) $ 0.079 IAS MOD: Continue interoperabilty assessment.
- (U) $ 2.115 MAGTF C4I BASELINE: Build, test, field and support DII COE compliant versions of GCCS-M in support of the six warfighting functions. This effort focuses primarily on the integration, inclusion and incorporation of Fire Support, Maneuver and Intel capabilities.
- (U) $ 0.550 MAGTF C4I BASELINE: Continue Program Management Support.
- (U) $ 0.350 MAGTF C4I BASELINE: Continue disciplined risk management, requirements tracking and systems engineering and analysis efforts.
- (U) $ 1.050 MAGTF C4I BASELINE: Implementation of completed Functional Assessment, Trade Study and Market Survey identified requirements in support of MOC requirements.
- (U) $ 2.168 MAGTF C4I BASELINE: Development of WIN NT for USMC AFATDS and GCCS-M client solutions to provide increased functionality and interoperability to Fire Support, Maneuver and Intel clients.
- (U) $ 0.300 MAGTF C4I BASELINE: Development and implementation of system education curricula including Computer Based Training, Distance Learning and embedded scenarios to increase operator proficiency.
- (U) $ 0.250 MAGTF C4I BASELINE: Begin configuration management.
- (U) $ 1.002 AFATDS: Complete final development and enhancement of AFATDS 02 software. Develop increased interoperability with all other MAGTF C4I automated systems. Increase software effectiveness with, and in support of, Marine Corps fire support systems.
- (U) $ 0.804 AFATDS: Initiate development of AFATDS 04 software. Begin porting software to Windows NT environment. Simplify human factors interface to allow easier initial and sustainment training
- (U) $ 0.417 AFATDS: Begin research of new hardware platform for system. Investigate the potential of moving to AFATDS server and Fire Support Client architecture.
- (U) $ 1.590 GCCS-I3: Begin operational system development.
- (U) $ 6.622 UOC: Prime contractor engineering and manufacturing development effort including design of production representative modules.
- (U) $ 1.854 UOC: Continue modeling and simulation, COTS/GOTS hardware and software system engineering, analysis and prototyping.
- (U) $ 1.450 UOC: Continue program management support.
- (U) $ 0.513 DACT: Continue development of Application Software enhancements for Vehicle and Foot Mobile DACTs.
- (U) $ 0.390 DACT: Continue system interface/interoperability with fielded systems receiving PDSS and new systems
- (U) $ 0.147 DACT: Continue development of Computer Based Training enhancements for both Vehicle and Foot Mobile DACTs.
- (U) $ 0.137 DACT: Continue Program Management Support.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
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- (U) $ 0.207 DACT: Conduct IOT&E for Foot Mobile DACT.
- (U) $ 0.356 MCTEEP: Begin the development, integration, testing and fielding of selected MCTEEP Software upgrades to enhance the capabilities of MCTEEP. The prospective S/W modifications include; 1) incremental upgrades to accomplish progressively higher levels of DII / COE compliance, 2) increased data sorting, correlation and filtering capabilities to further facilitate rapid responses to complex information requests, 3) transition from the current Sybase licensed data base management system (DBMS) to a DBMS having better long term supportability, 4) migration of MCTEEP to the MAGTF Software Baseline (MSBL), and implementation of MCTEEP as an available Unit Operations Center (UOC) function / application.

(U) Total $ 24.976

(U) PROJECT CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	22.981	22.707	16.501
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.375		
(U) Execution Adjustment	-1.158		
(U) Minor Affordability Adjustment	-0.090	-0.227	-0.380
(U) Program Adjustment	2.773	2.000	8.855
(U) FY 2002 President's Budget:	24.131	24.480	24.976

CHANGE SUMMARY EXPLANATION:

(U) Funding: See Above.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC BLI# 463100 TCO	6.715	7.994	0	0	0	0	0	0	0	14.709
(U) PMC BLI# 474900 IAS MOD	1358	1417	1631	0	0	0	0	0	Continuing	Continuing
(U) PMC BLI# 463100 AFATDS	2909	2893	2186	0	0	0	0	0	0	7988
(U) PMC BLI# 463100 UOC	0	0	0	0	0	0	0	0	Continuing	Continuing
(U) PMC, BLI#463200, DACT	6573	0	0	0	0	0	0	0	0	6573
(U) PMC, BLI #463100, DACT	0	0	9645	0	0	0	0	0	0	9645

(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

(U) Navy Tactical Flag Communication and Control System.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2270 Command Post Systems**	

(**U) C. ACQUISITION STRATEGY: TCO**- Tactical Combat Operations: Contracting is via General Services Administration schedules with various vendors and are for software maintenance and COTS evaluation and integration. Performance base reviews are conducted quarterly by the PMO.

(U) C. ACQUISITION STRATEGY: MCBL funds applied to the INRI contract through ITM2K are on a Time and Materials Contract. Funds to Logicon, Orlando, Florida for the SPEED contract are on a Firm Fixed Price Contract. Funds to SPAWAR Systems Center, Charelston are through a Navy Working Capital Fund. Funds to Raytheon are through the AFATDS Time and Materials contract. Funds to Logicon, Dumfries are on a Time and Materials contract.

(U) C. ACQUISITION STRATEGY: DACT- Program is to develop software and hardware for two operational domains. The mounted DACT is a Command Control Situational Awareness device that will be installed in various tactical vehicles at the battalion and below levels with a special vehicle mounting kit, also being developed.

(**U) ACQUISITION STRATEGY: AFATDS**- AFATDS is a Cost Plus Award Fee contract through Army CECOM, Ft. Monmouth, N. J. R&D efforts will be a combined effort between the software developer (Raytheon) , the Army PM and the USMC of software enhancements for the next planned versions of AFATDS (A99 and V7).

(**U) C. ACQUISITION STRATEGY: UOC -** The UOC COC will be a Competitively Awarded Contract for design (cost type) and FFP production options.

(U) C. ACQUISITION STRATEGY: IAS. The IAS program uses already existing Government contracts for hardware and software development and integration. System is comprised primarily of Commercial Off-the-Shelf(COTS) and Government Off-the-Shelf (GOTS) equipment.

(U) C. ACQUISITION STRATEGY: GCCS The acquisition of components (software/hardware) for the GCCS I 3 initiative will maximize the use of existing COTS, GOTS, NDI, and GFE equipment. The GCCS I 3 initiative will be accomplished in collaboration with Millennium Technologies Corporation and Computer Science Corporation. Maintenance support will be managed by MARCORLOGBASES and those contractors listed above. This strategy accomplishes several goals; procure and field equipment effectively and efficiently, reduce logistics support, and reduce operational maintenance support.

CLASSIFICATION:

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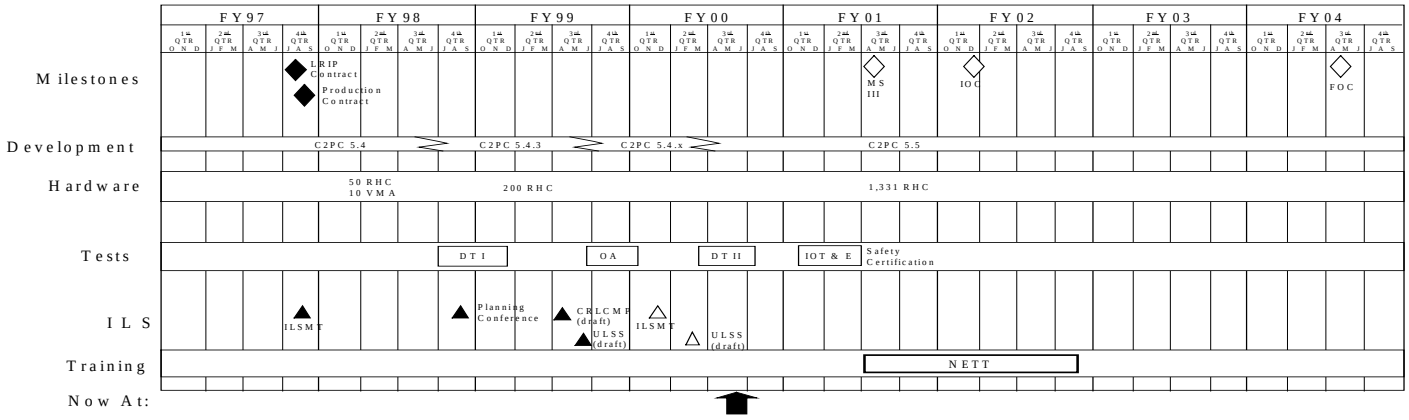
(U) D. SCHEDULE PROFILE:

DACT Program Structure



Acronyms:

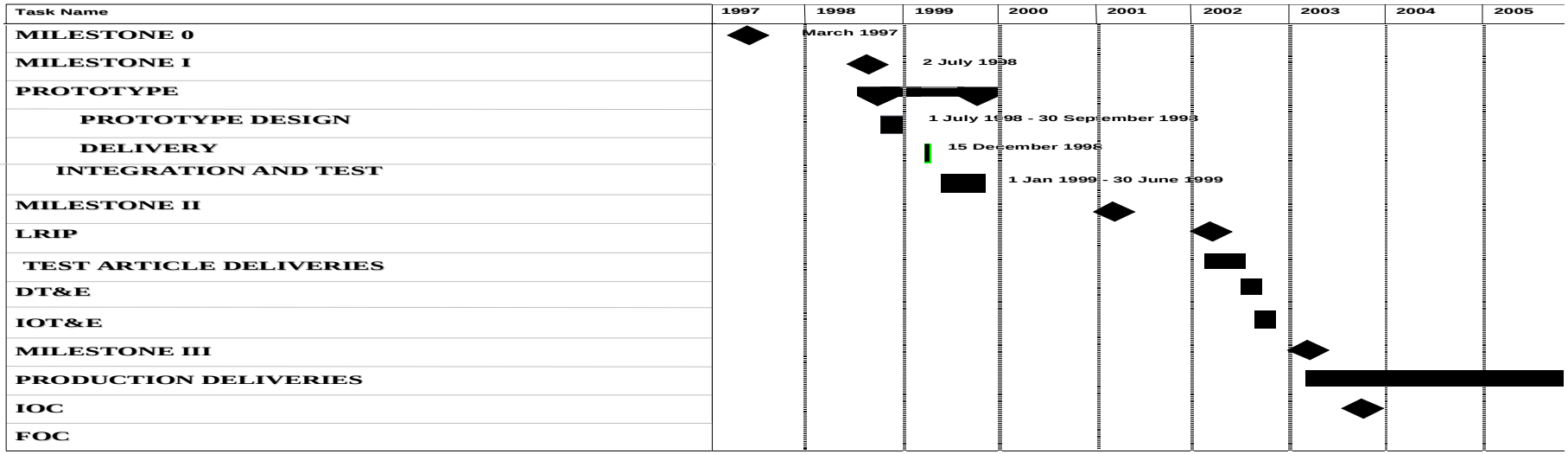
CMP	Configuration Management Plan	LAR	Logistics Assessment Review
CRLCMP	Computer Resources Life Cycle Management Plan	LRIP	Low Rate Initial Production
DT	Developmental Test	MBL	Marine Battle Lab
FOC	Full Operational Capability	MS	Milestone
H/W	Hardware	NETT	New Equipment Training Team
IKPT	Instructor & Key Personnel Training	OT	Operational Test
ILSMT	Integrated Logistics Support Management Team	RFP	Request for Proposal
ILSP	Integrated Logistics Support Plan	SS	Source Selection
IOC	Initial Operatinal Capability	S/W	Software
IPT	Integrated Program Team	ULSS	Users Logistics Support Summary
LAP	Letter of Adoption and Procurement		

Program Funding Summary **(APPN, BLI #, NOMEN)**	FY 2000	FY 2001	FY 2002	To Compl	Total Cost
(U) RDT&E,N	0.907	1.935	1.394	Continuing	Continuing
(U) PMC, BLI#463200, DACT	6.573	0	0	0	6.573
(U) PMC, BLI#463100, DACT	0	0	9.645	0	9.645

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2270 Command Post Systems**

UOC Program Schedule



Program Funding Summary (APPN, BLI #, NOMEN)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N	11.507	12.159	9.926	0	0.000	0.000	0.000	0.000	0.000	Continuing
(U) PMC BLI# 463100 UOC	0	0	0	0	0	0	0	0	Continuing	Continuing

CLASSIFICATION:

Exhibit R-3 Cost Analysis							DATE: **June 2001**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**			PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**				PROJECT NUMBER AND NAME **C2270 Command Post Systems**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
UOC	WR	SSC, Charleston, SC	0.674	2.191	12/99	2.535		6.622		Continuing	Continuing	
UOC	RCP	MCCDC, Quantico, VA	0.000	0.952	12/99	0.000		0.000		0.000	0.952	
UOC	WR	CECOM, Ft. Monmouth,NJ	0.000	0.650	12/99	0.000		0.000		0.000	0.650	
UOC	RCP	AMCOM, Huntsville, AL	0.000	1.120	07/00	3.734	06/01	1.070	01/02	Continuing	Continuing	
UOC	RCP	NRL, Washington, DC	0.000	5.280	07/00	4.472	06/01	0.784	01/02	Continuing	Continuing	
TCO	RCP	MCTSSA, Camp Pndlt,CA	0.584							0.000	0.584	0.584
TCO	RCP	NWSC, Crane In						0.430	01/02	0.000	0.430	
TCO	RCP	MCSC, Quantico, VA						0.450	01/02	0.000	0.450	
TCO	WR	SPAWAR. Charleston, SC	0.072	0.772	03/00	0.959	03/01			1.921	3.724	
IAS MOD	RCP	NSWC, Crane In	0.484							0.000	0.484	
IAS MOD	TBD	SPAWAR. San Diego, CA						1.009	01/02	Continuing	Continuing	
IAS MOD	WR	MCTSSA, Camp Pndlt,CA		0.254	10/99					0.000	0.254	
MAGTF C4I BASELINE	RCP	SSC, Charleston, SC	0.352	6.756	01/99	4.987	11/00	2.115	01/02	Continuing	Continuing	
MAGTF C4I BASELINE	WR	SSC, Charleston, SC						0.350	01/02	Continuing	Continuing	
MAGTF C4I BASELINE	RCP	Raytheon, Indianapolis, IN						1.050	01/02	Continuing	Continuing	
MAGTF C4I BASELINE	TBD	INRI, San Diego, CA						2.168	01/02	Continuing	0.000	
MAGTF C4I BASELINE	TBD	OSEC, Stafford, VA						0.300	01/02	Continuing	Continuing	
MAGTF C4I BASELINE	TBD	SSC, Charleston, SC						0.250	01/02	Continuing	Continuing	
AFATDS	MIPR	USA, Ft. Sill, OK	1.402	0.080	01/99	0.080	11/00	0.090	01/02	Continuing	Continuing	
AFATDS	C/FFP	Logicon, Stafford, VA	0.100	0.618	10/99	0.590	10/00	0.640	01/02	Continuing	Continuing	
AFATDS	CPFF/MIPR	USA, Ft. Wayne, IN		0.882	03/00	0.878	01/01	1.123	01/02	Continuing	Continuing	
AFATDS	WR	MCSC, Quantico, VA						0.020	01/02	Continuing	Continuing	
AFATDS	CPFF/MIPR	CECOM, Ft. Monmouth,NJ		0.350	01/99	0.350	01/01	0.350	01/02	Continuing	Continuing	
TCAC-PIP	TBD	BTG, Fairfax, VA		0.807	01/99					Continuing	Continuing	
GCCS-13	TBD	TBD						1.590	01/02	Continuing	Continuing	
DACT	TM	Raytheon, Indianapolis, IN	2.151					0.160	01/02	Continuing	Continuing	
DACT	FFP	EPS, Ft. Monmouth, NJ	0.080					0.030		Continuing	Continuing	

CLASSIFICATION:

Exhibit R-3 Cost Analysis							DATE: **June 2001**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**			PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**				PROJECT NUMBER AND NAME **C2270 Command Post Systems**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
DACT	TM	INRI, San Diego, CA	0.611					0.627	01/02	Continuing	Continuing	
DACT	GSA	OSEC, Stafford, VA	0.275					0.110	01/02	Continuing	Continuing	
DACT	CFFP	Logicon, Stafford, VA	0.145					0.123	01/02	Continuing	Continuing	
MCTEEP	C/CPFF	TBD						0.356	02/02	Continuing	Continuing	
JECCS	FFP	TBD	4.000			1.545	10/01			Continuing	Continuing	
SBIR						0.462						
Subtotal Product Development			10.930	20.712		20.592		21.817		Continuing	Continuing	
Remarks:												

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equipment											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
UOC	RCP	LOGICON, Stafford, VA		0.730	02/00	0.939	10/00	1.200	01/02	Continuing	Continuing	
UOC	RCP	HQMC, Washington, DC		0.584	09/99	0.240	11/00	0.250	01/02	Continuing	Continuing	
TCO	RCP	MCTSSA, Camp Pndltn, CA	0.097	0.430	01/99	0.140	01/01	0.166	01/02	Continuing	Continuing	
IAS Mod	C/FFP	LOGICON, Stafford, VA		0.818						0.000	0.818	0.818
MSBL	C/PFF	LOGICON, Stafford, VA		0.100	10/99	0.100	10/00	0.300	01/02	Continuing	Continuing	
MSBL	TBD	Visicom, Dumfries, VA						0.250	01/02	Continuing	Continuing	
DACT	CFFP	LOGICON, Stafford, VA	0.211					0.093	01/02	Continuing	Continuing	
DACT	GSA	OSEC Stafford, VA	0.155					0.044	01/02	Continuing	Continuing	
JECCS	CPFF	LOGICON, Stafford, VA				0.186	10/00			Continuing	Continuing	
Subtotal Support			0.463	2.662		1.605		2.303				
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis							DATE: **June 2001**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**			PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**				PROJECT NUMBER AND NAME **C2270 Command Post Systems**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Tooling											0.000	
GFE											0.000	
TCO	RCP	MCTSSA, Camp Pndltn, CA	0.080	0.121	10/99	0.000		0.170	01/02	Continuing	Continuing	
IAS Mod	WR	SPAWAR, Charleston SC		0.160						0.000	0.160	
IAS Mod	RCP	NMAC		0.206	10/00	0.287		0.300	03/02	0.300	1.093	1.116
IAS Mod	WR	MCSC, Quantico, VA				0.147	10/00	0.100	01/02	0.100	0.347	
IAS Mod	WR	NSWC, Crane IN				0.136	10/00	0.079	01/02	0.449	0.664	
MSBL	RCP	MCOTEA, Quantico, VA		0.270	11/99	1.513	11/00			Continuing	Continuing	
DACT	WR	MCOTEA, Quantico, VA	0.075					0.207	01/02	Continuing	Continuing	
JECCS		MCOTEA, Quantico, VA				0.200	10/01			0.000	0.200	
											0.000	
											0.000	
Subtotal T&E			0.155	0.757		2.283		0.856		Continuing	Continuing	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost				24.131		24.480		24.976		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**					PROJECT NUMBER AND NAME **C2272 Intelligence C2 Systems**				
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**13.553**	**8.555**	**18.449**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
RDT&E Articles Qty										

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

(U) 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.

1. 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 intellige gatheringsystems. Congressionally directed, it requires close liaison with the intelligence community and involves complex and highly-sensitive activities.

2. The Topographic Production Capability (TPC) is an advanced Geographic Information System, which employs commercial computer and software to provide the framework data for the common battlefield visualization by producing both hardcopy and digital geographic intelligence.

3. The Joint Surveillance Target Attack Radar (JSTARS) connectivity program will develop software which will allow the JSTARS Moving Target Indicator (MTI), Fixed Target Indication (FTI) Synthetic Aperture Radar (SAR) Data to be passed from the JSTARS Common Ground Station (CGS) to lower echelons within the MAGTF. Once the Connectivity Software has been developed, a requirement for a JSTARS CGS software upgrade is anticipated under Joint Program Office Pre-Planned Product Improvement (P3I) initiative.

4. The Coastal Battlefield Reconnaissance and Analysis (COBRA) system is a passive multispectral sensor system capable of operating in a PIONEER unmaned aerial vehicle (UAV). Imagery recorded on the UAV or disseminated via data link is analyzed by the COBRA ground station. Ground station algorithm processing provides near real-time automatic minefield detection with Differential Global Positioning System (DGPS) location accuracy.

5. The JSIPS-TEG is a highly mobile imagery ground station designed to process tactical imagery in support of the MAGTF commander. The system is an integral component of the Jo Service Imagery Processing System (JSIPS), complementing the capabilities of the JSIPS National Input Segment (NIS) located at Camp Pendleton. The system will provide the capability to receive, process, store, exploit, and disseminate Advanced Tactical Air Reconnaissance System (ATARS) electro-optical, infrared, and synthetic aperture radar imagery from the F/A-18D (RC) and receive national secondary imagery from the NIS.

6. The Counterintelligence (CI) and Human Intelligence (HUMINT) Equipment Program (CIHEP) is an intelligence collection, analysis and reporting suite of equipment, employing commercial-off-the-shelf (COTS) and non-developmental items (NDI) of equipment and software. It will produce digital soft copy as well as hard copy CI, Interrogator-Translator (IT) and HUMINT information reports and images for the Marine Air Ground Task Force (MAGTF) or Joint Force (JTF) Commander. CIHEP will allow for the electronic storage and dissemination of HUMINT information throughout the command, as well as for low volume traditional hard copy dissemination.

7. Team Portable Collection System - Multi-Platform Capable - The TPCS- MPC will provide the MAGTF commander with a modular and scaleable carry on/off suite of equipment capable of conducting SIGINT operations onboard organic non-dedicated Marine Corps air, ground, and water borne platforms. The TPCS-MPC will be highly modular, mission configurable, multi-platform system incorporating plug-and-play technologies. The system will provide state-of-the-art, versatile air/ground/water borne SIGNIT and EW support to the MAGTF through the use of lightweight, flexible mission equipment suites capable of detecting, identifying, locating, and exploiting current and emerging communications technologies, intercepting non-communication signals, and improving the system's geolocation accuracy.

8. Tactical Remote Sensor System (TRSS-PIP) - The TRSS provides the Marine Air Ground Task Force (MAGTF) commander with an organic variety of sensors that will cover his Area of Responsibility for months at a time by allowing the commander to autonomously conduct unattended, semi-covert, ground surveillance of distant areas of the battlefield. Using a network of reliable passive sensors, these multiple systems enhance the commanders ability to cover gaps in the overall intelligence collection effort thus reducing the need to employ more costly hard to get weapons systems at a moments notice, and the sensor systems also remove the requirement to employ Marines behind enemy lines for extreme periods of time.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2272 Intelligence C2 Systems**

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2000 Accomplishments:

- (U) $ 0.332 TPC: Initiated test and evaluations.
- (U) $ 0.733 TPC: Initiated engineering, manufacturing and development.
- (U) $ 2.041 TPC: Began operational systems development.
- (U) $ 0.238 TPC: In-house program management.
- (U) $ 1.707 TENCAP: Continued advance technology demonstrations and integration into the established MAGTF C4I architecture.
- (U) $ 0.390 TENCAP: Continued technical assessments of emerging national data dissemination capabilities.
- (U) $ 0.485 TENCAP: Continued to support operational planning to enhance operating force capabilities to US national intelligence data within the MAGTF C4I architecture.
- (U) $ 0.437 TENCAP: Continued to evaluate the utility of emerging exploitation, automated and manual target recognition and detection tools.
- (U) $ 0.100 TENCAP: Continued TENCAP training and education efforts by providing the Fleet Marine Force with various TENCAP simulation, scripting, and processing hardware and software support.
- (U) $ 0.831 JSTARS: Continued to develop connectivity software.
- (U) $ 0.242 JSTARS: Engineering and technical management support for connectivity software.
- (U) $ 0.885 JSTARS: Purchased Surveillance Control Data Link (SCDL) for III MEF Field User Evaluation.
- (U) $ 0.16 COBRA: MarCorSysCom program support activities.
- (U) $ 0.350 COBRA: Coastal Systems Station program engineering support.
- (U) $ 2.745 COBRA: ATD risk reduction verification
- (U) $ 1.093 JSIPS-TEG: Developed Full Operational Capability; implement factory system for integration of required software/hardware upgrades.
- (U) $ 0.784 TRSS – Management support for Sensor Reduction Analysis, Fixed Wing Senor Capability Analysis, and Acoustic Signature Data Base Collection Analysis.

(U) Total $ 13.553

FY 2001 Planned Program

- (U) $ 0.147 TPC: Contractor support for Mods.
- (U) $ 0.189 TPC: Perform mods from OT&E
- (U) $ 1.97 TENCAP: Continue advance technology demonstrations and integration into the established MAGTF C4I architecture.
- (U) $ 0.380 TENCAP: Continue technical assessments of emerging national data dissemination capabilities.
- (U) $ 0.470 TENCAP: Continue to support operational planning to enhance operating force capabilities to US national intelligence data within the MAGTF C4I architecture.
- (U) $ 0.440 TENCAP: Continue to evaluate the utility of emerging exploitation, automated and manual target recognition and detection tools,
- (U) $ 0.125 TENCAP: Continue TENCAP training and education efforts by providing the Fleet Marine Force with various TENCAP simulation, scripting, and processing hardware and software support.
- (U) $ 0.525 COBRA: Continue MarCorSysCom program support activities.
- (U) $ 0.450 COBRA: Coastal systems station program engineering support.
- (U) $ 1.224 COBRA: Continue ATD risk reduction verification. E&MD design.
- (U) $ 0.800 COBRA: Engineering and Manufacturing Development (E&MD
- (U) $ 0.386 JSTARS: Continue engineering and technical support for development and integration of connectivity software that would reside on existing MAGTF systems a utilize JSTARS data.
- (U) $ 1.449 JSIPS-TEG: Continue to develop Full Operational Capability; implement factory system for integration of required software/hardware upgra(

(U) Total $ 8.555

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2272 Intelligence C2 Systems**

FY 2002 Planned Program

- (U) $ 0.147 TPC: Continue Contractor support for Mods
- (U) $ 0.190 TPC: Continue to perform Mods OT&E
- (U) $ 0.110 CIHEP: Engineering, Integration and Technical support for technical refresh and update of program hardware/software upgrades.
- (U) $ 1.697 TENCAP: Continue advance technology demonstrations and integration into the established MAGTF C4I architecture.
- (U) $ 0.341 TENCAP: Continue technical assessments of emerging national data dissemination capabilities.
- (U) $ 0.400 TENCAP: Continue to support operational planning to enhance operating force capabilities to US national intelligence data within the MAGTF C4I architecture.
- (U) $ 0.400 TENCAP: Continue to evaluate the utility of emerging exploitation, automated and manual target recognition and detection tools.
- (U) $ 0.100 TENCAP: Continue training and education efforts by providing the Fleet Marine Force with various TENCAP simulation, scripting, and processing hardware and
- (U) $ 0.489 JSTARS: Continue engineering and technical support for development and integration of connectivity software what would reside on existing MAGTF systems a utilize JSTARS data.
- (U) $ 0.250 JSTARS: Contractor advisory and assistance services.
- (U) $ 0.142 JSTARS: Naval JSTARS interface OT&E.
- (U) $ 0.185 JSTARS: Joint Services Work Stations (JSWS) Field User Evaluation (FUE).
- (U) $ 2.790 COBRA: Continue Engineering and Manufacturing Development (E&MD).
- (U) $ 0.432 COBRA: Continue MARCORSYSCOM program support activities.
- (U) $ 0.350 COBRA: NAVSEA Coastal Systems Station Program Tech Support
- (U) $ 1.000 JSIPS-TEG: Complete develop Full Operational Capability; implement factory system for integration of required software/hardware upgrades.
- (U) $ 0.432 JSIPS-TEG: Begin Engineer and technical management support.
- (U) $ 0.360 JSIPS-TEG: Begin technical assessment of SIEC capability in support of the TEG-PIP initiative.
- (U) $ 1.995 TPCS-MPC: Begin EMD Design.
- (U) $ 1.239 TPCS-MPC: Begin System development.
- (U) $ 0.845 TPCS-MPC: Begin Testing and evaluation.
- (U) $ 0.510 TPCS-MPC: Begin Program support and management.
- (U) $ 0.644 TPCS-MPC: Begin Contractor advisory assistance service.
- (U) $ 3.401 TRSS-PIP: Begin Development of Unattended Ground Miniaturized Sensors (UGMS) for TRSS-PIP.

(U) Total $ 18.449

(U) PROJECT CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	13.763	8.634	9.861
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer			
(U) Execution Adjustment	-0.140		
(U) Minor Affordability Adjustment	-0.163	-0.079	-0.282
(U) Program Adjustment	0.093		8.870
(U) FY 2002 President's Budget:	13.553	8.555	18.449

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2272 Intelligence C2 Systems**

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name		FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
PMC BLI 474700 Intell Support Equip	TPC	0.000	7.096	4.671	0.000	0.000	0.000	0.000	0.000	0	11.767
PMC BLI 474900 Mod Kits Intell JSTARS	JSTARS	4.531	0.000	1.745	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
PMC BLI 474700 Intell Support Equip CIHEP	CIHEP	2.099	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
PMC BLI 474700 Intell Support Equip COBRA	COBRA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
PMC BLI 474700 Intell Support Equip JSIPS-	JSIPS	0.946	0.950	4.618	0.000	0.000	0.000	0.000	0.000	0	6.514
PMC BLI 474700 Intell Support Equip TPCS-	TPCS-MULTI	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
PMC BLI474700 Intell Support Equip TRSS-PIP	TRSS-PIP	0.000	0.000	0.326	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

(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) PE 0604270A (Intelligence and Electronic Warfare Common Sensor (IEWCS), TACJAM-A)
(U) PE 0305885G (Tactical Cryptologic Program)
(U) PE 0603730A (Tactical Surveillance System - Advanced Development), Army TENCAP, Project D560
(U) PE 0603766A (Tactical Electronic Surveillance System - Advanced 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

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2272 Intelligence C2 Systems**	

(U) C. ACQUISITION STRATEGY JSTARS: JSTARS will utilize existing Army JSTARS contracts with Motorola to procure CGS(s) and JSWS(s), for Pre-Planned Product Improvements (P3I) and Navy, JSTARS Interface software development. SPAWAR, Charleston, SC will oversee Naval JSTARS Interface (NJI) implementation into JSTARS CGS(s) and JSWS(s) and integration into the IAS. Motorala and SPAWAR contract reviews are held quarterly. Contractor logistical support will be provided through General Dynamic's I2P2 Contract.

(U) C. ACQUISITION STRATEGY COBRA: Cobra ACAT IV(T) program uses Full and Open competition for the prime of the EMD phase using a CPIF contract with a follow-on FFP for the production phase.

(U) C. ACQUISITION STRATEGY JSIPS TEG: The three deployed TEG(s) were procured from an ESC USAF Raytheon contract. During FY02, the Marine Corps brought control of the TEG program into Marine Corps System Command. A contract is in place with SPAWAR Charleston, SC to upgrade the TEG(s), conduct training, provide logistical support and program management. Once a system baseline is established and tested, a MS III decision will be scheduled.

(U) C. ACQUISITION STRATEGY TPCS: TPCS, the ever-increasing sophistication of target threats and information technology necessitates an evolutionary acquisition approach. TPCS will make incremental improvements through maximum use of COTS, GOTS and NDI. These technology insertions and product improvements will ensure the Radio Battalions maintain cutting edge technologies and collection capabilities.

(U) C. ACQUISITION STRATEGY TRSS: Development will be competitive down selection process to two vendors for a Cost Plus Development Contract followed up with an award to one vendor with a FFP Production Contract. Air certification will be conducted in house at NAVAIR Patuxent River NAS, MD.

(U) C. ACQUISITION STRATEGY TENCAP: Work will be led in-house. Necessary contractor support will be acquired using already existing contracts.

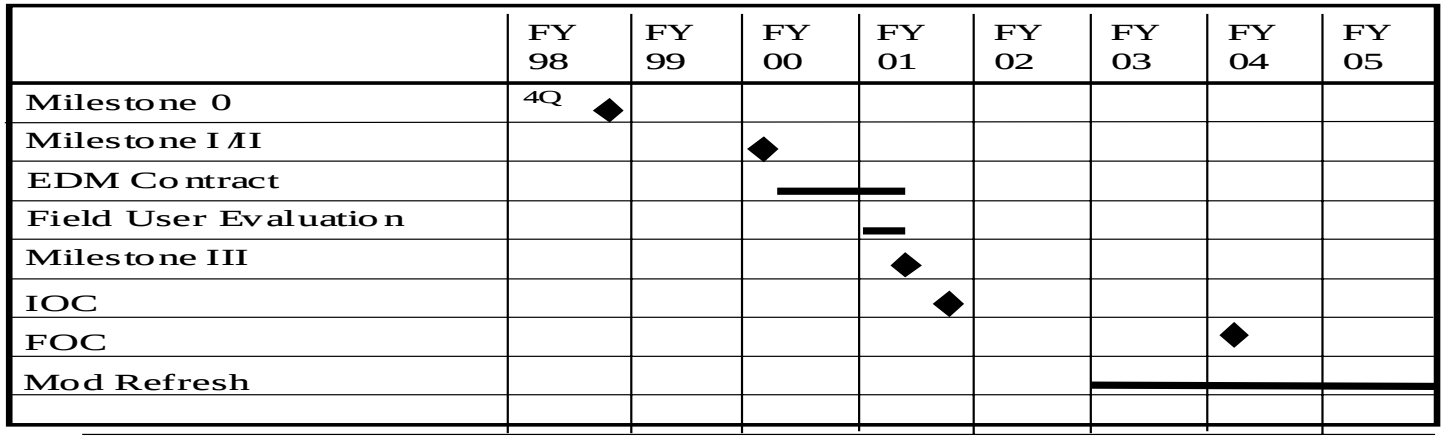
(U) C. ACQUISITION STRATEGY C1HEP: 8A contract will be used for ADP and Photo integration. US Army IMA will be used to integrate the TSS, Audio and Miscellaneous modules. The Communications module will us an existing USSOCOM contract.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2272 Intelligence C2 Systems**

(U) D. SCHEDULE PROFILE: TPC

SCHEDULE

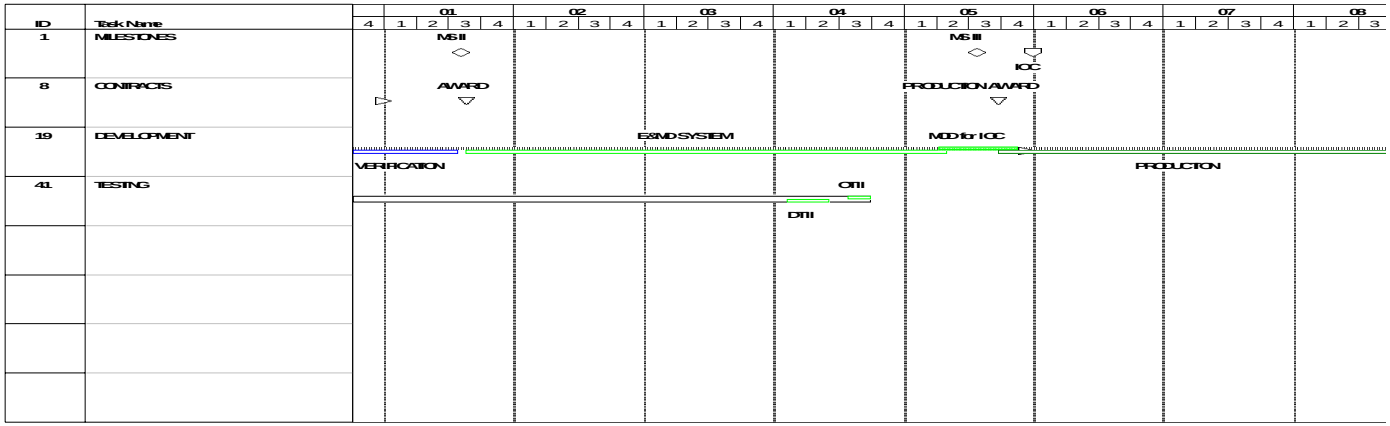


Program Funding Summary (APPN, BLI #, NOMEN)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N	3.344	0.336	0.337	0	0	0	0	0	Continuing	Continuing
(U) PMC, BLI# Intell Supp Eq-TPC	0	7.096	4.671	0	0	0	0	0	0	11.767

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2272 Intelligence C2 Systems**

COASTAL BATTLEFIELD RECONNAISSANCE AND ANALYSIS
(COBRA)
MILESTONE SCHEDULE



Program Funding Summary	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl
(APPN, BLI #, NOMEN)									
(U) RDT&E,N	3.255	2.999	3.572	0.000	0.000	0.000	0.000	0.000	Continuing
(U) PMC BLI# 474700 Intell Supp Eq COBRA					0.000	0	0	0	Continuing

CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**				PROJECT NUMBER AND NAME **C2272 Intelligence C2 Systems**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
TENCAP	Various	Delfin	7.023	1.575	10/99	1.439	10/00	1.262	10/01	Continuing	Continuing	
TENCAP	TBD	TBD				0.845	12/00	0.556		Continuing	Continuing	
TENCAP	RCP	MCSC, Quantico, VA		0.250	10/99					0.000	0.250	0.250
TENCAP	MIPR	HQSAF		0.328	10/99					0.000	0.328	0.328
JSTARS	RCP	CECOM, Ft Monmouth, NJ		1.716	12/99					0.000	1.716	1.716
JSTARS	MIPR	SPAWAR CH				0.386	03/01	0.489	04/01	0.000	0.875	
COBRA	RCP	ERIM		2.745	02/00	1.224	02/01			Continuing	Continuing	
COBRA	RCP	TBD				0.800	02/01	2.790		Continuing	Continuing	
TPC	RCP	Littton/TASC		2.774	05/00					0.000	2.774	2.762
JSIPS TEG	MIPR	ESC, Hanscom AFB, MA		1.093	06/00	1.449	12/00	1.360	12/01	0.000	3.902	
TPCS-MPC	TBD	TBD						3.234		Continuing	Continuing	
CIHEP	MIPR	IMA, Ft Meade, MD						0.050	12/01	0.050	0.100	0.100
CIHEP	RCP	TBD						0.060		0.062	0.122	0.122
TRSS-PIP	RCP	TBD						3.001		Continuing	Continuing	
TRSS-PIP	MIPR	TBD						0.400	12/01	Continuing	Continuing	
										Continuing	Continuing	
										Continuing	Continuing	
										Continuing	Continuing	
										Continuing	Continuing	
										Continuing	Continuing	
										Continuing	Continuing	
										Continuing	Continuing	
										Continuing	Continuing	
Subtotal Product Development			7.023	10.481		6.143		13.202		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis			DATE: **June 2001**									
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**				PROJECT NUMBER AND NAME **C2272 Intelligence C2 Systems**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equipment											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
TENCAP	Various	Delfin	1.614	0.595	10/99	0.601	12/00	0.650		Continuing	Continuing	
TENCAP	TBD	TBD				0.200	08/01	0.150		Continuing	Continuing	
TENCAP	MIPR	SMC/XRBP		0.321	10/99	0.300	04/01	0.320		Continuing	Continuing	
TENCAP	MIPR	USASSC		0.050	04/00					0.000	0.050	0.050
COBRA	WR	CSS		0.350	03/00	0.450	12/00	0.350		Continuing	Continuing	
COBRA	RCP	BRTRC		0.160	03/00	0.270	12/00	0.120		Continuing	Continuing	
COBRA	Various	Various				0.255	04/01	0.312		Continuing	Continuing	
JSTARS	RCP	Logicon		0.242	03/00			0.250		Continuing	Continuing	
JSIPS - TEG	RCP	Logicon						0.432	TBD	Continuing	Continuing	
TPC	RCP	Logicon		0.238	03/00	0.147	12/00	0.147		Continuing	Continuing	
TPCS-MPC	RCP	TBD						0.510	TBD	Continuing	Continuing	
TPCS-MPC	RCP	Logicon						0.644	TBD	Continuing	Continuing	
TRSS	MIPR	Elgin AFB, FL		0.784	08/00					0.000	0.784	0.897
Subtotal Support			1.614	2.740		2.223		3.885				
Remarks:												

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Tooling											0.000	
JSTARS	TBD	TBD						0.327		0.000	0.327	0.327
TPC	MIPR	CECOM		0.332	07/00	0.189	12/00	0.190		Continuing	Continuing	
TPCS-MPC	TBD	TBD						0.845		Continuing	Continuing	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.332		0.189		1.362		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**				PROJECT NUMBER AND NAME **C2272 Intelligence C2 Systems**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost				13.553		8.555		18.449		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**					PROJECT NUMBER AND NAME **C2273 Air Operations C2 Systems**				
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**16.417**	**24.553**	**18.238**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
RDT&E Articles Qty										

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

(U) 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 detected information, deliver the processed information to the Advanced Tactical Air Command Central (ATACC), and conduct the air battle.

1. The Air Defense Communications Platform (ADCP) provides an interface between the AN/TPS-59 (V)3 radar and for tactical ballistic missile defense as a JTIDS network user. The ADCP provides a direct interface between the AN/TPS-59 (v)3 and the joint services.
2. The Aviation Radar (AN/TPS-59) is a "congressionally mandated" national asset. It is the only fielded ground based sensor which can detect and track Theater Ballistic Missiles at ranges of 400 nautical miles, for 360 degrees up to one million feet in elevation.
3. The Common Aviation Command and Control System (CAC2S) will provide a common baseline of equipment, computer hardware, and software required to perform the mission of the Marine Air Command and Control System (MACCS). CAC2S will provide a complete and coordinated modernization effort for the equipment of the MACCS to support its employment in an Operational Maneuver From The Sea (OMFTS) environment. The CAC2S will eliminate the current dissimilar aviation Command & Control systems, and will add the capability for aviation combat direction and air defense functions. CAC2S will be comprised of standardized tactical facilities, hardware, software and will significantly reduce the physical size and logistical footprint of existing MACCS equipment suite. Utilizing common hardware, the CAC2S will be an open architecture system that will migrate to the Defense Information Infrastructure Common Operating Environment (DII COE). Furthermore, CAC2S will execute real time functions of controlling aircraft and missiles, and employing weapon systems against time critical targets. CAC2S will provide a capability that allows operators to integrate Marine aviation into joint and combined air/ground operations. CAC2S will provide the tools that perform aviation C2 planning and execution functions in a positive control enviro assimilate the missions and fiscal resources of the Tactical Air Operations Center (TAOM), Tactical Air Command Center and the Direct Air Support Center (DASC) and the Air Defense Communications Platform (ADCP).
4. The MACCS Sustainment consists of various command and control agencies designed to provide the Aviation Combat Element (ACE) commander with the ability to monitor, supervise and influence the application of Marine aviation assets in support of MAGTF operations. The MACCS Sustainment provides funding to keep these legacy agencies ready, relevant and capable until their functions are replaced by the Common Aviation Command and Control System (CAC2S).
5. Theater Battle Management Core Systems (TBMCS) provides the commander the automated tools necessary to generate, disseminate, and execute the Air Tasking Order (ATO), as mandated by the Chairman, Joint Chiefs of Staff in July 1993. It is an evolutionary acquisition, allowing for the rapid development/fielding of hardware and software to meet today's rapidly advancing technology. It is fielded to all four Marine Tactical Air Command Squadrons (MTACS) and the supporting establishment with Marine Aviation Weapons and Tactics School (MAWTS) and the Battlestaff Training Facility (BSTF) sharing a system. Beginning FY00, CTAPS is migrating to the Theater Battle Management Core Systems (TBMCS) program within the USAF, and will change names from CTAPS to TBMCS.
6. 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.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Sys**	**C2273 Air Operations C2 Systems**

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2000 Accomplishments:

- (U) $ 0.200 ADCP: Completed VMF development/meshnet upgrades.
- (U) $ 0.070 ADCP: Continued software modifications.
- (U) $ 0.589 ADCP: Initiated software development
- (U) $ 5.900 AV RDR: Initiated Safety ECP's developing a replacement IFF Interrogator, maintenance lift, False Alarm Adaptation (FAA) software, and development of software in
- (U) $ 0.758 AV RDR: Forward finances efforts to initiate safety ECP's developing a replacement IFF Interrogator, maintenance lift, False Alarm Adaptation (FAA) software, and development of software in support of two separate ORDs.
- (U) $ 0.300 AV RDR: Program in Process Review (IPR), and contract management.
- (U) $ 0.200 AV RDR: Life Cycle Cost Estimate.
- (U) $ 0.562 AV RDR: Developed the ECP for replacement of AN/PSN-11 (PLGR)
- (U) $ 0.050 AV RDR: Trade study for antenna obsolescence.
- (U) $ 0.546 AV RDR: Performed studies and analysis to determine the best approach for upgrading the 59 radar Electronic Protection capability to comply with phase II of the
- (U) $ 0.390 CAC2S: Continued program management support.
- (U) $ 1.892 CAC2S: Continued the migration of existing equipment to a Technology Demonstration Laboratory (TDL) as a CAC2S proof on concept for a common suite of equipment; conduct user assessment of requirements for insertion into Performance Specification in preparation of PDRR.
- (U) $ 1.420 CAC2S: Completed system performance specification and prepare solicitation documentation.
- (U) $ 0.923 CAC2S: Conducted initial sensor interface/integration and interoperability analysis.
- (U) $ 0.862 CAC2S: Initiated Software development, design, of host processing system, and conduct software integration of Joint mandated applications in prep for PDRR.
- (U) $ 0.227 TBMCS: Continued USMC's TBMCS development.
- (U) $ 0.025 TBMCS: Continued MCTSSA TBMCS software support.
- (U) $ 0.412 TBMCS: Program support to provide documentation and support of TBMCS development and testing.
- (U) $ 1.091 TAOM: Software upgrade and test facility

(U) Total $ 16.417

FY 2001 Planned Program

- (U) $ 0.228 ADCP: Continue software enhancements to meet ADCP ORD requirements.
- (U) $ 0 AV RDR: Continue safety ECP's developing a replacement IFF Interrogator, maintenance lift, False Alarm Adaptation (FAA) software, and development of software in support of two separate ORDs. This effort forward financed with $758K of FY00 funding.
- (U) $ 8.218 AV RDR: Antenna obsolescence ECPs to deal with diminishing manufacturing sources issue.
- (U) $ 0.500 AV RDR: Counter arm missile defense capability to meet current threats.
- (U) $ 0.800 AV RDR: Develop ECP to incorporate IFF antenna into main radar antenna.
- (U) $ 0.300 AV RDR: Continue Program in Process Review and contract management.
- (U) $ 1.992 CAC2S: Continue program management support.
- (U) $ 0.781 CAC2S: Independent Validation & Verification (SPAWAR Systems Center Charleston) of Phase I Contractor's Systems Design.
- (U) $ 10.524 CAC2S: Continue Phase I PDRR actions, award PDRR contract to demonstrate system engineering, software design and development, and Processing and Display Suite (PDS) efforts. Continue and complete initial sensor interface/integration and begin interoperability testing for in preparation of Engineering Development Model (EDM).
- (U) $ 0.317 TBMCS: Continue USMC's TBMCS development.
- (U) $ 0.025 TBMCS: Continue MCTSSA TBMCS software support.
- (U) $ 0.268 TBMCS: Program management support.
- (U) $ 0.600 SBIR: Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638

(U) Total $ 24.553

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2273 Air Operations C2 Systems**

FY 2002 Planned Program

- (U) $ 0.145 ADCP: Test and certify software enhancements.
- (U) $ 0.100 ADCP: Continue software enhancements to meet ADCP ORD requirements.
- (U) $ 2.131 AV RDR: Develop ECP to incorporate electronic protection.
- (U) $ 1.500 AV RDR: Develop ECP to incorporate new transmitters for the antenna.
- (U) $ 1.098 AV RDR: Initiate ECP false alarm adaption software.
- (U) $ 2.000 CAC2S: Continue Program management support.
- (U) $ 2.200 CAC2S: Engineering Development Model (EDM), le, integration of Engineering Development Model (EDM) hardware with existing assets and development of shelter configurations.
- (U) $ 4.855 CAC2S: Initiate Engineering Development Model (EDM) software development, design, of host processing system, and conduct software integration of Joint mandated applications.
- (U) $ 0.799 CAC2S: Continue Independent Validation and Verification (SPAWAR Systems Center Charleston) of Phase I Contractor's Systems Design.
- (U) $ 0.052 MACCS SUSTAINMENT: Initiate test and evaluation on the DASC Airborne SLEP.
- (U) $ 2.432 MACCS SUSTAINMENT: Plan software upgrades for the TAOM, JTIDS and TACC.
- (U) $ 0.162 MACCS SUSTAINMENT: Program management support.
- (U) $ 0.454 TBMCS: Continue USMC TBMCS development.
- (U) $ 0.033 TBMCS: Continue MCTSSA TBMCS software support.
- (U) $ 0.277 TBMCS: Continue Program management support.

(U) Total $ 18.238

(U) PROJECT CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	16.324	24.780	17.889
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.379		
(U) Execution Adjustment	2.129		
(U) Minor Affordability Adjustment	-0.064	-0.227	-0.271
(U) Program Adjustment	-1.593	0.000	0.620
(U) FY 2002 President's Budget:	16.417	24.553	18.238

CHANGE SUMMARY EXPLANATION:

(U) Funding: See Above.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2273 Air Operations C2 Systems**	

(U) B. OTHER PROGRAM FUNDING SUMMARY

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC, BLI#464000,TBMCS (CTAPS)	4.007	3.123	3.395	0	0	0	0	0	Continuing	Continuing
(U) PMC, BLI#462000, ADCP PIP	0.175	0.277	0.378	0	0	0	0	0	0	0.83
(U) PMC, BLI#463600, AN/TPS-59 ECPS	1.268	1.068	0	0	0	0	0	0	0	2.336
(U) PMC, BLI #463600, AN/TPS-59	1.029	0	5.298	0	0	0	0	0	Continuing	Continuing
(U) PMC, BLI #464000, Air Ops Systems CAC2S	0	0	0	0	0	0	0	0	Continuing	Continuing
(U) PMC, BLI #464000, MACCS SUSTAINMENT	0	0	1.219	0	0	0	0	0	0	1.219
(U) PMC, BLI 464000, TAOM	2.047	0	0	0	0	0	0	0	0	2.047

(U) Related RDT&E: Not Applicable.

(U) C. ACQUISITION STRATEGY:

(U) AN/TPS 59: Perform research and development for electronic protection and continuing resolution of Diminishing Manufacturing Sources (DMS) as well as replacement of transmitters on the 12 arrays over the 5 year FYDP. A sole source contract was awarded to Lockheed Martin for life cycle system support in FY00.

(U) CAC2S: The contracting strategy is centered on a family of options that will be exercised from PDRR through Increment II production based on contractor performance. The base contract is for PDRR and there will be options for EMD-1, EMD-II, Production-1 and Production-II. The PDRR contact is a Cost Plus Fixed Fee for up to two contractors. Following the PDRR phase, an option for the EMD-1 phase will be exercised for one contractor. The EMD contract options of Increment I and II will be Cost Plus Award Fee. After successful completion of each EMD, a production option will be exercised. The production contracts for Increment I and II will be Firm Fixed Price Successive Targets (Modified)

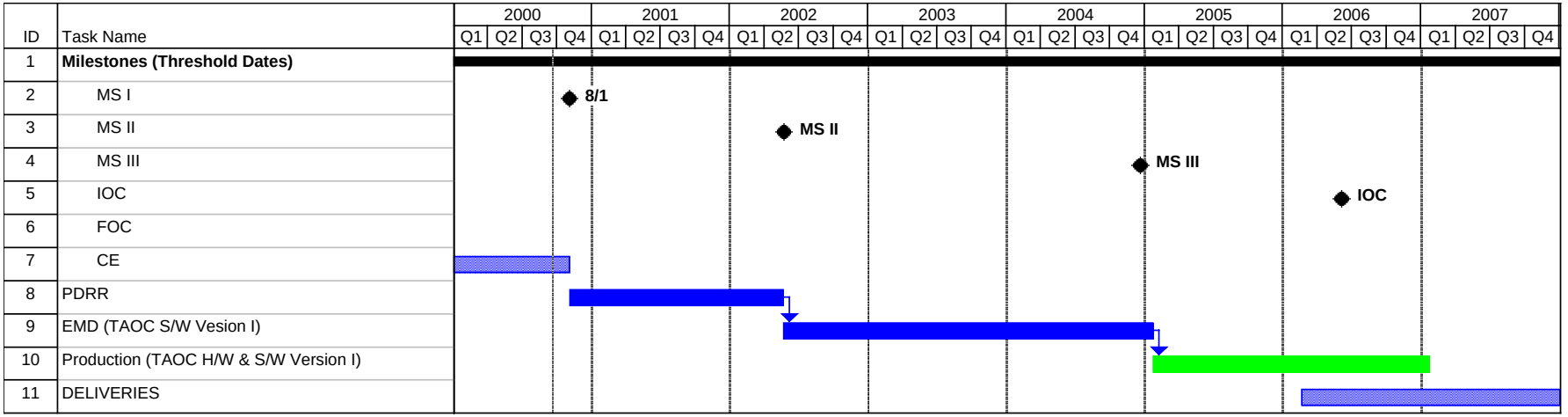
(U) MACCS SUSTAINMENT: The Direct Air Support Central (Airborne) Abbreviated Acquisition Program is utlizing a sole-source strategy with Computing Devices Cana a wholly-owned subsidiary of General Dynamics, for procurement of Communications Distribution System equipment. Prototype development and system integration will be conducted by Naval Surface Weapons Center, Crane, IN.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2273 Air Operations C2 Systems**

(U) D. SCHEDULE PROFILE:

CAC2S



Program Funding Summary (APPN, BLI #, NOMEN)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N	5.487	13.633	9.854	0.000	0.000	0.000	0.000	0.000	0	Continuing
(U) PMC, BLI# 46400 Air Ops Sys-CAC2S	0	0	0	0	0	0	0	0	Continuing	Continuing

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2273 Air Operations C2 Systems**

TPS-59 RADAR SCHEDULE:

(V)3 Fielding Schedule:	3rd Qtr 98 thru 3rd Qtr 99
IOC:	Sep 98
FOC:	Aug 99
CEC Integration:	1st Qtr 99 thru 4th Qtr 00
Develop:	1st Qtr 99 thru 3rd Qtr 01
IV&V:	3rd Qtr 99 thru 4th Qtr 00
Antenna Obsolences ECP's:	1st Qtr 99 thru 3rd Qtr 04
Procure (Various):	1st Qtr 99 thru 4th Qtr 03
IOC:	2nd Qtr 01
FOC:	4th Qtr 07

Program Funding Summary (APPN, BLI #, NOMEN)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N	8.316	10.064	4.729	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
(U) PMC BLI# 463600 AN/TPS-59	2.297	1.068	5.298	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

CLASSIFICATION:

Exhibit R-3 Cost Analysis							DATE: **June 2001**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**				PROJECT NUMBER AND NAME **C2273 Air Operations C2 Systems**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
CAC2S	WR	Center Charleston, SC	2.500	3.062	11/99	0.781		0.799		Continuing	Continuing	
CAC2S	RCP	ASN C4I, Wash DC	0.000	0.494	07/00	0.000		0.000		0.000	0.494	0.494
CAC2S	RCP	BRTRC, Quantico, VA	0.000	0.253	01/00	0.100	12/00			Continuing	Continuing	
CAC2S	RCP	Delex Corp., Alex VA	0.000	0.020	05/00	0.000		0.000		Continuing	Continuing	
CAC2S	RCP	MCSC, Quantico, VA	0.000	0.000		10.620	12/00	7.055	01/02	Continuing	Continuing	
ADCP	WR	NSWC Crane, IN	0.445	0.736	08/00	0.118		0.127		Continuing	Continuing	
MACCS SUSTAINMENT	WR	NAVSEA Crane, IN	0.000	0.000		0.000		2.432	05/02	Continuing	Continuing	
AV RDR	FFP	Lockheed,Syracuse NY	3.849	6.591	12/99	9.038	12/00	4.729	01/02	Continuing	Continuing	
AV RDR	C/CPFF	Sensis, Syracuse NY	0.279	0.176	12/99	0.200	10/00			Continuing	Continuing	
AV RDR	RCP	MCSC, Quantico, VA	0.262	0.762	08/00	0.000		0.000		0.000	1.024	1.024
AV RDR	WR	Crane, In	0.000	0.050	08/00	0.000		0.000		0.000	0.050	0.050
TBMCS	WR	MCSC, Quantico, VA	0.090	0.000		0.000		0.000		0.000	0.090	0.090
TBMCS	MIPR	ESC, Hanscom AFB	0.005	0.275		0.317		0.454		Continuing	Continuing	
TAOM	RCP	MCSC, Quantico, VA	1.788	1.091	08/00	0.000		0.000		0.000	2.879	2.879
										Continuing	Continuing	
										Continuing	Continuing	
										Continuing	Continuing	
										Continuing	Continuing	
										Continuing	Continuing	
										Continuing	Continuing	
Subtotal Product Development			9.218	13.510		21.174		15.596		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**				PROJECT NUMBER AND NAME **C2273 Air Operations C2 Systems**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equipment											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
CAC2S	WR	MCSC, Quantico, VA	0.028	0.120	04/00	0.546		0.735		Continuing	Continuing	
CAC2S	WR	MCTSSA, CPndltn,CA	0.020	0.030	10/99	0.040		0.030		Continuing	Continuing	
CAC2S	WR	MCLB Albany GA	0.006	0.005	02/00	0.005		0.005		0.005	0.026	0.026
CAC2S	WR	3rd MAW San Diego, CA	0.008	0.005	03/00	0.005		0.005		0.005	0.028	0.028
CAC2S	WR	NWSC Crane, IN	0.100	0.216	04/00	0.000		0.000		0.000	0.316	0.316
CAC2S	WR	CG 1st MAW	0.009	0.005	04/00	0.005		0.005		0.005	0.029	0.029
CAC2S	WR	MCOTEA	0.000	0.175	07/00	0.175		0.200		Continuing	Continuing	
CAC2S	WR	2nd MAWCh Pt, NC	0.001	0.023	04/00	0.010		0.010		0.020	0.064	0.064
CAC2S	WR	MarForRes NO, LA	0.001	0.005	03/00	0.005		0.005		0.005	0.021	0.021
CAC2S	WR	MCAS Yuma, AZ	0.007	0.005	02/00	0.005		0.005		0.005	0.027	0.027
CAC2S	RCP	MCSC, Quantico, VA	0.124	0.000	01/00	0.000		0.000		0.000	0.124	0.124
MACCS Sustainment	WR	MCTSSA, CPndltn,CA	0.000	0.000		0.000		0.161		Continuing	Continuing	
ADCP	WR	MCTSSA, CPndltn,CA	0.020	0.100		0.080		0.088		Continuing	Continuing	
ADCP	WR	MCSC, Quantico, VA	0.017	0.023		0.030		0.030		Continuing	Continuing	
ADCP	WR	MCAGC, 29 Palms CA	0.002	0.000		0.000		0.000		0.000	0.002	0.002
ADCP	WR	MCLB Albany GA	0.004	0.000		0.000		0.000		0.000	0.004	0.004
AV RADAR	WR	NWSC Crane, IN	0.048	0.038		0.050		0.000		Continuing	Continuing	
AV RADAR	WR	MCTSSA, CPndltn,CA	0.000	0.020	10/99	0.050		0.000		Continuing	Continuing	
AV RADAR	WR	MCLB Albany GA	0.000	0.020	12/99	0.020		0.000		Continuing	Continuing	
AV RADAR	WR	NRL, Washington, DC	0.119	0.208		0.000		0.000		Continuing	Continuing	
AV RADAR	WR	2nd MAWCh Pt, NC	0.001	0.000		0.000		0.000		0.000	0.001	0.001
AV RADAR	WR	NSWC Crane, In	0.060	0.000		0.000		0.000		0.000	0.060	0.060
TBMCS	WR	MCTSSA, CPndltn,CA	0.000	0.025	10/99	0.025		0.033		Continuing	Continuing	
TBMCS	WR	3rd MAW El Toro, CA	0.005	0.050	10/99	0.000		0.000		0.000	0.055	0.055
TBMCS	WR	MCSC, Quantico, VA	0.017	0.046		0.091		0.102		Continuing	Continuing	
TBMCS	WR	MarForRes NO, LA	0.004	0.005		0.000		0.000		0.000	0.009	0.009

CLASSIFICATION:

Exhibit R-3 Cost Analysis											DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**					PROJECT NUMBER AND NAME **C2273 Air Operations C2 Systems**					
TBMCS	WR	CG 1st MAW	0.001	0.000		0.000		0.000		0.000	0.001	0.001
TAOM	WR	MCTSSA, CPndltn,CA	0.086	0.000		0.000		0.000		0.000	0.086	0.086
TAOM	RCP	MCTSSA, CPndltn,CA	0.096	0.000		0.000		0.000		0.000	0.096	0.096
Subtotal Support			0.784	1.124		1.142		1.414		Continuing	Continuing	
Remarks:												

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Tooling											0.000	
MACCS Sustainment	RCP	MCTSSA, CPndltn,CA	0.000	0.000		0.000		0.053	01/02	Continuing	Continuing	
TBMCS	WR	Crane IN	0.000	0.132		0.000		0.000		0.000	0.132	0.132
ADCP	RCP	MCTSSA, CPndltn,CA	0.055	0.000		0.000		0.000		0.000	0.055	0.055
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.055	0.132		0.000		0.053		Continuing	Continuing	
Remarks:												

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
TBMCS	CPFF	Logicon	0.000	0.131	10/99	0.177	10/00	0.175	01/02	Continuing	Continuing	
AV RADAR	CPFF	Logicon	0.000	0.451		0.460	10/00	0.000		Continuing	Continuing	
CAC2S	IDIQ	Logicon	0.000	1.069	03/00	1.000	06/01	1.000	01/02	Continuing	Continuing	
SBIR						0.600						
Subtotal Management			0.000	1.651		2.237		1.175		0.000	5.063	
Remarks:												
Total Cost				16.417		24.553		18.238		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**					PROJECT NUMBER AND NAME **C2274 C2 Warfare Systems**				
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**9.306**	**7.592**	**5.429**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
RDT&E Articles Qty										

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

(U) Command and Control (C2) Warfare Project includes the following tactical electronic intercept, direction finding, and electronic attack systems:

1. The Tactical Electronic Reconnaissance Processing and Evaluation System (TERPES) is used to process, sort, analyze, display and correlate ES and EA data collected by EA-6B aircraft and maintains the Tactical Electronic Orders of Battle.

2. The Mobile Electronic Warfare Support System, Product Improvement Program (MEWSS-PIP) will be used to collect and process communication and non-communication signals and provide electronic attack capability from a mobile ground platform.

3. Team Portable collection System (TPCS) upgrade is a semi-automated, manpackable/team transportable signals intelligence system that provides communications intercept, radio direction finding analysis and reporting to the Marine Air Ground Task Force (MAGTF) Commander.

4. The Radio Reconnaissance Equipment Program (RREP) provides the FMF Radio Battalions, Radio Reconnaissance Platoons (RRP) with mission unique Signals Intelligence/Ground Electronic Warfare SIGINT/EW) Equipment suites. Continuing with an evolutionary acquisition approach, the third suite RREP-SS-2 will provide the RRPs with the capability to conduct SIGINT/EW operations in support of Marine Air Ground Task Force (MAGTF) Commanders during advance force special operations, and other special purpose missions where the use of conventional Radio Battalion assets are not feasible. RREP-SS-2 is a ruggerized, modular; man packable system specifically designed utilizing emerging NDI/COTS/GOTS technology for RRP operations, particularity those conducted under the most austere conditions. The RREP-SS-2 module configuration has an “open systems” architecture that will permit future upgrades by simply installing cutting edge NDI/COTS/GOTS technology into the standard modules. The fourth suite, RREP-SS-3, to be fielded in FY04, will have the added capability to intercept those emerging target sets as identified by the NSA, be operated from remoted positions, and incorporate polymer battery technologies.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2274 C2 Warfare Systems**

(U) PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2000 Accomplishments:

- (U) $ 1.800 MEWSS PIP: Completed integration of Electronic Attack subsystem.
- (U) $ 3.981 MEWSS PIP: Completed integration and developmental testing.
- (U) $ 0.160 MEWSS PIP: Forward Finance integration of Electronic Attack Module.
- (U) $ 0.508 TPCS Upgrade: Began In keeping with the evolutionary acquisition strategy, these funds used to develop software to enhance the baseline including enhancements to improve the systems interoperability with other systems.
- (U) $ 0.225 TPCS Upgrade: Began Systems Engineering and Technical Assistance (SETA).
- (U) $ 0.362 TERPES: Continued development of TERPES mission planning software to maintain compatibility with the EA-6B aircraft software changes.
- (U) $ 0.200 TERPES: Continued development of Tactical Automation Sanitation capability or similar Multi-Level Security (MLS) device or procedure.
- (U) $ 0.100 TERPES: Forward financed the commencement and completion of software and hardware integration for Joint Tactical Terminal (JTT).
- (U) $ 0.498 TERPES: Continued DII/COE compliance to reach level 6 and NT migration.
- (U) $ 0.031 TERPES: Forward financed the continuation of DII/COE compliance to reach level 6 and NT migration.
- (U) $ 0.397 TERPES: Continued development of advanced communications suite for Joint interoperability software changes.
- (U) $ 0.509 TERPES: Forward finances the beginning of Enhanced TERPES Fusion Correlator Software.
- (U) $ 0.535 RREP: Integrated GOTS/COTS electronic attack (EA) capability (SS-2).

(U) Total $ 9.306

FY 2001 Planned Program

- (U) $ 0.600 MEWSS PIP: Operational Testing
- (U) $ 0.000 MEWSS PIP: Complete integration of Electronic Attack module. This effort forward financed with $160K of FY00 funding.
- (U) $ 4.670 MEWSS PIP: Mobility enhancements, data storage/archiving, data import/export, SEI, sensor control.
- (U) $ 0.186 TPCS Upgrade: Continued Systems Engineering and Technical Assistance (SETA).
- (U) $ 0.125 TPCS Upgrade: Funds to be used for development of further system enhancements including for software and later upgrades.
- (U) $ 0.000 TERPES: Begin and completed software and hardware integration for Joint Tactical Terminal (JTT). This effort forward financed with $100K of FY00 funding.
- (U) $ 0.420 TERPES: Continued development of TERPES mission planning software to maintain compatibility with the EA-6B software changes.
- (U) $ 0.100 TERPES: Continued development of advanced communications suite for Joint Interoperability hardware/ software changes.
- (U) $ 0.443 TERPES: Continued DII/COE compliance to reach level 6.
- (U) $ 0.000 TERPES: Continued DII/COE compliance to reach levell 6 and NT migration. This effort forward financed with $31K of FY00 funding.
- (U) $ 0.275 TERPES: Begin enhanced TERPES Fusion Engine Software.
- (U) $ 0.000 TERPES: Begin enhanced TERPES Fusion Correlator Software. This effort forward financed with $509K of FY00 funding.
- (U) $ 0.366 TERPES: Continued to enhance TERPES Fusion Correlator Software.
- (U) $ 0.217 RREP: Development efforts in support of remote control operations (SS-3).
- (U) $ 0.190 SBIR: Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

(U) Total $ 7.592

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2274 C2 Warfare Systems**

FY 2002 Planned Program

- (U) $ 0.400 MEWSS PIP: Funds system enhancements to include efforts toward full DII/COE compliance.
- (U) $ 0.656 MEWSS PIP: Development work to transition from centralized software architecture to a common EW architecture.
- (U) $ 0.211 TPCS Upgrade: Continue System Engineering and Technical Assistance (SETA) (CSC).
- (U) $ 0.293 TPCS Upgrade: Software revision/upgrade, system enhancements.
- (U) $ 0.650 TERPES: Continue development of TERPES mission planning software to maintain compatibility with EA-6B software changes and begin ICAP III final integration.
- (U) $ 0.150 TERPES: Continue development of advanced communications suite for Joint Interoperability hardware/software changes.
- (U) $ 0.500 TERPES: Continue DII/COE compliance to reach level 7.
- (U) $ 0.450 TERPES: Continue DII/COE compliance to reach level 7 and NT migration.
- (U) $ 0.700 TERPES: Continue Enhanced TERPES Fusion Engine Software.

- (U) $ 0.450 TERPES: Continue Enhanced TERPES Fusion Correlator Software.
- (U) $ 0.231 TERPES: Continue TEPP/TSP enhancement processing.
- (U) $ 0.200 TERPES: Continue Hardware research testing and integration.
- (U) $ 0.150 TERPES: In-House program management.
- (U) $ 0.100 RREP: Complete integration GOT/COTS electronic attack (EA) capability (SS-2).
- (U) $ 0.288 RREP: Integrate GOTS/COTS electronic attack (EA) capability (SS-3).

(U) Total $ 5.429

(U) PROJECT CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	10.329	2.663	4.290
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.180		
(U) Execution Adjustment	-0.676		
(U) Minor Affordability Adjustment	-0.057	-0.071	-0.078
(U) Program Adjustment	-0.110	5.000	1.217
(U) FY 2002 President's Budget:	9.306	7.592	5.429

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2274 C2 Warfare Systems**

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC BLI 474900 Mod Kits INTEL TERPES	3.566	0.000	3.043	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
(U) PMC BLI 463600 Modification Kits MEWSS	7.791	4.893	14.803	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
(U) PMC BLI 474900 Mod Kits INTEL TPCS	10.864	2.807	0.000	0.000	0.000	0.000	0.000	0.000	0	13.671
(U) PMC BLI 474700 Intell Suppt Eq RREP	2.761	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	2.761

(U) Related RDT&E:
(U) (U) PE 0305885G (Tactical Cryptologic Program)

(**U) C. ACQUISITION STRATEGY TERPES:** The acquisition of components for the TERPES upgrade refresh will maximize the use of existing equipment, NDI/COTS/GOTS/GFE equipment/software. The integration effort for TERPES hardware components will be accomplished under the control of the WSSA, NAWCWD. Software integration and support will be accomplished by contractors under the control of the TERPES WSSA NAWCWD. These activities report to, and are directed by, the program Manager, Command Information Systems, Marine Corps Systems Command (MARCORSYSCOM). This strategy accomplishes several goals: standardization, use equipment than can be serveral goals: standardization, use equipment that can be acquired and fielded quickly, reduce logitics requirements, and reduce costs of software maintenance.

(**U) C. ACQUISITION STRATEGY MEWSS PIP:** The MEWSS PIP is initiating Marine Corps Systems Command-administered contracts as folow-on to the Army CECOM Intellegence and Electronic Warfare Common Sensor (IEWCS) contract used for development of the three MEWSS PIP LRIP vehicles. These contracts are being pursued as sole source to Lockheed Martin systems Integration in Owego, New York.

(U) C. ACQUISITION STRATEGY TPCS: The ever-increasing sophistication of target threats and information technology necessitates an evolutionary acquisition approach. TPCS will make incremental improvements through maximum use of COTS, GOTS and NDI. The contract is a Contract Cost Plus Fixed Fee.

(U) C. ACQUISITION STRATEGY RREP: The RREP will incorporate and integrate cutting edge technologies through the use of Commercial off the Shelf (COTS) components to include Marine Corps Common Hardware components and Government off the Shelf (GOTS) DII COE compliant software. Contract is Cost Plus Fixed Fee (CPFF).

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2274 C2 Warfare Systems**

(U) D. SCHEDULE PROFILE:

MEWSS-PIP Milestone Schedule

	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05
MILESTONE 0								
MILESTONE 1/II								
OT PHASE 1	X							
OT PHASE 2				X				
MILESTONE III					X			
PRODUCTION CONTRACT AWARD					X			
PRODUCTION					X ---------- ----------			
IOC					X			
FOC								X

Program Funding Summary **(APPN, BLI #, NOMEN)**	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N	5.941	5.398	1.056	0	0	0	0	0	0	Continuing
(U) PMC, BLI# 463600 Mod Kits MEWSS	7.791	4.893	14.803	0	0	0	0	0	Continuing	Continuing

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2274 C2 Warfare Systems**

TPCS UPGRADE
MILESTONE SCHEDULE

PHASE	FY 98	FY 99	FY 00	FY 01	FY 02
MILESTONE 0					
MILESTONE I/II					
OT		X			
MILESTONE III		X			
PRODUCTION CONTRACT AWARD			X		
PRODUCTION			X		
IOC				X	
FOC					X

Program	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(APPN, BLI #, NOMEN)										
(U) RDT&E,N	0.733	0.325	0.504	0.000	0.000	0.000	0.000	0.000	0.000	Cont.
(U) PMC BLI 474900 Mod Kits INTEL (TPCS)	10.864	2.807	0	0	0.000	0	0	0	0	Cont.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2274 C2 Warfare Systems**

RREP
MILESTONE SCHEDULE

PHASE	FY 98	FY 99	FY 00	FY 01	FY 02
MS II (SS-2)	2Q				
MS III (SS-2)			1Q		
ELECTRONIC ATTACK (EA MODULE)			3Q		
MS 0/I (SS-3)			4Q		
REMOTE EA CAPABILITY				2Q	
IOC/FOC (SS-2)				3Q	
MS II (SS-3)				3Q	
MS III (SS-3)					4Q

Program	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(APPN, BLI #, NOMEN)										
(U) RDT&E,N	0.535	0.218	0.388	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
(U) PMC BLI 474700 Intell Suppt EQ RREP	2.761	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	Continuing

CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**				PROJECT NUMBER AND NAME **C2274 C2 Warfare Systems**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
MEWSS	CPFF	Lockheed Martin	0.000	5.941	11/99	5.270	11/00	1.056	11/01	Continuing	Continuing	
TPCS Upgrade	CPFF	DAC/BTG	0.000	0.508	01/00	0.125	01/01	0.293	01/01	Continuing	Continuing	
TERPES	RCP	NSWC, Crane In	0.000	0.000		0.469	05/01	0.699	10/01	Continuing	Continuing	
TERPES	MIPR	SMC/ADF El Segundo	0.000	0.000		0.275	01/01	1.400	10/01	Continuing	Continuing	
TERPES	RCP	NAWCWPNS	0.000	1.569	02/00	0.520	05/01	0.700	02/01	Continuing	Continuing	
TERPES	WR	PT Mugu, CA	0.000	0.429	12/99	0.248	05/01	0.432	12/01	Continuing	Continuing	
RREP	CPFF	PM-CISS NEW,VA	0.000	0.535	06/00	0.217	01/01	0.388	01/01	Continuing	Continuing	
SBIR						0.190				Continuing	Continuing	
Subtotal Product Development			0.000	8.982		7.314		4.968		Continuing	Continuing	
Remarks:												

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equipment											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
TPCS Upgrade	CPFF	CSC		0.225	10/99	0.186	02/01	0.211	10/01	Continuing	Continuing	
TERPES	WR	NAWCWPNS, Pt Mugu		0.099	10/99	0.092	02/01	0.100	11/01	Continuing	Continuing	
TERPES	RCP	LOGICON		0.000		0.000		0.150	01/02	Continuing	Continuing	
Subtotal Support			0.000	0.324		0.278		0.461				
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**				PROJECT NUMBER AND NAME **C2274 C2 Warfare Systems**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Tooling											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		Continuing	Continuing	
Remarks:												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost				9.306		7.592		5.429		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Systems**				PROJECT NUMBER AND NAME **C2276 Communications Switching & Control Systems**					
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**1.766**	**0.224**	**0.986**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
RDT&E Articles Qty										

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

This program consists of three interrelated projects: Digital Technical Control (DTC), Tactical Data Network (TDN), and Defense Message System (DMS). Together, these systems form an integrated, digital communications backbone for a deployed Marine Air Ground Task Force (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 TDN augments existing MAGTF communications infrastructure to provide the commander an integrated data network forming the communication backbone for MAGTF tactical data systems and Defense Message System. 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 evolutionary acquisition strategy and funding provide for development of additional capabilities which compose the Block II upgrade of the system.

(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 voice, 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 signaling 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) DMS is an OSD-mandated program to integrate Automatic Digital Network (AUTODIN) and E-Mail into a single, secure, DoD message communications system. DMS will expand writer-to-reader connectivity, support, and message security services. Organizations and individuals will be able to create, edit, send, receive, read, and process organizational and individual messages, secured with end-to-end protection, direct from desktop terminals/personal computers in their workspaces. DMS will do everything our current Banyan E-Mail and AUTODIN systems do with the following additional capabilities: connectivity to all users in DoD

(U) The Joint Newtork Management System (JNMS) is a CINC and Commander, Joint Forces joint communications planning and management system. It provides communication planners with the capabilities to conduct high level planning; detailed planning and engineering; monitoring; control and reconfiguration; spectrum planning and management; and security of systems and networks supporting joint operations. The CINC will utilize JNMS to support a deployed JTF Joint Communications Control Center (JCCC). All joint level managers and Service component headquarters level system controls (SYSCONs) will use the JNMS. Service components will use the JNMS to ensure that their plans are coordinated with the CINC's Annex K.
(U) The ULCS PIP Transition Switch Module (TSM) will provide a flexible Unit Level Switch capability that bridges legacy Tri-Tac switches with current commercial technology to provide Marine maneuver elements with more robust voice/data switching, data transport and bandwidth management capabilities. This program will maintain USMC joint interoperability as the other Services transition to COTS switching technologies

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Systems**	**C2276 Communications Switching & Control Systems**	

(U) PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2000 Accomplishments:

- (U) $ 0.505 DTC: Developmental/Interoperability testing of ATM upgraded, obtained approval for ATM upgrade
- (U) $ 0.255 DMS: Supported software and hardware integration/testing. Incorporate evolutionary security products into the unclassified DMS architecture within a Marine Corps-unique network infrastructure.
- (U) $ 1006 TDN: Continued TDN BLK II development and S/W and H/W Integration testing. Achieve milestone III Decision for Block II

(U) Total $ 1.766

FY 2001 Planned Program

- (U) $ 0.224 DMS: Support software and hardware integration/testing. Incorporate evolutionary security products into the unclassified DMS architecture within a Marine Corps-unique network infrastructure.

(U) Total $ 0.224

FY 2002 Planned Program

- (U) $ 0.986 JNMS: Begin development of JNMS hardware suites and upgrade SPEED for DII COE LVL 6 compliance

(U) Total $ 0.986

(U) PROJECT CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	1.831	0.227	0.000
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.032		
(U) Execution Adjustment	-0.106		
(U) Minor Affordability Adjustment	-0.007	-0.003	-0.014
(U) Program Adjustment	0.080		1.000
(U) FY 2002 President's Budget:	1.766	0.224	0.986

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Systems**	PROJECT NUMBER AND NAME **C2276 Communications Switching & Control Systems**

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007 To Compl		Total Cost
(U)PMC BLI 463400 Communications Switching and Control Systems										
DTC	32.261	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Cont.
TDN	20.646	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Cont.
DMS	17.200	3.124	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Cont.
JNMS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ULCS TSM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0

(U) Related RDT&E: Not Applicable.

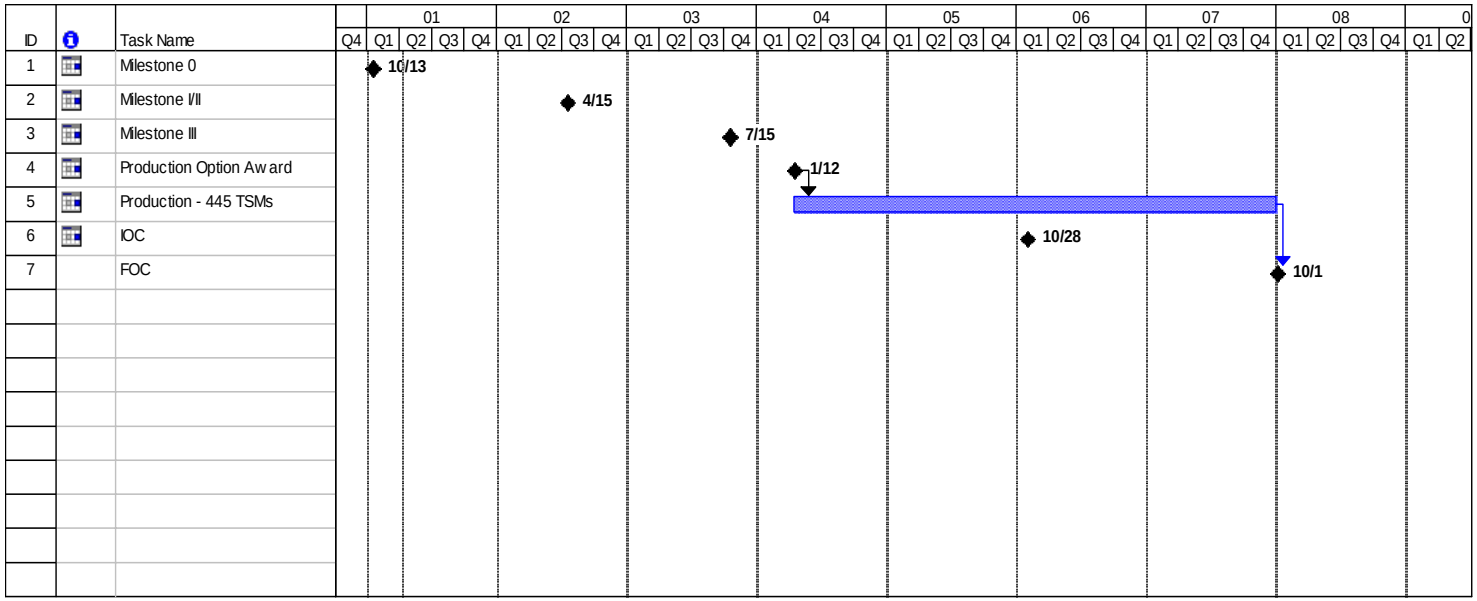
(**U) C. ACQUISITION STRATEGY JNMS:** The JNMS acquisition strategy is in accordance with DoD 5000.2-R; Mandatory Procedures for MDAPs and MAIS Acquisition Programs. It is based on awarding a competitive contract for the development of the JNMS software baseline. The contract will be awarded using a best value, full and open competition source selection process. It will stress the use of COTS for satisfying the requirement. If COTS is not available, then Government-off-the-Shelf (GOTS) products will be the next strategy emphasized. A performance specification will be used as the technical basis for the JNMS. The JNMS is an Acquisition Category (ACAT) III, non-major joint program. The Milestone Decision Authority (MDA) for the JNM is the Program Executive Officer, Command, Control and Communications Systems (PEO C3S).

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Systems**	PROJECT NUMBER AND NAME **C2276 Communications Switching & Control Systems**

(U) D. SCHEDULE PROFILE:

TSM

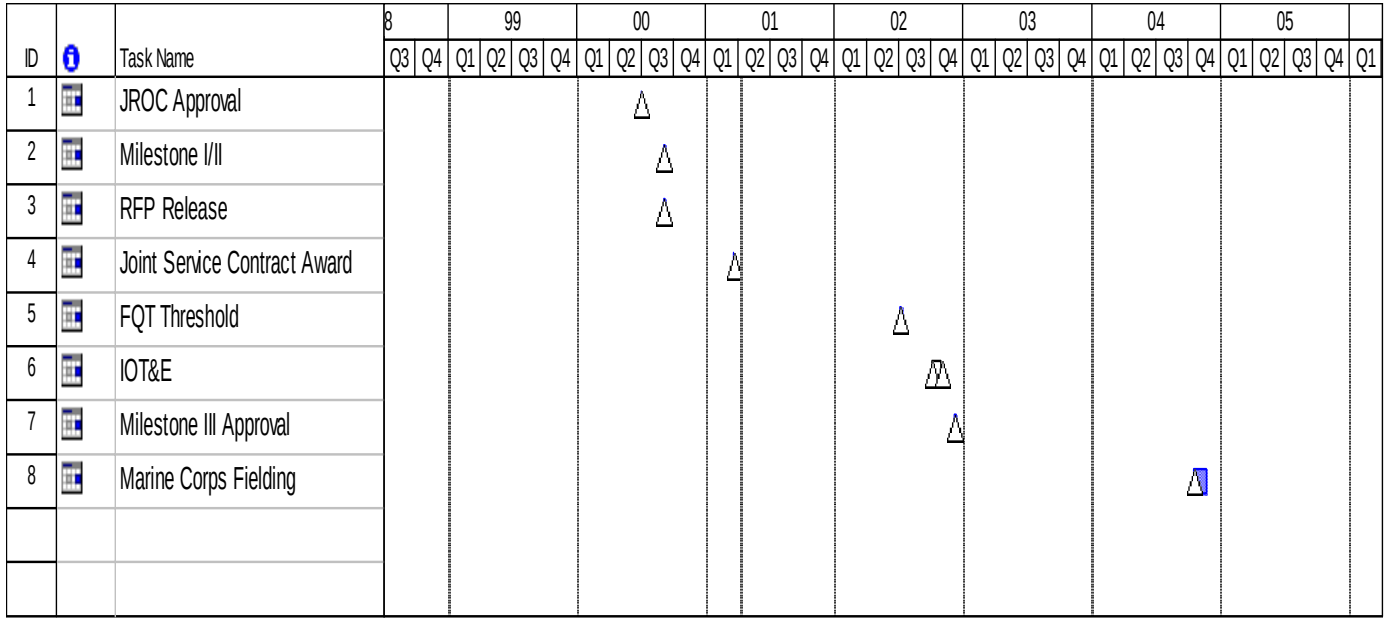


Program Funding Summary (APPN, BLI #, NOMEN)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Cont.
(U) PMC BLI# 463400 CommSwitch& Ctl Sys	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Cont.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Systems**	PROJECT NUMBER AND NAME **C2276 Communications Switching & Control Systems**

JNMS



Program Funding Summary (APPN, BLI #, NOMEN)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N	0.000	0.000	0.986	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
(U) PMC BLI# 463400 CommSwitch& Ctl Sys	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**				PROJECT NUMBER AND NAME **C2276 Communications Switching & Control Systems**					
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Dev											0.000	
Ancillary Hardware Dev											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
JNMS	CPFF	TBD	0.000	0.000		0.000		0.736	10/01	0.700	1.436	1.434
TSM	CPFF/FFP	TBD	0.000	0.000		0.000		0.000		3.140	3.140	3.140
Subtotal Product Dev			0.000	0.000		0.000		0.736		Continuing	Continuing	

Remarks:

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equip											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
DTC	WR	MCTSSA	0.000	0.505	10/99	0.000		0.000		0.000	0.505	0.505
TDN	WR	MCTSSA	0.000	0.654	10/99	0.000		0.000		0.000	0.654	0.654
TDN	MIPR	CECOM	0.000	0.352	10/99	0.000		0.000		0.000	0.352	0.352
DMS	MIPR	CECOM	0.000	0.255	11/99	0.224		0.000		0.000	0.479	0.479
JNMS	CPFF	TBD	0.000	0.000		0.000		0.250	10/01	0.200	0.450	0.450
TSM	CPFF	TBD	0.000	0.000		0.000		0.000		0.350	0.350	0.350
Subtotal Support			0.000	1.766		0.224		0.250				

Remarks:

CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**				PROJECT NUMBER AND NAME **C2276 Communications Switching & Control Systems**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Eval											0.000	
Operational Test & Eval											0.000	
Tooling											0.000	
JNMS	MIPR	TBD	0.000	0.000		0.000		0.000		0.200	0.200	0.200
TSM	MIPR	TBD	0.000	0.000		0.000		0.000		0.200	0.200	0.200
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		Continuing	Continuing	
Remarks:												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Engineering Suppt											0.000	
Govt Engineering Suppt											0.000	
Program Management Suppt											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost				1.766		0.224		0.986		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Systems**				PROJECT NUMBER AND NAME **C2277 Systems Engineering & Integration**					
COST ($ in Millions	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**6.731**	**7.904**	**12.316**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
RDT&E Articles Qty										

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

(U) This project provides funds for engineering, test, and evaluation activity, which ensures that the systems being developed within the Program Element (PE) employ consistent standards for interoperability and, to the maximum extent feasible, use hardware, and software which is uniform across programs.

1. The Marine Air-Ground Task Force Command, Control, Communications, Computers, and Intelligence Systems Engineering and Integration, Coordination. (MAGTF C4I SE&IC) subproject is a non-acquisition effort which provides centralized planning and execution of MAGTF C4I Systems; it develops, certifies and manages the configuration of the MAGTF C4I Systems/Technical Architecture and its implementation; it is also used to develop and test common hardware and software for use in MAGFT C4I Systems; MAGTF C4I SE&I also funds USMC participation in joint planning, technical standards development and joint exercise participation. MAGTF SE&IC changes name to MAGTF SEI&C in FY00.
2. Global Broadcast Service (GBS) Terminal – The overall GBS is a satellite system composed of a space segment, a transmit suite and a Receive Suite. It provides near worldwide high data rate dissemination of large information products such as classified and unclassified intelligence and video, theater message traffic, joint and service-unique news, weather and MWR programming to deployed or garrison forces via small user platforms.

3. MAGTF C4I SEI&C Joint Distributed Engineering Plant (JDEP) is a DoD mandated program to evaluate the interoperability of the Family of Systems (FoS) C4ISR configurations that support joint forces, evaluate the interoperability of new acquisition systems, and provide an environment for engineering analysis to correct systems deficiencies and develop new capabilities
4. Joint Warrior Interoperability Demos (JWID) is a JCS-mandated program to demonstrate new C4I interoperability concepts for the warrior. JWID offers the opportunity for demonstrations of evolving technologies in interoperability, information dissemination, fusing and digital communications.
5. The Joint Interoperability of Tactical Command and Control Systems (JINTACCS) is a Joint Chiefs-of-Staff (JCS)-mandated program for joint development, implementation, and testing of data links under the direction of the Joint Interoperability Engineering Organization (JIEO).

6. Common Computer Resources (CCR) mission – Central and standardized management and acquisition of all Tactical common computer hardware and infrastructure adopting the Joint Defense Information Infrastructure (DII) Common Operating Environment (COE) with consolidated Integrated Logistics Support. Ensure the environment remains in synchronization with computer hardware technology hardware improvements. The mission supports the Commandant's Planning Guidance and input to the Marine Corps Master Plan.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Systems**	PROJECT NUMBER AND NAME **C2277 Systems Engineering & Integration**

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2000 Accomplishments:

- (U) $ 1.27 JWID: Provide management, engineering and technical support in preparation for JWID-00, a JCS-mandated program. JWID offers the opportunity to demonstrate and evaluate emerging technologies.
- (U) $ 1.237 JINTACCS: Participate in JINTACCS, a JCS-mandated program aimed at ensuring interoperability of tactical systems. Provide analysis, engineering and technical support in developing joint standards. Provides interoperability testing/certification in support of C4I systems. Provide technical support in various joint programs and ACTD's.
- (U) $ 2.686 MAGTF SEI&C: Provide engineering and technical support for configuration management of MAGTF C4I system and its migration to the DII COE. Provide analysis, studies and reviews in the development and implementation of the COE migration strategy. Continue the development of the MAGTF C4I Systems/Technical Architecture and Repository (MSTAR). Support D-30 process to integrate Marine C4I systems onto amphibious ships for MEU deployments. Provide engineering support for remaining Y2K problems within MAGTF C4I systems. Provide USMC share of ASCIET exercise per established MOA.
- (U) $ 0.177 MAGTF SEI&C: Forward finances engineering and technical support for configuration management of MAGTF C4I system and its migration to the DII COE.
- (U) $ 1.361 CCR MCHS: Provide for research, evaluation, test and selection of computer hardware products for the Marine Corps Common Hardware Suite (MCHS). Develop MCHS system specifications and baselines; research and analyze computer technologies and hardware; conduct performance, compatibility and environment testing; support commercial product selection and application in support of Tactical Systems.

(U) Total $ 6.731

FY 2001 Planned Program

- (U) $ 1.381 JWID: Participate in JWID, a JCS-mandated program, to demonstrate new C4I interoperability concepts. In JWID-01, USMC is the service lead; it will conduct primary planning equipment preparation, and hosting. JWID-01 offers the opportunity for demonstrations of emerging technologies in interoperability, information dissemination, fusing and communications.
- (U) $ 1.078 JINTACCS: Participate in JINTACCS, a JCS-mandated program aimed at ensuring interoperability of tactical systems. Provide analysis, engineering and technical support in developing joing standards. Provide interoperability testing/certification in support of C4I systems. Provide tedhnical support in various joint programs and ACTDs.
- (U) $ 2.345 MAGTF SEI&C: Provide engineering and technical support for configuration management of MAGTF C4I systems and its migration to the DII COE. Maintain MSTAR system as technical roadmap to MAGTF C4I system integration Provide analysis, studies and reviews in the development and implementation of the COE migration strategy. Analyze the movement of MAGTF C4I systems to joint standards to mandated levels and provide technical recommendations to correct deficiencies. Continue engineering support to D-30 Amphib Ready Group (ARG) preparation process. Provide USMC fair share of ASCIET exercise per established MOA.
- (U) $ 0.000 MAGTF SEI&C: Provide engineering and technical support for configuration management of MAGTF C4I system and it migration to the DII COE. This effort forward financed with $177K of FY00 funding.
- (U) $ 0.416 GBS: Provide for Product Development and Integration
- (U) $ 0.615 GBS: Support and Management for Confidence/User Evaluation.
- (U) $ 0.395 GBS: Operational Test Planning and Integration Testing Planning.
- (U) $ 1.602 CCR MCHS: Provide for research, evaluation, test and selection of computer hardware products for the Marine Corps Common Hardware Suite (MCHS). Develop MCHS system specifications and baselines; research and analyze computer technologies and hardware; conduct performance, compatibility and environmental testing; support commercial product selection and application in support of Tactical Systems.
- (U) $ 0.072 SBIR: Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USMC 638.

(U) Total $ 7.904

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Systems**	PROJECT NUMBER AND NAME **C2277 Systems Engineering & Integration**	

FY 2002 Planned Program

- (U) $ 2.563 JWID: Participate in JWID, a JCS mandated program, to demonstrate new C4I interoperability concepts. In FY02, JWID is concerned with transitioning the best products from the JWID-01 exercise in FY01 into the acquisition system. It will also support management and planning of exercise JWID-03.
- (U) $ 1.680 JINTACCS: Participate in JINTACCS, a JCS-mandated program aimed at ensuring interoperability of tactical systems. Provide analysis Engineering and technical support in developing joint standards. Provides interoperability testing/certification in support of C4I systems. Provide technical support in various joint programs and ACTD's.
- (U) $ 4.433 MAGTF SEI&C: Provide engineering and technical support for configuration management of MAGTF C4I systems and its migration to the DII COE. Maintain MSTAR system as technical roadmap to MAGTF C4I system integration. Provide analysis, studies and reviews in the development and implementation of the COE migration strategy. Analyze the movement of MAGTF C4I systems to joint standards to mandated levels and provide technical recommendations to correct deficiencies Provide USMC fair share of ASCIET exercise per established MOA.
- (U) $ 0.858 MAGTF SEI&C (JDEP): DoD mandated program to evaluate the interoperability of the Family of Systems (FoS) C4ISR configurations that support joint forces, evaluate the interoperability of new acquisition systems, and provide an environment for engineering analysis to correct systems deficiencies and develop new capabilities.
- (U) $ 0.624 GBS: Continue support and Management for Confidence/User Evaluation.
- (U) $ 0.460 GBS: Operational Testing and Integration Testing.
- (U) $ 1.698 CCR MCHS: Provide for research, evaluation, test and selection of computer hardware products for the Marine Corps Common Hardware Suite (MCHS). Develop MCHS system specifications and baselines; research and analyze computer technologies and hardware; conduct performance, compatibility and environmental testing; support commercial product selection and application in support of Tactical Systems.

(U) Total $ 12.316

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Systems**	PROJECT NUMBER AND NAME **C2277 Systems Engineering & Integration**	

(U) PROJECT CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	7.156	6.514	6.832
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.135		
(U) Execution Adjustment	-0.401		-0.193
(U) Minor Affordability Adjustment	-0.027	-0.060	
(U) Program Adjustment	0.138	1.450	5.677
(U) FY 2002 President's Budget:	6.731	7.904	12.316

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007 To Compl	Total Cost
PMC BLI 463000	99.974	79.916	21.302	0.000	0.000	0.000	0.000	0.000 Cont	Cont

(U) Related RDT&E:
(U) PE 0604817A
(U) PE 0206623M, Marine Corps Ground Combat/Supporting Arms Systems

(U) C. ACQUISITION STRATEGY JWID, JINTACCS MAGT SE&IC, GBS, AND CCR: Work will be led in-house. Necessary contractor support will be acquired using already existing contracts.

(U) D. SCHEDULE PROFILE: Not Applicable.

CLASSIFICATION:

Exhibit R-3 Cost Analysis										DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**				PROJECT NUMBER AND NAME **C2277 Systems Engineering & Integration**					
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Dev											0.000	
Ancillary Hardware Dev											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
JWID	WR	MCTSSA, Cp Pndltn, CA	0.110	0.391	10/99	0.477		0.000		Continuing	Continuing	
JWID	RCP	MCSC Quantico, VA	0.000	0.564	10/99	0.600	10/00	0.637	10/01	Continuing	Continuing	
JWID	WR	NSWC Dahlgren, VA	0.000	0.000		0.000		0.100	05/02	Continuing	Continuing	
JWID	WR	MCSC Quantico, VA	0.000	0.000		0.000		0.117	10/01	Continuing	Continuing	
GBS	WR	MCTSSA, Cp Pndltn, CA	0.000	0.000		0.100	11/00	0.000		0.000	0.100	0.100
GBS	C/CPFF	CTQ	0.000	0.000		0.240	12/00	0.000		0.000	0.240	0.240
GBS	WR	MCSC Quantico, VA	0.000	0.000		0.080	10/00	0.080		0.000	0.160	0.160
CCR	TBD	TBD	0.000	0.133	08/00	0.113		0.000		Continuing	Continuing	
CCR	TBD	TBD	0.000	0.146	08/00	0.121		0.000		Continuing	Continuing	
JINTACCS	SS	CECOM Ft Monmouth NJ	0.029	0.000		0.000		0.000		0.000	0.029	0.029
SBIR						0.072						
Subtotal Product Dev			0.139	1.234		1.803		0.934		Continuing	Continuing	
Remarks:												

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equip											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
JWID	C/FPP	Logicon, Stafford, VA	0.000	0.315	10/99	0.304	10/00	1.709	10/01	Continuing	Continuing	
MAGTF SEI&C	WR	CECOM Ft Monmouth NJ	0.175	0.175		0.164		0.369		Continuing	Continuing	
MAGTF SEI&C	CPFF	OSEC, Stafford, VA	0.080	0.000		0.000		0.000		Continuing	Continuing	

CLASSIFICATION:

Exhibit R-3 Cost Analysis									DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**						PROJECT NUMBER AND NAME **C2277 Systems Engineering & Integration**					
MAGTF SEI&C	C/FFP	Logicon,Stafford, VA	3.229	0.904	10/99	0.302		0.511		Continuing	Continuing	
MAGTF SEI&C	WR	MCSC, Quantico, VA	0.000	0.268	10/99	0.070		0.106		Continuing	Continuing	
MAGTF SEI&C	MIPR	Eglin AFB, FL	1.202	0.059		0.000		0.000		Continuing	Continuing	
MAGTF SEI&C	MIPR	ASCIET JPO	0.000	0.000		0.200	11/00	0.278		Continuing	Continuing	
MAGTF SEI&C	WR	II MEF	0.000	0.000		0.250	11/00	0.430		Continuing	Continuing	
MAGTF SEI&C	WR	MARFORRES	0.000	0.000		0.150	11/00	0.205		Continuing	Continuing	
MAGTF SEI&C	MIPR	NSWC Crane IN	0.000	0.000		0.108	11/00	0.214		Continuing	Continuing	
MAGTF SEI&C (JDEP)	TBD	TBD	0.000	0.000		0.000		0.858	TBD	Continuing	Continuing	
MAGTF SEI&C (INIT)	C/FFP	Logicon,Stafford, VA	0.000	0.000		0.000		1.495	12/01	Continuing	Continuing	
MAGTF SEI&C (INIT)	CPFF	Raytheon, Fullerton, CA	0.000	0.000		0.000		0.655	12/01	Continuing	Continuing	
GBS	C/FFP	Logicon,Stafford, VA	0.000	0.000		0.481	11/00	0.492	12/01	0.000	0.973	0.976
GBS	C/CPF	Raytheon, Fullerton, CA	0.000	0.000		0.040	11/00	0.040	12/01	0.000	0.080	0.080
GBS	TBD	TBD	0.000	0.000		0.100	11/00	0.092	10/01	0.000	0.192	0.200
CCR	Various	Various	0.000	0.000		0.000		0.395	11/01	Continuing	Continuing	
Subtotal Support			4.686	1.721		2.169		7.849				
Remarks:												

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Eval											0.000	
Operational Test & Eval											0.000	
Tooling											0.000	
MAGTF SEI&C	CFFP	Logicon,Stafford, VA	4.444	1.158	10/99	0.941	10/00	0.000	10/01	1.966	8.509	8.509
MAGTF SEI&C	WR	MCTSSA, Cp Pndltn, CA	0.660	0.149		0.000		0.000		0.000	0.809	0.809
JINTACCS	C/CPFF	Logicon,Stafford, VA	1.968	1.199		1.044		1.530		Continuing	Continuing	
JINTACCS	WR	MCTSSA, Cp Pndltn, CA	0.120	0.038		0.034		0.150		Continuing	Continuing	
GBS	WR	MCTSSA, Cp Pndltn, CA	0.000	0.000		0.167	10/01	0.180		0.000	0.347	0.368
GBS	WR	MCOTEA, Qusntico, VA	0.000	0.000		0.218	10/01	0.200		0.000	0.418	0.418
CCR	TBD	TBD	0.000	1.082	03/00	1.368		1.303		Continuing	Continuing	
Subtotal T&E			7.192	3.626		3.772		3.363		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis							DATE: **June 2001**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**					PROJECT NUMBER AND NAME **C2277 Systems Engineering & Integration**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Engineering Suppt											0.000	
Govt Engineering Suppt											0.000	
Program Management Suppt											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
MAGTF SEI&C	C/FFP	Logicon, Stafford, VA		0.150	11/99	0.160	11/00	0.170	11/01		0.480	
Subtotal Management			0.000	0.150		0.160		0.170		0.000	0.480	
Remarks:												
Total Cost				6.731		7.904		12.316		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**				PROJECT NUMBER AND NAME **C2278 Air Defense Weapons Systems**					
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**6.880**	**20.081**	**11.240**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
RDT&E Articles Qty										

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

(U) This project encompasses two sub-element programs which are part of the Integrated Air Defense System for the Marine Corps.

1. The Marine Air Command and Control Systems (MACCS) Radars will investigate, integrate, and test safety and diminishing source issues related to MACCS radars specifically with the intention of increasing the fleet's system maintainability and reliability. This effort includes all necessary prototyping, initial tooling and associated test equipment to prepare for production efforts. This line will also support all program requirements studies related to investigating future MACCS radar requirements.

2. The Expeditionary Air Defense System (EADS) is the Marine Corps low altitude ground based air defense system. Upgrades include mobility enhancements and expeditionary air defense improvements. Primarily, the Continuous Wave Acquisition Radar (CWAR) is the only sensor organic to the Marine Corps capable of providing low altitude target acquisition in a high clutter environment.

3. The Short/Medium Range Air Defense Radar will develop engineering change proposals related to improved system performance with the specific purpose of meeting increased fleet operational requirements. As part of this effort, AN/TPS-63 modifications and system improvements will be researched and analyzed which complement existing components to preclude an expensive USMC investment in solid-state radar technology.

4. Combat ID (CID) will provide rapid and accurate determination of friends, foes, or neutral identities of all potential targets within a combatant's area of responsibility in time to take decisive action. It will enable fighting forces: to manage and control battlespace; optimally employ weapons and forces to increase the economy of force; lower combat attrition, and increase enemy losses while reducing fratricide.

5. The Cooperative Engagement Capability (CEC) enables all CEC-equipped, Anti-Air Warfare (AAW) weapons systems in a battle force to operate as a single, distributed AAW weapon system. This is accomplished providing timely sharing of fire control quality sensor data, correlated identification data, and AAW weapons management status. The sensor networking capability of CEC essentially allows forces to have a direct connection to the various sensors supported by forces throughout a battlefield enabling the development of a common understanding of the air situation. CEC consists of common processing units that interface with local and remote sensor data in order to develop a common track database and data communications pieces that enable the connectivity and networking of the sensors and processors.

6. The Complementary Low Altitude Weapons System (CLAWS) is a mobile ground based air defense missile system designed to defeat threat cruise missiles unmanned aerial vehicles, and aircraft. CLAWS takes advantage of government furnished equipment (GFE) and non-developmental items (NDI) and technology by integrating current inventory DoD missiles with existing High Mobility Multi-purpose Wheeled Vehicles (HMMWV). CLAWS shall provide a rapidly deployable, 8. mobile, high firepower, all-weather, standoff air defense system to defend Marine Expeditionary Forces and Naval Forces from attack by cruise missiles, aircraft and UAVs. It shall complement existing short range air defense (SHORAD) capabilities and shall interface with current and proposed Marine Air Command and Control System sensors and data paths.

7. The Low Atitude Air Defense (LAAD) Sustainment Program consists of various air defense platforms, simulators, and ground support equipment designed to provide air defense of vital areas in general or direct support of the Marine Air Ground Task Force (MAGTF). LAAD Sustainment comprises a number of configurations consisting of Marine Air Command and Control systems (MACCS) and Short Range Air Defense (SHORAD) assets integrated with a Remote Terminal Unit (RTU) and communications equipment.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2278 Air Defense Weapons Systems**	

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2000 Accomplishments:

- (U) $ 1.723 CEC: Software development: Finalization of the AN/TPS-59(V3) radar and IFF interface to CEC.
- (U) $ 1.227 CEC: Software development: Concept exploration of alternate/advanced technology supporting sensor networking (Tactical Component Network (TCN) modeling and simulation.
- (U) $ 0.550 CEC: Test and Evaluation: Independent Verification and Validation (IV&V) and developmental testing of their radar interface. Software testing support and analysis.
- (U) $ 1.214 CEC: Studies and Concept Exploration activities: Communications and packaging requirements definition and development. Antenna design development, transport packaging designs.
- (U) $ 0.101 CEC: Program management support.
- (U) $ 0.400 CID: Tested and evaluated systems currently available COTS for applicability.
- (U) $ 0.900 CID: Program Definition and Risk Reduction of systems.
- (U) $ 0.250 CID: Initiated Studies to investigate feasibility of using various fielded systems to fulfill some CID requirements.
- (U) $ 0.350 CID: Program management support.
- (U) $ 0.150 CID: Life Cycle Cost Estimate
- (U) $ 0.015 EADS: Facilitated the testing and evaluation of the modified/improved Continuous Wave Acquisition Radar (CWAR) trailer.

(U) Total $ 6.880

FY 2001 Planned Program

- (U) $ 2.026 CEC: Software development: Interface Design Document (IDD) development for CAC2S and CLAWS interface to CEC.
- (U) $ 1.450 CEC: Software development: Concurrent development of alternate/advanced sensor networking technology interfaces (TCN).
- (U) $ 2.000 CEC: Initiate development of Engineer Design Model.
- (U) $ 0.650 CEC: Test and Evaluation: Developmental testing support.
- (U) $ 0.251 CEC: Continue Program management support.
- (U) $ 1.834 CID: Test and evaluate systems identified by the RFP
- (U) $ 1.838 CID: Continue Program Definition and Risk Reduction of RFP systems.
- (U) $ 1.300 CID: Continue Studies to investigate feasibility of using various fielded systems to fulfill CID requirements (add'l mission areas).
- (U) $ 1.145 CID: Continue Program management support.
- (U) $ 5.252 CLAWS: Initial development design and integration of two CLAWS Proof of Concept Vehicles for User Evaluation and Development Testing.
- (U) $ 2.000 CLAWS: Program Management Support.
- (U) $ 0.335 SBIR: Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

(U) Total $ 20.081

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Sys**	**C2278 Air Defense Weapons Systems**

FY 2002 Planned Program

- (U) $ 0.121 MACCS RADAR: Initiate developmental test and evaluation.
- (U) $ 0.147 MACCS RADAR: Initiate development of Engineer Design Model.
- (U) $ 0.025 MACCS RADAR: Program management support.
- (U) $ 0.191 SHORT/MEDIUM RANGE AIR DEFENSE RADAR: Initiate developmental test and evaluation
- (U) $ 0.100 SHORT/MEDIUM RANGE AIR DEFENSE RADAR: Initiate development of Engineer Design Model
- (U) $ 0.100 SHORT/MEDIUM RANGE AIR DEFENSE RADAR: Program management support
- (U) $ 0.010 SHORT/MEDIUM RANGE AIR DEFENSE RADAR: Travel/TAD
- (U) $ 1.100 CEC: Continue Software development: IDD development for CAC2S and CLAWS interface to CEC
- (U) $ 0.622 CEC: Continue development of Engineer Design Model.
- (U) $ 0.648 CEC: Continue Testing and Evaluation: Developmental testing support.
- (U) $ 0.300 CEC: Continue program management support.
- (U) $ 5.876 CLAWS: Finalize the development, design and integration issues related to the two Proof of Concept Vehicles. Continue to conduct Developmental Testing. Conduct CAIV trade-offs and design/build Pre-Production Model.
- (U) $ 2.000 CLAWS: Continue program management support.

(U) Total $ 11.240

(U) PROJECT CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	9.705	21.730	27.408
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.178		
(U) Execution Adjustment	-0.549	-7.733	
(U) Minor Affordability Adjustment	-0.038	-0.199	-0.192
(U) Program Adjustment	-2.060	6.283	-15.976
(U) FY 2002 President's Budget:	6.880	20.081	11.240

CHANGE SUMMARY EXPLANATION:

(U) Funding: See Above.

(U) Schedule: CEC and CLAWS: Milestone charts have changed due to program adjustment

(U) Technical: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2278 Air Defense Weapons Systems**	

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC LINE BLI 300600 LAAD SUS						0.000	0.000	0.000	Continuing	Continuing
(U) PMC LINE BLI 462000 EADS (CWAR)	1.447	1.493	0.430	0.000	0.000	0.000			0	3.37
(U) PMC LINE BLI 464000 CEC						0.000	0.000		0	0.000
(U) PMC LINE BLI 464000 CLAWS					0.000	0.000			0	0
(U) PMC LINE BLI 464000 SH/MED RANGE AIR			0.596	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

(U) Related RDT&E:
PE 0603216C (Ballistic Missile Defense Organization, Theater Missile Defense

(U) D. ACQUISITION STRATEGY:

CEC: The USMC's CEC acquisition strategy is to participate in the USN's program procurement and testing, making necessary modifications to support the Marine Corps requirements. The USMC CEC Project will be utilizing existing and future USN CEC contracts.

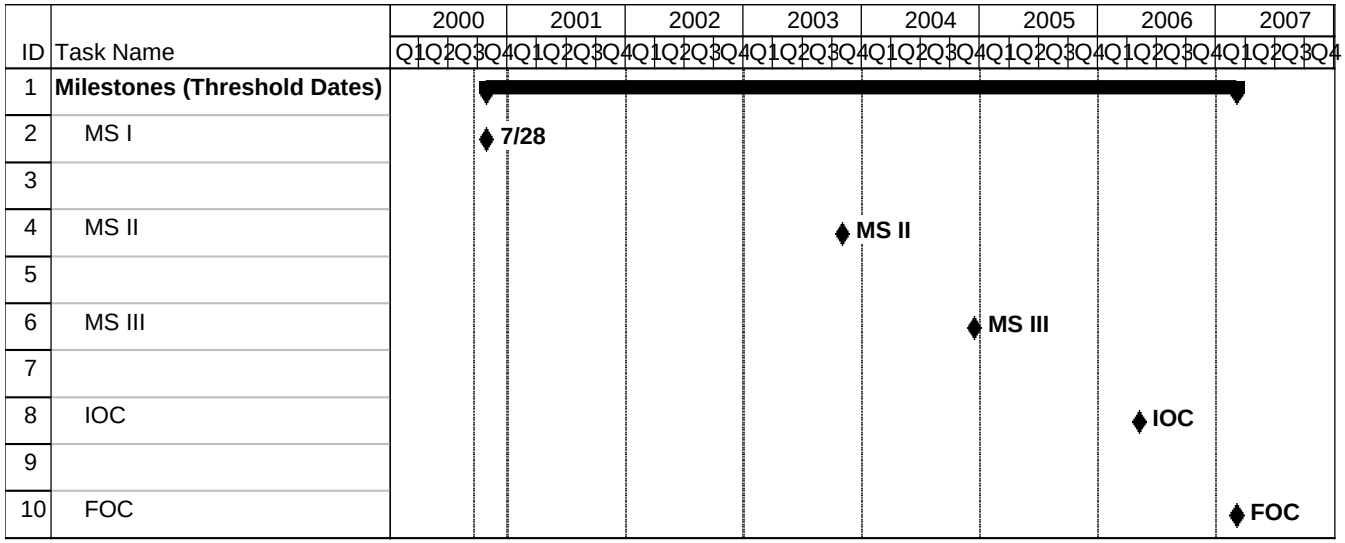
CLAWS: Competitively awarded fixed price contract for design and development. Additionally, there are firm fixed price production options through FY07.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2278 Air Defense Weapons Systems**

(U) D. SCHEDULE PROFILE:

CEC

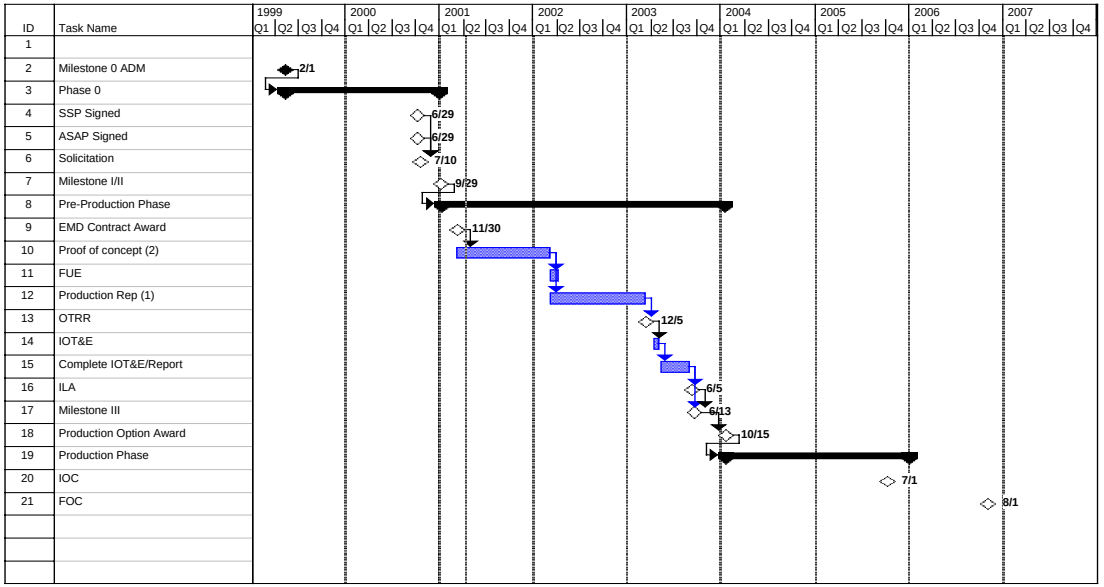


Program Funding Summary	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(APPN, BLI #, NOMEN)										
(U) RDT&E,N	4.815	6.484	2.670	0.000	0.000	0.000	0.000	0.000	0.000	Cont.
(U) PMC, BLI# 464000 CEC						0.000	0.000	0.000	0.000	Cont.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2278 Air Defense Weapons Systems**

CLAWS



Program Funding Summary	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(APPN, BLI #, NOMEN)										
(U) RDT&E,N		7.376	7.876	0.000	0.000	0.000			0.000	Cont.
(U) PMC BLI# 464000 CLAWS					0.000	0.000			0.000	Cont.

CLASSIFICATION:

Exhibit R-3 Cost Analysis							DATE: **June 2001**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**					PROJECT NUMBER AND NAME **C2278 Air Defense Weapons Systems**					
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Dev											0.000	
Ancillary Hardware Dev											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
MACCS Radar	MIPR	NSWC, Crane, IN						0.268	01/02	Continuing	Continuing	
S/M Range Air Defense Rdr	MIPR	NSWC, Crane, IN						0.291	01/02	Continuing	Continuing	
EADS	MIPR	MCLB Barstow, CA		0.015	01/00					0.000	0.015	0.015
EADS	MIPR	MILCOM, RA, AL	2.390							0.000	2.390	2.390
EADS	WR	MCTSSA, Cp Pnd,CA	0.029							0.000	0.029	0.029
CID	WR	USACOM, Norfolk, VA		0.750	01/00					0.000	0.750	0.750
CID	RCP	MCSC, Quantico, VA		0.400	01/00	1.253	07/01			0.000	1.653	1.653
CID	TBD	TBD				1.838	TBD			0.000	1.838	1.838
CEC	RCP	JHU/APL		1.221	12/99	0.850	06/01			Continuing	Continuing	
CEC	RCP	Sensis, Syracuse, NY		1.104	12/99	1.599	06/01			Continuing	Continuing	
CEC	WR	NSWC, Crane, IN		1.066	01/00	1.064		0.665		Continuing	Continuing	
CEC	RCP	Raytheon, St Ptrsbrg, FL		0.244	03/00	0.645	06/01	0.500	01/02	Continuing	Continuing	
CEC	WR	Solipsys, Laurel, MD		0.749	03/00	1.339		0.652		Continuing	Continuing	
CLAWS	RFP	TBD				5.252	TBD	5.876	TBD	Continuing	Continuing	
										Continuing	Continuing	
										Continuing	Continuing	
Subtotal Product Dev			2.419	5.549		13.840		8.252		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis			DATE: **June 2001**									
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**					PROJECT NUMBER AND NAME **C2278 Air Defense Weapons Systems**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equip											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
SH/Med Rng Air Def Radar	RCP	MCSC, Quantico, VA						0.110	01/02	Continuing	Continuing	
MACCS Radar	RCP	MCSC, Quantico, VA						0.025	01/02	Continuing	Continuing	
CID	RCP	MCSC, Quantico, VA		0.450	01/00	0.970	06/01			0.000	1.420	1.420
CID	WR	MCSC, Quantico, VA		0.050	12/99	0.175				0.000	0.225	0.225
CEC	WR	Jaycor, FtWorth, TX		0.043	11/99					0.000	0.043	0.043
CEC	WR	MCLB Albany, GA		0.015		0.015		0.015		Continuing	Continuing	
CEC	MIPR	STA, FtWorth, TX		0.157	02/00	0.160		0.160		Continuing	Continuing	
CLAWS	RFP	MCSC, Quantico, VA				2.000	06/01	2.000	01/02	Continuing	Continuing	
Subtotal Support			0.000	0.715		3.320		2.310				
Remarks:												

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Eval											0.000	
Operational Test & Eval											0.000	
Tooling											0.000	
CID	WR	NSWC China Lake, CA		0.400	01/00	1.881				0.000	2.281	2.281
CEC	MIPR	MCTSSA, Cp Pndltn,CA		0.010	12/99	0.050		0.050		Continuing	Continuing	
CEC	MIPR	MACS24 Damneck,VA		0.010	12/99	0.015		0.015		Continuing	Continuing	
CEC	RCP	Mitre, Bedford, MA				0.200	06/01	0.210	01/02	Continuing	Continuing	
CEC		DCMS, Syracuse, NY		0.020		0.020		0.020		Continuing	Continuing	
CEC	MIPR	NSWC, Dahlgren, VA				0.180	12/00	0.208		Continuing	Continuing	
Subtotal T&E			0.000	0.440		2.346		0.503		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis							DATE: **June 2001**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**					PROJECT NUMBER AND NAME **C2278 Air Defense Weapons Systems**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Engineering Suppt											0.000	
Govt Engineering Suppt											0.000	
Program Management Suppt											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
CEC	RCP	Logicon, Stafford, VA		0.176	11/99	0.240	10/00	0.175	01/02	Continuing	Continuing	
SBIR						0.335						
Subtotal Management			0.000	0.176		0.575		0.175		0.000	0.926	
Remarks:												
Total Cost			2.419	6.880		20.081		11.240		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Development**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communication Systems**					PROJECT NUMBER AND NAME **C2315 Training Devices/Simulators**				
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**8.104**	**10.714**	**8.599**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
RDT&E Articles Qty										

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

(U) Training simulators supported by this program element include Joint Simulation System (JSIMS), Closed Loop Artillery Simulation System (CLASS), Combined Arms Command & Control Training Upgrade System (CACCTUS), and Combat Vehicle Appended Trainer (CVAT). These training systems provide tactical weapons and decision-making skill training from entry level through Marine Air-Ground Task Force (MAGTF) staff level. CLASS integrates Marine Corps training requirements into the Joint Towed Artillery Digitalization System (TADS). Together these systems will be interoperable and will allow for mission planning, mission rehearsal and concept evaluation in a valid synthetic environment with objective, timely feedback. Through live, virtual and constructive simulation, the Marine Corps will have the means to train jointly, educate, develop doctrine and tactics, formulate and assess operational plans, assess warfighting situations and define operational requirements.

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2000 Accomplishments:

- (U) $ 4.137 JSIMS: Continued to provide technical expertise to the US Army, US Navy and US Air Force in the development of USMC specific requirements. Participated in Collaborative Event 1 (a joint training exercise demonstration of software functionality). Procured testing hardware for Quantico site to support developmental testing and Verification, Validation and Accreditation of USMC requirements. Completed build 2 software development and continued build 3 software development.
- (U) $ 0.265 JSIMS: Continued technical expertise to test planning group for build 1 demonstration. Participated in Collaborative Event and provided Verification, Validation, and Accreditation of USMC VRM 1 release.
- (U) $ 0.528 JSIMS: Continued support in the development of USMC notional hardware configurations and participated in the Enterprise development of USMC C4I interface requirements.
- (U) $ 1.997 CVAT: Performed system engineering testing of prototype functionality and interfaces.
- (U) $ 0.781 CVAT: Developed, tested and integrated the application software.
- (U) $ 0.396 CVAT: Procured non-developmental hardware for prototype development.

(U) Total $ 8.104

FY 2001 Planned Program

- (U) $ 3.796 JSIMS: Continue to provide technical expertise to the US Army, US Navy and US Air Force in the development of USMC specific requirements. Continue to participate in Federation Integration Events 1-4 and Functional Assessment 1.
- (U) $ 0.450 JSIMS: Begin VRM 2.0 software development.
- (U) $ 0.528 JSIMS: Continue support in the development of USMC notional hardware configurations and participate in the Enterprise development of USMC C4I interface requirements. Continue technical expertise to test planning group for build 1 demonstration. Participate in Collaborative Event and provide Verification, Validation, and Accreditation of USMC VRM 1 release.
- (U) $ 2.963 CACCTUS: Plan, develop, integrate and test software interface with simulation and Combined Arms Staff Trainer (CAST) laser system.
- (U) $ 2.501 CACCTUS: Develop C4I interface requirements.
- (U) $ 0.476 CACCTUS: Procure NDI hardware for prototype development and integration. Study notional configurations and enhancements.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Development**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communication Systems**	PROJECT NUMBER AND NAME **C2315 Training Devices/Simulators**

(U) Total $ 10.714

FY 2002 Planned Program

- (U) $ 5.008 JSIMS: Continue to provide technical expertise to the US Army, US Navy and US Air Force in the development of USMC specific requirements. Participate in Federate Integration Event 5 and Functional Assessment 2.
- (U) $ 0.612 JSIMS: Complete Version Release Milestone (VRM) 1.0 and begin participation in MOT&E.
- (U) $ 0.716 JSIMS: Continue Verification, Validation, and Accreditation of the development of VRM 2.0 software.
- (U) $ 1.836 CLASS: Plan, develop and integrate hardware and software of three different subsystem prototypes.
- (U) $ 0.427 CLASS: Begin test and evaluation prototypes for functionality.

(U) Total $ 8.599

(U) PROJECT CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	12.088	5.871	9.529
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.190		
(U) Execution Adjustment	-0.494		
(U) Minor Affordability Adjustment	-0.034	-0.109	-0.125
(U) Program Adjustment	-3.266	4.952	-0.805
(U) FY 2002 President's Budget:	8.104	10.714	8.599

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC, BLI# 653200 Trng Dev/Sims	13.308	33.437	30.566	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

(U) Related RDT&E: Not Applicable

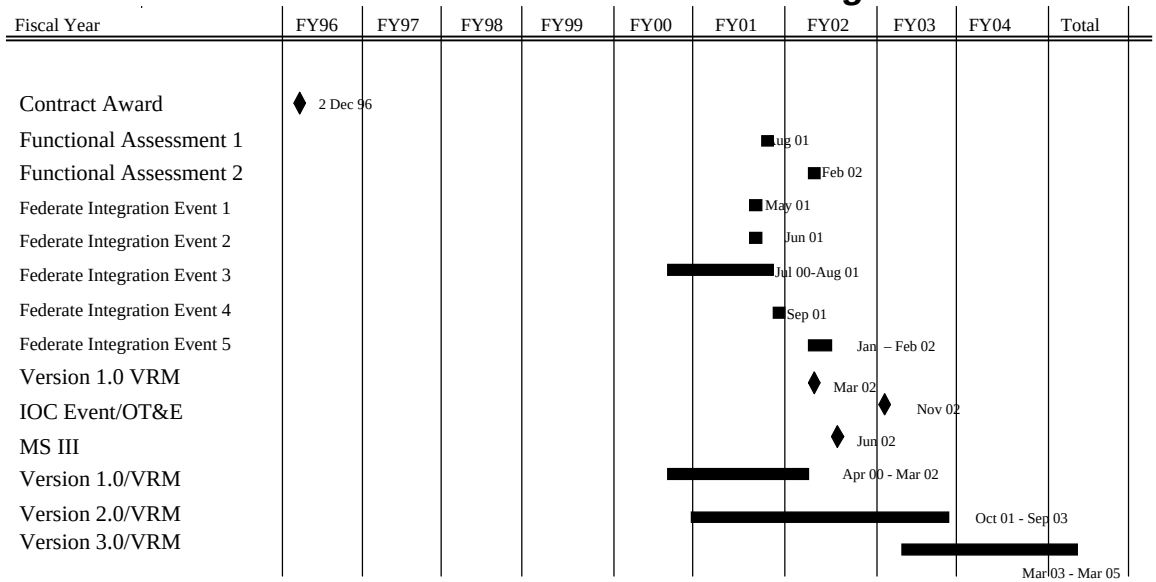
(U) C. ACQUISITION STRATEGY:

(U) JSIMS - Competitively awarded Level of Effort (LOE) contract followed by Cost Plus Fixed Fee (CPFF) contract.
(U) CVAT - Development phase using a Cost Plus Fixed Fee (CPFF) contract utilizing an existing ID/IQC contract through NSWC, Indian Head, MD.
(U) CLASS - Currently in the Concept Exploration Phase. A competitively awarded Cost Plus Fixed Fee (CPFF) contract will be utilized to do engineering, manufacturing and development.
(U) CACCTUS - General Services Administration (GSA), Firm Fixed Price (FFP), with open competition will be used for software, hardware, installation and testing.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Development**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communication Systems**	PROJECT NUMBER AND NAME **C2315 Training Devices/Simulators**

JSIMS Program Schedule

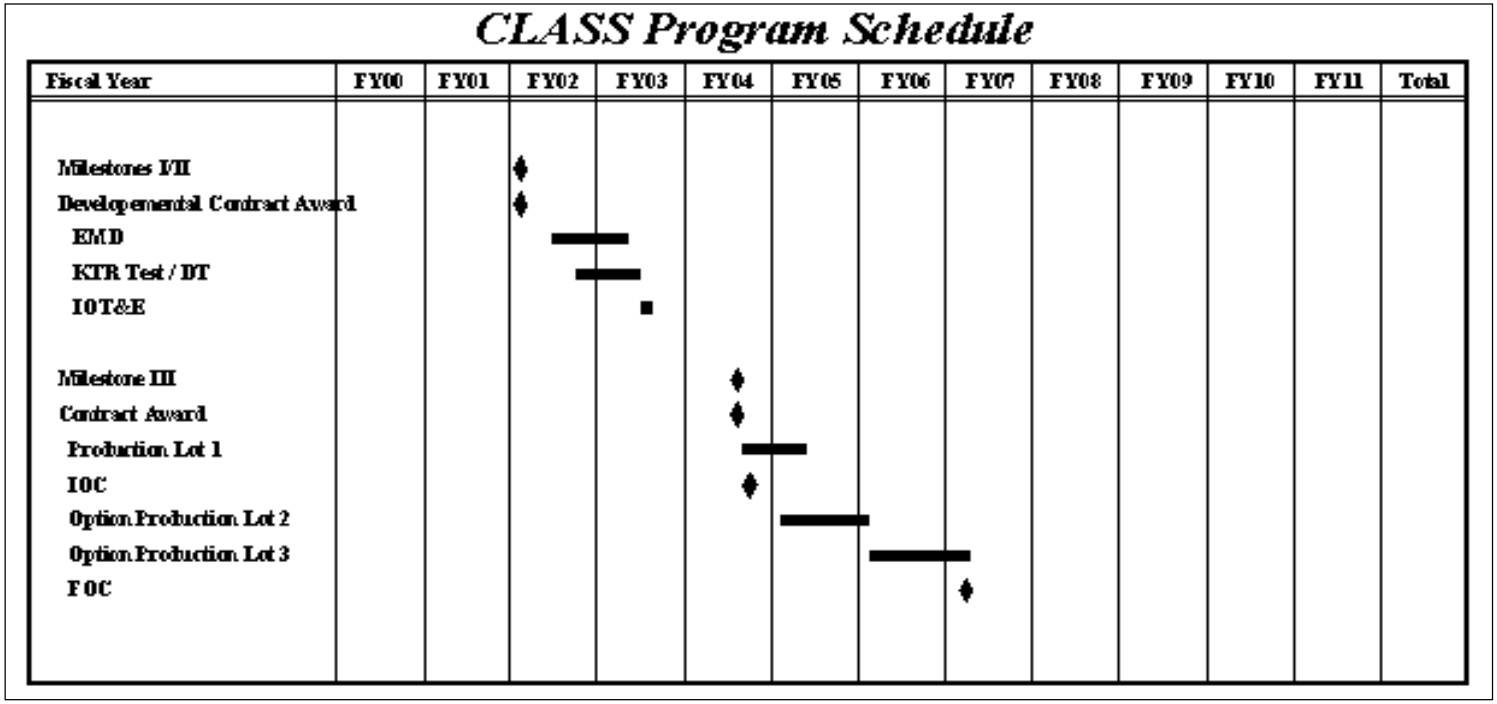


Other Program Funding Summary (APPN, BLI #, NOMEN)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N	4.930	4.774	6.336	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
(U) PMC, BLI # 653200 Trng Dev/Sims	0.000	0.000	1.328	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Development**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communication Systems**	PROJECT NUMBER AND NAME **C2315 Training Devices/Simulators**

CLASS Program Schedule



Other Program Funding Summary	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(APPN, BLI #, NOMEN)										
(U) RDT&E,N	0.000	0.000	2.263	0.000	0.000	0.000	0.000	0.000	Cont.	2.263
(U) PMC, BLI# 653200 Trng Dev/Sims	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Cont.	0.000

CLASSIFICATION:

Exhibit R-3 Cost Analysis							DATE: **June 2001**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Development**		PROGRAM ELEMENT **0206313M Marine Corps Communication Systems**					PROJECT NUMBER AND NAME **C2315 Training Devices/Simulators**					
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Dev											0.000	
Ancillary Hardware Dev											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
	RCP	VISICOM,San Diego	6.926	3.539	1Q/00	3.941	2Q/01	4.537	2Q/02	Continuing	Continuing	
	MIPR	TACOM, Pctny Ars						2.559	1Q/02	0.573	3.132	3.132
	RCP	NSWC IH, MD		3.060	3Q/00					0.000	3.060	3.060
	WR	NRAD, SD, CA	1.796	0.415	2Q/00	0.400	1Q/01	0.408	1Q/02	Continuing	Continuing	
	MIPR	CECOM, FT M, NJ	1.903	0.528	3Q/00	0.528	2Q/01	0.538	2Q/02	Continuing	Continuing	
	RCP	TBD				5.460	3Q/01			0.000	5.460	5.460
	WR		0.015	0.015	1Q/00	0.015	1Q/01	0.015	1Q/02	Continuing	Continuing	
Subtotal Product Dev			10.640	7.557		10.344		8.057		Continuing	Continuing	
Remarks:												

Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equip											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
	WR	NAWC, Orlando, FL	0.100					0.168	1Q/02	0.000	0.268	0.268
Subtotal Support			0.100	0.000		0.000		0.168				
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis							DATE: **June 2001**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Development**		PROGRAM ELEMENT **0206313M Marine Corps Communication Systems**					PROJECT NUMBER AND NAME **C2315 Training Devices/Simulators**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Eval											0.000	
Operational Test & Eval											0.000	
Tooling											0.000	
	RCP	MCOTEA, Quantico, VA		0.298	1Q/00	0.200	1Q/01	0.204	1Q/02	Continuing	Continuing	
Subtotal T&E			0.000	0.298		0.200		0.204		Continuing	Continuing	
Remarks:												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Engineering Suppt											0.000	
Govt Engineering Suppt											0.000	
Program Management Suppt											0.000	
	WR	NSWC, Indian Hd, MD		0.079	3Q/00	0.000		0.000		0.000	0.079	0.079
	RCP	SVERDRUP, Ft W Bch,FL		0.170	1Q/00	0.170	1Q/01	0.170	1Q/02	Continuing	Continuing	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.249		0.170		0.170		0.000	0.589	
Remarks:												
Total Cost				8.104		10.714		8.599		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**				PROJECT NUMBER AND NAME **C2510 MAGTF CSSE S&E**					
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**1.060**	**1.064**	**4.602**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
RDT&E Articles Qty										

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

(U) The MAGTF Combat Service Support Element & Supporting Establishment (CSSE & SE) consists of mutually supporting Logistics Information Technology (IT) programs that support force deployment, planning, and execution; sustainment and distribution; and contribute to the CINC's Common Operating Picture (COP) to support rapid accurate decision making.

1. The ATLASS PIP program funds the improvement of the fielded ATLASS II+ system as well as the migration of base and station (non-deployable) USMC intermediate and consumer level supply and maintenance systems from a mainframe environment into a personal computer application using a networked client-server architecture. The ATLASS PIP consolidates the total force intermediate and consumer level supply and maintenance information management functions into a single material management system. ATLASS PIP enhances ATLASS II+, retires existing mainframe legacy applications in use by the bases and stations, and improves logistic support to the operating forces. ATLASS PIP retains the flexibility to exploit existing commercial and government off-the-shelf software. This system remains compliant with the MAGTF C4I concept, GCCS COE, and published DOD standards for open systems architecture.

2. TC-AIMS IIis a Joint transportation and deployment Automated Information System (AIS) supporting the DOD mission areas of mobility and sustainment. It will replace two of our MAGTF LOG AIS applications over a parallel transition starting in FY00. TC-AIMS II will be used by Command Elements, Traffic Management Offices (TMO), and all operating forces deploying units to automate the processes of planning, organizing, coordinating, and controlling deployment, redeployment, and sustainment activities worldwide, in peace as well as during contingencies. It provides modernized, scaleable, integrated, and easily deployable AIS that support reengineered deployment and business processes throughout DOD. TC-AIMS II is the key enabler towards Force Deployment Planning and Execution. It is the source system for In-Transit-Visibility (ITV) data, which provides CINCs and Components with critical visibility of items in the transportation pipeline. TC-AIMS II links all DOD Component unit movement and Installation Transportation Office/Traffic Management Office (ITO/TMO) functionality into s single transportation management system. It is a Joint ACAT 1A(M) program, with the USMC portion being handled as an ACA

3. MAGTF CSSE & SE: The CSSE Shared Data Environment is a cornerstone concept of the Integrated Logistics Capability. It will incorporate data warehousing technologies and products to provide one-s shopping for data supporting CSSE/SE decision-making processes. It will stage CSSE/SE data and integrate decision support tools (DST) to enable command and control (C2), situational awareness, and total asset visibility at all levels of command, from the CINC to the Company Commander. The establishment of the CSSE SDE will eliminate the need for individual applications to perform these tasks for themselves and will contribute to a more cost-effective, efficient application development environment.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2510 MAGTF CSSE S&E**

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2000 Accomplishments:

- (U) $ 0.741 ATLASS PIP: Evaluated candidate design/development strategies for ATLASS PIP in light of recast requirements by Integrated Logistics Capability (ILC).
- (U) $ 0.225 ATLASS PIP: Explored web-enabling technologies to web-base ATLASS II+.
- (U) $ 0.020 TC-AIMS II: Held conferences on Concept of Employment and Integration Plans exploration and development with Air/Ship/Rail Load Planning and Joint Planning & Execution Tools.
- (U) $ 0.021 TC-AIMS II: Held conference on training implementation.
- (U) $ 0.023 TC-AIMS II: Performed operational test independent service evaluation on version 3.01 of TC-AIMS II.
- (U) $ 0.010 TC-AIMS II: Held a Cross MOS training conference.
- (U) $ 0.020 TC-AIMS II: Began field site survey.

(U) Total $ 1.060

FY 2001 Planned Program

- (U) $ 0.080 ATLASS PIP: Begin development of implementation and support plans.
- (U) $ 0.319 TC-AIMS II: Begin exploration and development of service specific application enhancements.
- (U) $ 0.010 TC-AIMS II: Begin Incremental Development Package (IDP) testing .
- (U) $ 0.049 TC-AIMS II: Continue fielding site survey.
- (U) $ 0.200 TC-AIMS II: Begin migration of legacy systems study.
- (U) $ 0.399 Funding identified as a source to be reprogrammed to the Shipbuilding and Conversion, Navy appropriation.
- (U) $ 0.007 Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

(U) Total $ 1.064

FY 2002 Planned Program

- (U) $ 2.186 ATLASS PIP: Begin Design and develop ATLASS PIP strategies and continue development of implementation and support plans
- (U) $ 0.725 ATLASS PIP: Evaluate and begin web-enabling technology for ATLASS PIP.
- (U) $ 0.725 ATLASS PIP: Pre-Site and Site survey for Pilot Site before actual testing begins.
- (U) $ 0.100 TC-AIMS II: Conduct a service specific study on the possibilities of Web Enabling TC-AIMS II
- (U) $ 0.005 TC-AIMS II:Conduct LAN/BANDWIDTH testing.
- (U) $ 0.125 TC-AIMS II: Continue service specific software enhancement to TC-AIMS II to provide interface capability with USMC systems.
- (U) $ 0.010 TC-AIMS II: Conduct Subject Matter Expert Evaluations of the system.
- (U) $ 0.046 TC-AIMS II: Conduct bi-annual Logistics Systems Working Groups.
- (U) $ 0.680 MAGTF CSSE & SE: Begin design & development of web-enabling technologies, messaging backbone, and integration with air/ship/rail load and joint planning & execution tools. Begin

(U) Total $ 4.602

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2510 MAGTF CSSE S&E**	

(U) PROJECT CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	1.135	1.074	0.681
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.028		
(U) Execution Adjustment	-0.058		
(U) Minor Affordability Adjustment	-0.020	-0.010	-0.067
(U) Program Adjustment	0.031		3.988
(U) FY 2002 President's Budget:	1.060	1.064	4.602

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
PMC BLI 464100 ATLASS PIP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
PMC BLI 464100 TC-AIMS II	3.535	3.330	3.998	0.000	0.000	0.000	0.000	0.000	0.000	Continuing

(U) Related RDT&E: Not Applicable.

(U) C. ACQUISITION STRATEGY: * An explanation of acquistion, management, and contracting strategies shall be provided for each project.

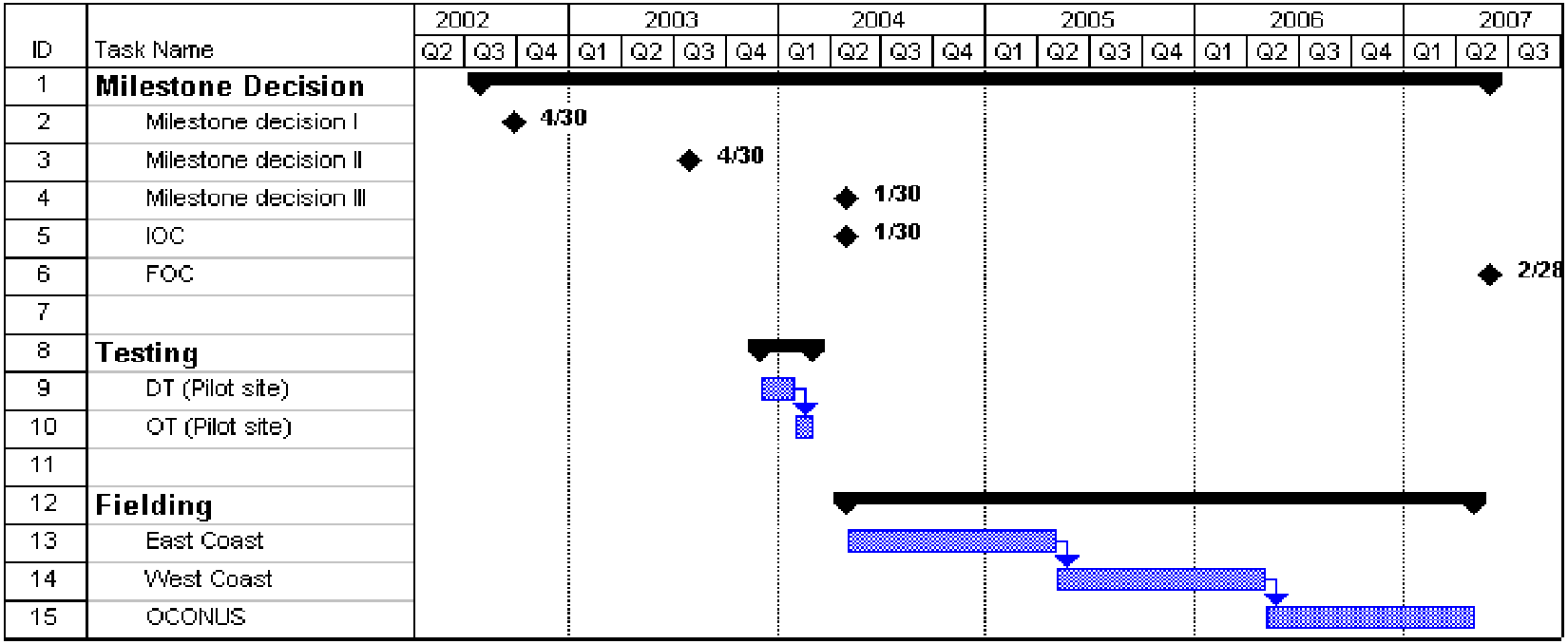
ATLASS PIP: The current acquisition strategy is to stay with SSC Chesapeake, the developer for ATLASS II+ for our development work. Studies will be conducted during Phase 0 to ensure that SSC Cheasapeake is still the best value or should we look to industry to be the developer.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2510 MAGTF CSSE S&E**

(U) D. SCHEDULE PROFILE:

ATLASS PIP

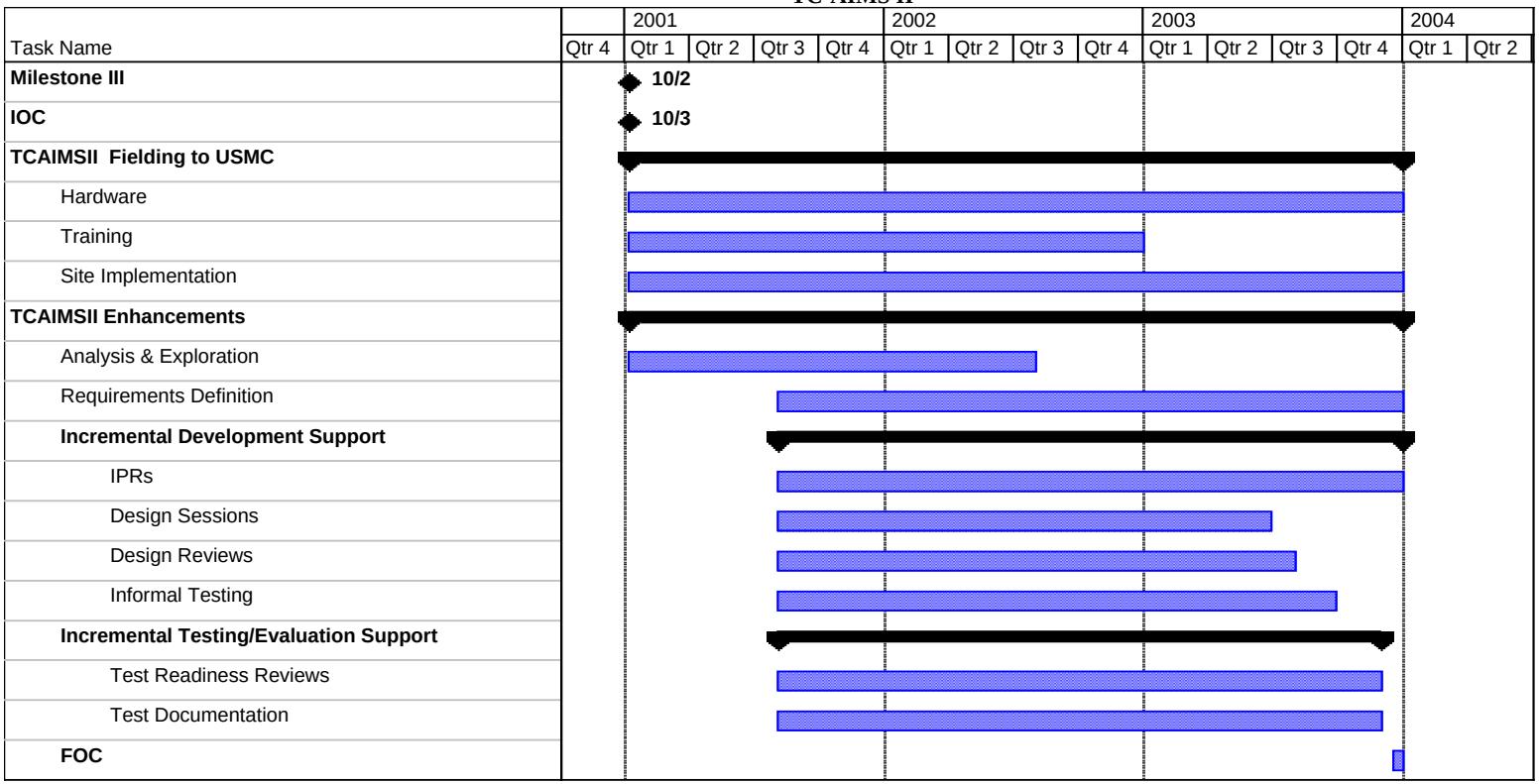


Program Funding Summary	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(APPN, BLI #, NOMEN)										
(U) RDT&E,N	0.966	0.087	3.636	0.000					0.000	Cont.
(U) PMC, BLI# 464100 ATLASS PIP				0.000	0.000	0.000	0.000		0.000	Cont.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2510 MAGTF CSSE S&E**

TC-AIMS II



Program Funding Summary	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(APPN, BLI #, NOMEN)										
(U) RDT&E,N	0.094	0.578	0.286	0.000	0.000	0.000	0.000	0.000	Cont	Cont
(U) PMC BLI# 464100 TC-AIMS II	3.535	3.330	3.998	0.000					0.000	Cont

CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**				PROJECT NUMBER AND NAME **C2510 MAGTF CSSE S&E**					
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Dev											0.000	
Ancillary Hardware Dev											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
ATLASS PIP	TBD	SSC Chesapeake	0.000	0.966	09/00	0.080	01/01	3.636	02/02	2.240	Continuing	
TC-AIMS II	C/FFP	Various				0.319	01/01	0.225	02/02	0.300	Continuing	
MAGTF CSSE&SE	C/FFP	Various						0.680	02/02	0.541	Continuing	
SCN Reprogramming	TBD	TBD				0.399				0.000	0.399	0.400
SBIR						0.007						
Subtotal Product Dev			0.000	0.966		0.805		4.541		Continuing	Continuing	
Remarks:												

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equip											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
TC-AIMS II	WR	Various		0.071	Var	0.249	Var	0.056	02/02	Continuing	Continuing	
Subtotal Support			0.000	0.071		0.249		0.056				
Remarks:												

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Eval											0.000	
Operational Test & Eval											0.000	
Tooling				0.023	09/00	0.010	03/01	0.005	02/02		0.038	
TC-AIMS											0.000	
Subtotal T&E	RCP	MCSC	0.000	0.023		0.010		0.005		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis							DATE: **June 2001**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**				PROJECT NUMBER AND NAME **C2510 MAGTF CSSE S&E**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Eng Suppt											0.000	
Govt Engineering Suppt											0.000	
Program Mngmnt Suppt											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost				1.060		1.064		4.602		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational System Development**				PROGRAM ELEMENT (PE) NAME AND NO. **0206623M Marine Corps Ground Combat/Supporting Arms Systems**						
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	**29.020**	**39.061**	**43.935**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
C0021 Assault Amphibious Vehicle 7A1 (AAV7A1)	**0.385**	**0.402**	**0.362**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
C1555 Light Armored Vehicle (LAV) PIP	**7.354**	**9.759**	**14.273**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
C1901 Marine Corps Ground Weaponry PIP	**14.276**	**7.999**	**13.815**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
C2086 Marine Enhanced Program (MEP)	**1.472**	**1.640**	**2.555**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
C2237 Amphibious Vehicle Test Branch (AVTB)	**0.598**	**0.717**	**0.732**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
C2503 Initial Issue	**2.007**	**1.403**	**1.307**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
C2667 Shortstop Electronic Protection System	**2.928**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**2.928**
C2928 EIFGSWS (HIMARS)	**0.000**	**17.141**	**10.891**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**28.032**
Quantity of RDT&E Articles										

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

This PE provides modification to Marine Corps Expeditionary Ground Force Weapon Systems to increase lethality, range, survivability and operational effectiveness. It also provides for the development of AAV7A1 reliability, maintainability, operational 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.

This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing and manufacturing development for upgrades of existing systems.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational System Development**	PROGRAM ELEMENT (PE) NAME AND NO. **0206623M Marine Corps Ground Combat/Supporting Arms Systems**

B. PROGRAM CHANGE SUMMARY

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	28.679	22.124	19.088
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.450	0.000	0.000
(U) Execution Adjustment	-0.216	0.000	0.000
(U) Minor Affordability Adjustment	-0.141	-0.204	-0.514
(U) Program Adjustment	1.148	17.141	25.361
(U) FY 2002 President's Budget:	29.020	39.061	43.935

CHANGE SUMMARY EXPLANATION:

(U) Funding: See Above.

(U) Schedule: See Project C2503 Initial Issue R-2a.

(U) Technical: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Systems**				PROJECT NUMBER AND NAME **C0021 Assault Amphibious Vehicle 7A1 (AAV7A1)**					
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**0.385**	**0.402**	**0.362**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
RDT&E Articles Qty										

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

(U) The AAV7A1 RDT&E program provides for the development, test and preparation of Engineering Change Proposals (ECPs) to improve the performance, reliability, maintainability and safety of the AAV7A1 Family of Vehicles (FOV). This program also allows for the development of installation kits for the integration of communications and navigation equipment developed for integration into the AAV7A1 FOV.

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2000 Accomplishments:

- (U) $ 0.385 Provided engineering support for integration of modification kits into AAV7A1 Family of Vehicles.

(U) Total $ 0.385

FY 2001 Planned Program

- (U) $ 0.391 Continue providing engineering support for development and integration of modification kits into AAV7A1 Family of Vehicles.
- (U) $ 0.011 SBIR: Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

(U) Total $ 0.402

FY 2002 Planned Program

- (U) $ 0.362 Continue providing engineering support for development and integration of modification kits into AAV7A1 Family of Vehicles.

(U) Total $ 0.362

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Systems**	PROJECT NUMBER AND NAME **C0021 Assault Amphibious Vehicle 7A1 (AAV7A1)**

(U) PROJECT CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	0.396	0.406	0.357
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.011		
(U) Execution Adjustment			
(U) Minor Affordability Adjustment	-0.002	-0.004	0.001
(U) Program Adjustment	0.002		0.004
(U) FY 2002 President's Budget:	0.385	0.402	0.362

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007 To Compl	Total Cost
(U) PMC, 202100, AAV PIP	80.703	82.607	77.087	0.000	0.000	0.000	0.000	0.000 Continuing	Continuing

(U) Related RDT&E: PE 0603611M (Marine Corps Assault Vehicles)

(U) C. ACQUISITION STRATEGY:

These efforts focus on the development of Engineering Change Proposals to improve performance, reliability, maintainability and safety of the Assault Amphibious Vehicle. Contractor support will be acquired using already existing contracts.

(U) D. SCHEDULE PROFILE: N/A

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Systems**				PROJECT NUMBER AND NAME **C1555 Light Armored Vehicle (LAV) PIP**					
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**7.354**	**9.759**	**14.273**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
RDT&E Articles Qty										

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

The Light Armored Vehicle Family of Vehicles (LAV FOV) consists of seven fielded LAV configurations, and one communications/intelligence-configured asset on an LAV chassis (Mobile Electronic Warfare Support System Collectively, the LAV FOV provides a logistically self-contained, highly mobile, and lethal combined arms combat system to the Marine Air-Ground Task Force (MAGTF). This project funds for the development and testing of modifications falling within the purview of the LAV Service Life Extension Program (SLEP) (See PMC: LAV SLEP (FY 2002-FY 2005)) Product Improvement Program. LAV SLEP will ensure the LAV FOV will be capable of conducting its assigned missions through FY 2015 by enhancing lethality and survivability; reliability, availability, maintainability and durability; as well as reducing operations and support costs. The LAV SLEP will essentially invest in technologies currently existing on newer generations of Light Armored Vehicles and other weapons systems.

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2000 Accomplishments:

- (U) $ 4.400 Developed 5 LAV SLEP operational system prototypes for developmental & operational test and evaluation of SLEP modifications.
- (U) $ 1.518 Continued study, analysis, and development of existing and other alternative technological solutions for the LAV Service Life Extension Program.
- (U) $ 0.448 Continued and completed developmental and operational test planning for the LAV Service Life Extension Program Test Planning
- (U) $ 0.988 Conducted research and development of LAV C2 architectural and systems interoperability requirements.

(U) Total $ 7.354

FY 2001 Planned Program

- (U) $ 1.200 Complete development of LAV SLEP operational system prototypes for test and evaluation of SLEP modifications.
- (U) $ 4.252 Commence developmental and operational testing and evaluation of 5 LAV SLEP modification prototypes.
- (U) $ 2.529 Continue development of LAV Service Life Extension Program to include fielding requirements, training, ILS, future maintenance requirements, and impacts to depot-level maintenance program.
- (U) $ 1.778 Conduct research and development of LAV RAM projects to include a one time installation and operational test of prototype two-speed transmissions prior to fielding.

(U) Total $ 9.759

FY 2002 Planned Program

- (U) $ 1.507 Complete developmental and operational testing (DT/OT) of SLEP operational system prototypes for test and evaluation (T&E) of SLEP mods.
- (U) $ 7.425 Development of 7 Thermal Sight Systems (TSS) prototypes for developmental and operational T&E of TSS modifications.
- (U) $ 4.054 Continue operational systems developmental and program management requirements for LAV SLEP and TSS.
- (U) $ 1.287 Conduct research and development of LAV RAM projects.

(U) Total $ 14.273

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Systems**	PROJECT NUMBER AND NAME **C1555 Light Armored Vehicle (LAV) PIP**

(U) PROJECT CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	8.328	9.849	6.219
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.176		
(U) Execution Adjustment	-0.613		
(U) Minor Affordability Adjustment	-0.046	-0.090	-0.206
(U) Program Adjustment	-0.139		8.260
(U) FY 2002 President's Budget:	7.354	9.759	14.273

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC, 203800, LAV PIP	1.640	1.693	25.783	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

(U) Related RDT&E: Not Applicable.

(U) C. ACQUISITION STRATEGY: The LAV Service Life Extension Program (SLEP) is designed to extend the service life of the LAV Family of Vehicles trhough 2015, an increase of 12 to 15 years beyond its original projected useful life. This is being done by utilizing both developmental and off-the-shelf technologies to enhance survivability, lethality, mobility and sustainability while simultaneously reducing the cost of wonership. PM, LAV uses multi-disciplined integrated product teams consisting of engineering, logistical, contracting and financial personnel to manage the SLEP. SLEP contracts have been designed using a winner-take-all methodology in order to reduce costs and encourage competition. PM, LAV retains oversight of the SLEP procurement.

(U) C. ACQUISITION STRATEGY: The LAV RAM project funds numerous low-dollar, yet extremely important minor modificatins, support equipment and tools and other such projects that increase LAV reliability and readiness while simultaneously reducing operations and support costs. PM, LAV uses multi-disciplined integrated project teams consisting of engineering, logistical, contracting and financial personnel to manage RAM projects. The majority of contracts issued under the RAM line are subject to the competitive acquisition process. PM, LAV retains oversight of all LAV RAM projects.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Systems**	PROJECT NUMBER AND NAME **C1555 Light Armored Vehicle (LAV) PIP**

(U) D. SCHEDULE PROFILE:

LAV SLEP

Milestone 0:	1st Qtr, FY 1998	Milestone III:	2nd Qtr, FY 2002
Milestone I:	2nd Qtr, FY 1999	Contract Award:	2nd Qtr, FY 2002
Milestone II:	2nd Qtr, FY 2000	IOC:	1st Qtr, FY 2005
DT / OT:	2nd Qtr, FY 2001	FOC:	1st Qtr, FY 2009

Program Funding Summary	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(APPN, BLI #, NOMEN)										
(U) RDT&E,N	6.366	7.981	12.986	0	0.000	0.000	0.000	0.000	0.000	Continuing
(U) PMC, BLI# 203800 LAV SLEP	1.640	1.693	25.783	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

CLASSIFICATION:

Exhibit R-3 Cost Analysis			DATE: **June 2001**									
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206623M Marine Corps Ground Combat/Supporting Arms Systems**					PROJECT NUMBER AND NAME **C1555 Light Armored Vehicle (LAV) PIP**					
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Product Development											0.000	
Primary Hardware Dev	C/FF	Dies Div, GM	0.915							0.000	0.915	0.915
Primary Hardware Dev	CPFF	NRL	0.509	0.691						0.000	1.200	1.200
Primary Hardware Dev	CPIF	Metric Systems		4.500	03/00	0.310				0.000	4.810	4.810
Primary Hardware Dev	CPFF	GTRI		0.350	03/00	0.400	2Q01	0.450		0.000	1.200	1.200
Gov't Dev Engineering	MIPR	In-House Product Dev	0.735	0.201	1Q00	0.624	1Q01	0.731		Continuing	Continuing	
Product Development	Various	Other	9.711	0.215	Various	3.000	Various	7.345		Continuing	Continuing	
Subtotal Product Dev			11.870	5.957		4.334		8.526		Continuing	Continuing	
Remarks:												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Support												
Subtotal Support			0.000	0.000		0.000		0.000				
Remarks: **R-1 SHOPPING LIST - Item No. 191**												

CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206623M Marine Corps Ground Combat/Supporting Arms Systems**				PROJECT NUMBER AND NAME **C1555 Light Armored Vehicle (LAV) PIP**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Test & Eval (T&E)												
Developmental Test & Eval	MIPR	LAV Test Dir, Yuma Prv Grnd	4.655	0.478	Various	4.429	Various	1.507		Continuing	Continuing	
Subtotal T&E			4.655	0.478		4.429		1.507		Continuing	Continuing	
Remarks:												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Program Management												
Program Management	WR	PMO LAV, Tacom, MI	23.799	0.919	1Q00	0.996	1Q01	4.240	1Q02	Continuing	Continuing	
Subtotal Management			23.799	0.919		0.996		4.240		0.000	29.954	
Remarks:												
Total Cost				7.354		9.759		14.273		Continuing	Continuing	

~~**R-1 SHOPPING LIST - Item No. 191**~~

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Sys**					**C1901 Marine Corps Ground Weaponry PIP**				
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**14.276**	**7.999**	**13.815**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
RDT&E Articles Qty										

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

(U) This Project develops joint and Marine Corps unique improvements to infantry weapons and artillery technology, USMC unique Amphibious Armor Systems (AAS), improvements for the M1A1 Main Battle Tank and support systems, USMC Family of Small Craft, Night Vision Equipment, Underwater Reconnaissance, Family of Raid and Reconnaissance Equipment, Interim Small Unit Remote Scouting System (ISURSS) and monitors national and international weapons developments.

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2000 Accomplishments:

- (U) $ 0.148 **Family of Artillery Munitions (FAM)**: Supported a production decision for the M795 HE projectile, to include: Weapons Systems Explosive Safety Board testing, program support, and travel. Continued the active monitoring of U.S. Army artillery ammunition development programs in order to leverage off of and influence Army
- (U) $ 0.163 **Family of Improved Mortars**: In conjunction with U.S. Army Program Manager for Mortars, conducted concept exploration initiatives to determine the feasibility of alternative concepts for the Pointing Device (PD) for the Mortar Fire Control System (Light) (MFCS). The PD provides precise deflection, elevation, and Global Positioning System interface for the MFCS. Down selection will be made for no more than two alternatives for further development.
- (U) $ 0.754 **Family of Small Craft**: Provided Fault Analysis and Fault Isolation (FAFI) for the Riverine Assault Craft (RAC) through MCPD, Fallbrook, CA. Engineering support for a raw water cooling system.
- (U) $ 1.138 **Fire Support Mods**: Continued joint participation in artillery and fire support improvement projects including joint sustainment of the M198 Howitzer and Meteorological Measuring Set (MMS). Continued software analysis and integration. Provided support to the Marine Corps Warfighting Lab for the development, evaluation and rapid transition of fire support initiatives.
- (U) $ 0.461 **Improved Recovery Vehicle**: Conducted Landing Craft Air Cushion (LCAC) testing of Improved Recovery Vehicle, and design, fabrication and testing of deep water fording equipment.
- (U) $ 2.050 **Infantry Wpns Mods**: Continued joint participation and Marine Corps unique activities for evaluation of safety, lethality, and technology improvements for Marine Corps infantry/reconnaissance individual and crew served weapons. Pursued solutions to integrate weapons systems with existing and planned night vision and sighting technologies including revisions of mounts and interfaces.
- (U) $ 1.647 **M1A1 Firepower Enhancements**: Conducted trade studies identifying the most cost effective upgrades to the tank fire control system. Initiated preliminary design of integrated Non-Developmental Item (NDI) package to include improved thermal sight and north-finding/far target location capability. Conduct fabrication/ testing of prototype integrated systems. Developed preliminary system specification, interface control documents, item development specification, conduct System Requirements
- (U) $ 4.472 **M1A1 Firepower Enhancements (Forward Finance):** - Continue preliminary design of NDI package to include improved thermal sight and north-finding/far target location capability.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Sys**	**C1901 Marine Corps Ground Weaponry PIP**

- (U) $ 0.421 **M1A1 Armor Mods**: Conducted joint evaluation of modifications including component enhancements, Advanced Fire Control Systems, Survivability Systems, Operations and Support Cost Reduction opportunities, Combat Identification and others.
- (U) $ 0.275 **Night Vision Mod Line**: Continued joint participation and Marine Corps unique activities for evaluation of safety, lethality and technology improvements for Marine Corps Night Vision Devices. Provided In Service Engineering Activity (ISEA) at Naval Surface Weapons Center (NSWC), Crane, IN. Participated with ARMY PM-Night Vision at Ft Belvoir, VA on new enhancements for Image Intensification (I2) and Thermal Imagery. Travel/Temporary Assignment of Duty (TAD) to support enhanced
- (U) $ 0.154 **Thermal Weapons Sight (TWS)[AN/PAS-13]:** Successfully completed Marine Corps unique testing of the TWS. Completing preparation for MS III.
- (U) $ 2.593 **Target Location Designation and Hand-Off System (TLDHS):** Continued Joint-service, U.S. Army-led engineering, management, and development (EMD) of the Lightweight Laser Designator Rangefinder (LLDR). Completed initial systems integration between the LLDR and the Target Hand-off System Software and RHC computer. Continued incremental refinement, coding, evaluation and Independent Verification & Validation (IV&V) of the TLDHS-specific software application to ensure interoperability with emerging Marine Corps tactical Command, Control, Communications, Computers, & Intelligence (C4I) architecture and with other fire

(U) Total $ 14.276

FY 2001 Planned Program

- (U) $ 0.169 **Family of Artillery Munitions (FAM):** Support a production decision for the Modular Artillery Charge System, to include Weapons Systems Explosive Safety Review Board testing, program support, and travel. Continue the active monitoring of U.S. Army artillery ammunition development programs in order to leverage off of and influence Army developmental efforts.
- (U) $ 0.581 **Family of Small Craft**: Provide Fault Analysis and Fault Isolation (FAFI) for the Riverine Assault Craft (RAC) and the Rigid Raiding Craft (RRC) and associated equipment at MCPD, Fallbrook, CA. Engineering analysis and development for the replacement Intercom System for the RAC and noise reduction.
- (U) $ 1.021 **Fire Support Mods**: Continue joint participation in artillery and fire support improvement projects. Specifically, continue joint sustainment of the M198 Howitzer, Metrological Measuring System and Firefinder Radar to include safety modifications and service life extension efforts. Provide support to the Marine Corps Warfighting Lab for the development, evaluation and rapid transition of fire support initiatives.
- (U) $ 1.002 **Infantry Wpns Mods**: Continue joint participation and Marine Corps unique activities to improve the safety, lethality, and technology of Marine Corps infantry/reconnaissance individual and crew served weapons and equipment. Seeking to integrate weapons systems with existing and planned night vision and thermal sighting technologies including revisions of mounts and interfaces. Continue weapon system integration into the Integrated Infantry Combat System (IICS) to enhance the efficiency, effectiveness and safety of the Combat System. Supporting CMC initiatives to improve safety of Helicopter Borne Ground Combat Marines and assess
- (U) $ 3.582 **Firepower Enhancements**: Complete preliminary design of integrated NDI package to include improved thermal sight, and north-finding/ far target location capability. Finalize fabrication//testing of prototypes.
- (U) $ 0.000 **M1A1 Firepower Enhancements (Forward Finance FY 00 Funding):** Complete preliminary design of NDI package to include improved thermal sight and north-finding/far target location capability.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Sys**	**C1901 Marine Corps Ground Weaponry PIP**

- (U) $ 0.263 **M1A1 Armor Mods**: Continue joint evaluation of modifications including Component Enhancements, Advanced Fire Control Systems, Survivability Systems, Combat Identification and others.
- (U) $ 0.443 **Night Vision Mod Line**: Continue joint participation and Marine Corps unique activities for evaluation of safety, lethality and technology improvements for Marine Corps Night Vision Devices. Provides for In Service Engineering Activity (ISEA) at NSWC, Crane, IN. Participate with ARMY PM-Night Vision at Ft Belvoir on new enhancements for Image Intensification I2. Travel/TAD to support enhanced systems development and review of tests.
- (U) $ 0.113 **Thermal Weapons Sight (TWS)[AN/PAS-13]:** Provide for joint participation in Pre-Planned Product Improvement (P3I) for TWS – remote image transfer, laser range finder, aimport reticle, mounting brackets for future small arms weapons, vertical angle measurement, automated aimport reticle.
- (U) $ 0.728 **Target Location Designation and Hand-Off System (TLDHS):** Continue incremental refinement, coding, evaluation and IV&V of the TLDHS-specific software application to ensure interoperability with the emerging Marine Corps tactical C4I architecture and with other fire support platforms and agencies. Conduct initial operational test & evaluation (IOT&E) of the LLDR and artillery/close-air-support (JVMF format) functionality.
- (U) $ 0.097 **SBIR:** Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

(U) Total $ 7.999

FY 2002 Planned Program

- (U) $ 1.460 **AN/GVS-5 Replacement (AEROS):** Funds will be used for engineering support and to purchase candidate systems for use in a down select. Systems will be used for developmental testing and further down select to a single EMD system.
- (U) $ 0.366 **AN/TPQ-46 Radar Mod**: Conduct analysis of U.S. Army led False Target Location Modifications (FTLM) engineering change proposal (ECP) package relative to defined requirements. Develop Milestone decision documentation for FTLM ECP.
- (U) $ 0.268 **Family of Artillery Munitions (FAM):** Support a production decision for the Modular Artillery Charge System, to include: Weapons Systems Explosive Safety Review Board testing, program support, and travel. Continue the active monitoring of U.S. Army artillery ammunition development programs in order to leverage off of and influence army developmental efforts.
- (U) $ 0.594 **Family of Small Craft**: Provide Fault Analysis and Fault Isolation (FAFI) for the Riverine Assault Craft (RAC) and Rigid Raiding Craft and associated equipment at MCPD, Fallbrook, CA. Engineering analysis and development for upgraded weapons systems/sights.
- (U) $ 0.838 **Fire Support Mods**: Continue joint participation in artillery and fire support improvement projects. Specifically, continue joint sustainment of the M198 Howitzer and Metrological Measuring System to include safety modifications and service life extension efforts. Provide support to the Marine Corps Warfighting Lab for the development, evaluation and rapid transition of fire support initiatives.
- (U) $ 0.820 **Infantry Wpns Mods**: Continue joint participation and Marine Corps unique activities for evaluation of safety, lethality, and technology improvements for Marine Corps infantry/reconnaissance individual and crew served weapons. Pursue solutions to integrate weapons systems with existing and planned night vision and sighting technologies including revisions of mounts and interfaces. Continue weapon system integration into the Integrated Infantry Combat System (IICS) to enhance the efficiency, effectiveness and safety of the Combat System.
- (U) $ 0.501 **Interim Small Unit Remote Scouting System (ISURSS):** Funds will be used for Operational System Development, Contractor support and Program Office Travel.
- (U) $ 7.762 **M1A1 Firepower Enhancement**: Conduct comparative assessments of competing designs and conduct system design review to finalize system performance specification Perform Final Integration and Prove out. Procurement of test articles, conduct developmental test and evaluation, pre-production technical reviews/audits, and logistical

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Sys**	**C1901 Marine Corps Ground Weaponry PIP**

- (U) $ 0.000 **M1A1 Firepower Enhancement (Forward Financing 1.190 of FY01 Funds)**
- (U) $ 0.298 **M1A1 Armor Mods**: Continue joint participation and evaluation of prospective modifications including Component Enhancements, Advanced Fire Control Systems, Survivability Systems, Combat Identification, mobility and others.
- (U) $ 0.441 **Night Vision Mod Line**: Continue joint participation and Marine Corps unique activities for evaluation of safety, lethality and technology improvements for Marine Corps Night Vision Devices. Provides for In Service Engineering Activity (ISEA) at NSWC, Crane. Participate with ARMY PM-Night Vision at Ft Belvoir on new enhancements for Image Intensification I2. Travel/TAD to support enhanced systems development and review of tests.
- (U) $ 0.118 **Thermal Weapons Sight (TWS)[AN/PAS-13]**: Provide for joint participation in P3I for TWS – remote image transfer, laser range finder, aimport reticle, mounting brackets for future small arms weapons, vertical angle measurement, automated aimport reticle.
- (U) $ 0.349 **Target Location Designation and Hand-Off System (TLDHS):** Continue incremental refinement, coding, evaluation and IV&V of the TLDHS-specific software application to ensure interoperability with the emerging Marine Corps tactical C4I architecture and with other fire support platforms and agencies. Conduct IOT&E of the LLDR and artillery/close-air-support (JVMF format) functionality.

(U) Total $ 13.815

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	13.244	8.073	7.878
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.200		
(U) Execution Adjustment			
(U) Minor Affordability Adjustment	-0.067	-0.074	-0.242
(U) Program Adjustment	1.299		6.179
(U) FY 2002 President's Budget:	14.276	7.999	13.815

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Sys**	**C1901 Marine Corps Ground Weaponry PIP**

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC (BLI#206200) Improved Recovery Veh	0.000	42.232	21.026						0.000	63.258
(U) PMC (BLI#206300) Mod Kits (Tracked Veh)	82.256	20.625	3.825						Continuing	Continuing
(U) PMC (BLI#220900) Mod Kits (Arty & Other)	3.674	3.855	1.478						Continuing	Continuing
(U) PMC (BLI#222000) Under $5 Million	5.893	0.411	0.274						Continuing	Continuing
(U) PMC (BLI#233400) Modular Weapon System			7.501						0.000	7.501
(U) PMC (BLI#462000) <$5M (Comm&Electrnics)	10.131	8.244	9.028						Continuing	Continuing
(U) PMC (BLI#473300) Fire Support Systems	4.965	15.203	16.152						Continuing	Continuing
(U) PMC (BLI#475000) Items Under $5M (Intel)	2.225	0.398	1.654						Continuing	Continuing
(U) PMC (BLI#493000) Night Vision Equipment	12.900	21.155	22.374						Continuing	Continuing
(U) PMC (BLI#643400) Amphibious Raid Equip			2.349						Continuing	Continuing
(U) PMC (BLI#667000) Items Less Than $5M	16.160	6.530	7.684						Continuing	Continuing

(U) Related RDT&E:

(U) All Ground Weapons and Ground Ammunition Systems: Army, Navy, Air Force, Coast Guard, and Special Operations Command

(U) C. ACQUISITION STRATEGY:

(U) This line covers programs ranging from Off-The-Shelf modifications to Developmental Items. TLDHS acquires the Laser Locator Designator and Rangefinder being developed by the Army. This component is combined with a radio and hand-held computer running software developed by the Marine Corps. Fire Power Enhancement used selected upgrades from Army developmental programs to create a system that more readily meets Marine Corps requirements. Modification covers safety, reliability, and technology up-grades to meet Marine Corps requirements. M1A1 Fire Power Enhancement - Competively Awarded 2 Cost Plus Firm Fixed contracts to conduct parallel design, integration and demonstration of NDI technology for the M1A1 Firepower Enhancement. Down select to a single contractor with the most promising concept, continuing with design development until production ready. Finally, transition to production with the winning design by exercising a Firm Fixed Price contract option.

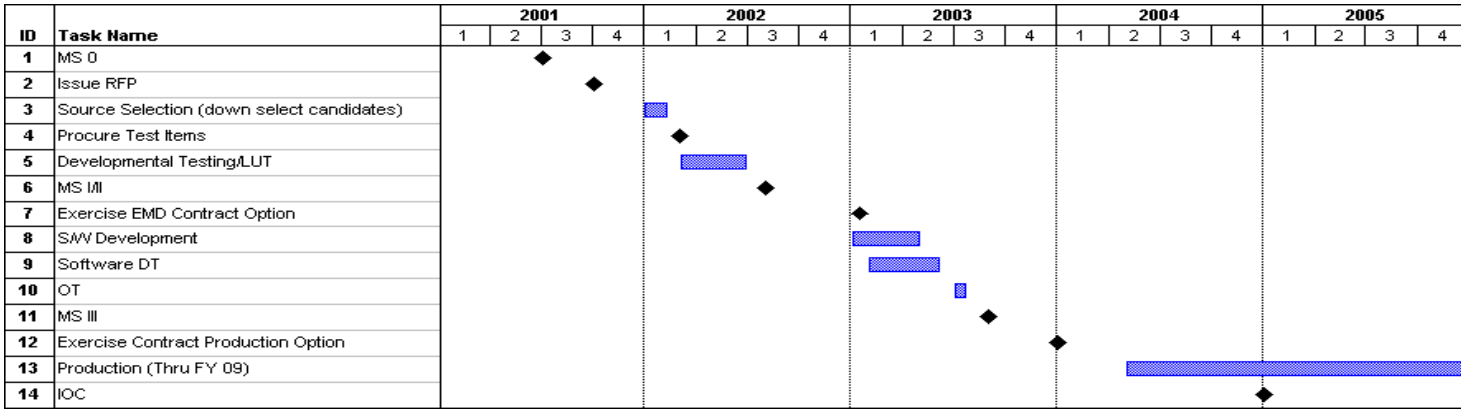
CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Sys**	**C1901 Marine Corps Ground Weaponry PIP**

(U) D. SCHEDULE PROFILE:

AEROS PROGRAM

(AN/GVS-5 Replacement)

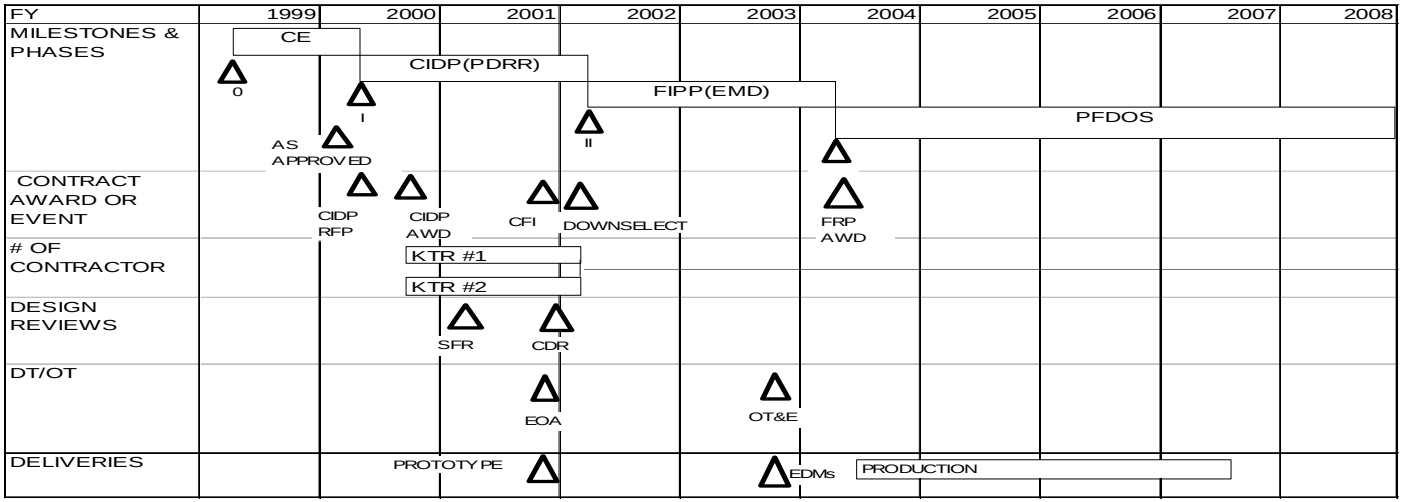


Program Funding Summary (APPN, BLI #, NOMEN)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N			1.460	0.000					0.000	Continuing
(U) PMC, BLI# 493000 Nt Vision Eq					0.000	0.000	0.000	0.000	Continuing	Continuing

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Sys**	**C1901 Marine Corps Ground Weaponry PIP**

M1A1 Firepower Enhancement Program (FEP)

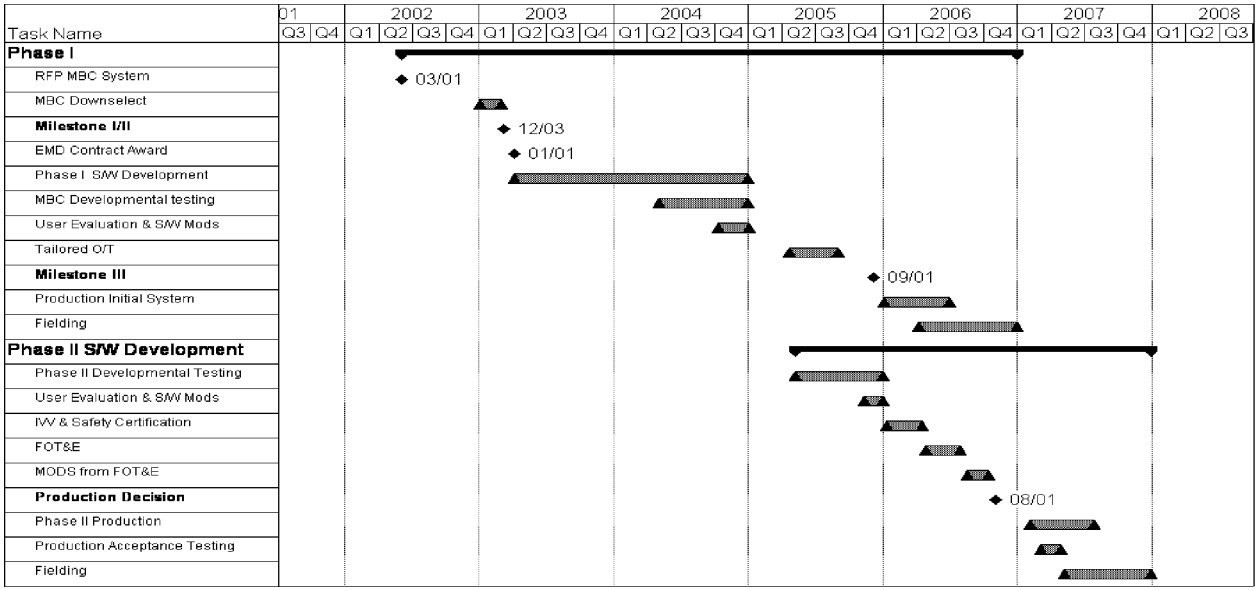


Program Funding Summary	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(APPN, BLI #, NOMEN)										
(U) RDT&E,N	6.119	3.582	7.762	0.000					0.000	Continuing
(U) PMC BLI# 206300 Mod Kits (Tracked					0.000	0.000	0.000	0.000	Continuing	Continuing

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Sys**	**C1901 Marine Corps Ground Weaponry PIP**

MORTAR BALLISTIC COMPUTER

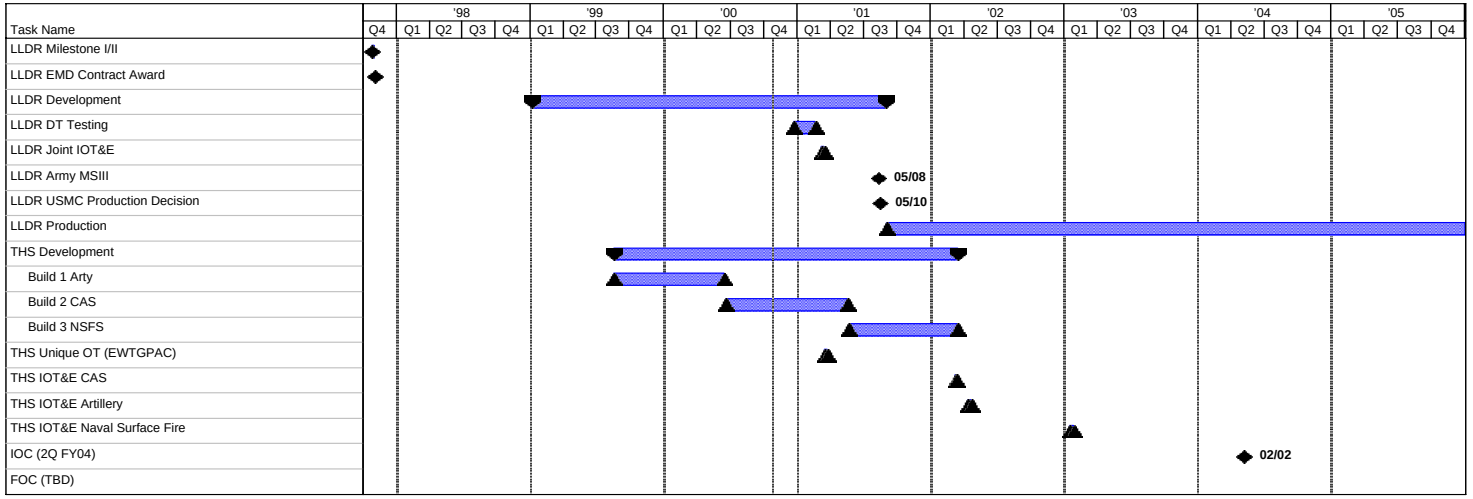


Program Funding Summary (APPN, BLI #, NOMEN)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N				0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
(U) PMC BLI# 473300 Fire Support Systems							0.000	0.000	Continuing	Continuing

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Sys**	**C1901 Marine Corps Ground Weaponry PIP**

Target Location Designation Hand-off System (TLDHS)



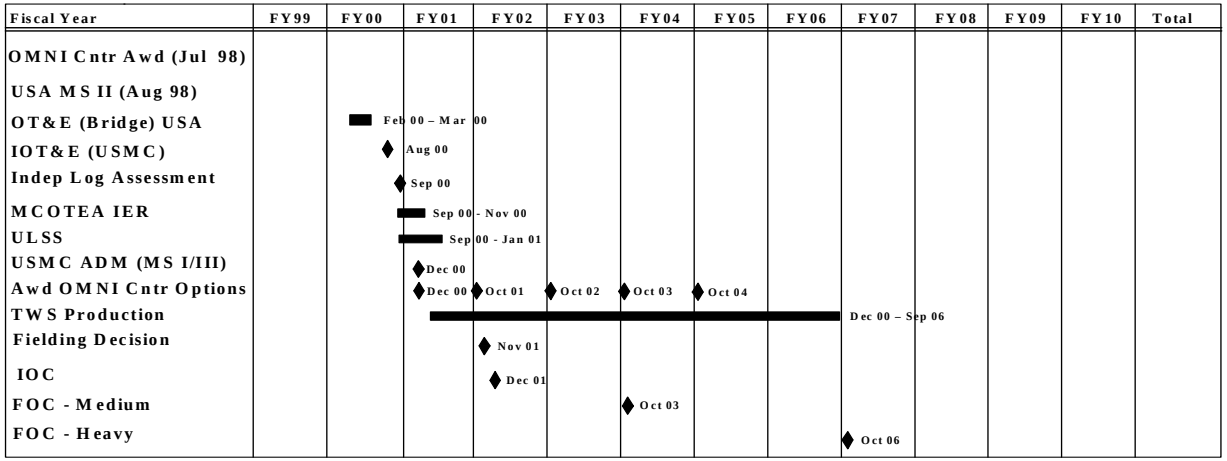
LLDR - Lightweight Laser Designator Rangefinder **THS** - Target hand-off System **CAS** - Close Air Support

Program Funding Summary (APPN, BLI #, NOMEN)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N	2.593	0.728	0.349						0.000	Cont.
(U) PMC BLI# 473300 Fire Support Systems		12.231	16.152	0.000	0.000				0.000	Cont.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Sys**	**C1901 Marine Corps Ground Weaponry PIP**

THERMAL WEAPON SIGHT (TWS)



Program Funding Summary (APPN, BLI #, NOMEN)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N	0.154	0.113	0.118	0.000	0.000	0.000			0.000	Cont.
(U) PMC, BLI# 493000 Nt Vision Eq		14.218	18.739	0.000	0.000	0.000			0.000	Cont.

CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206623M Marine Corps Ground Combat/Supporting Arms Sys**					PROJECT NUMBER AND NAME **C1901 Marine Corps Ground Weaponry PIP**					
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
PRODUCT DEVELOPMENT												
Primary Hardware Dev											0.000	
Ancillary Hardware Dev											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
AN/TPQ-46	RCP	TBD						0.201	1Q02	0.000	0.201	0.200
Fam Impr Mortars	MIPR	PM Mortars, Picatinny NJ		0.155	TBD					Continuing	Continuing	
Fam Small Craft Mods	WR/RCP	NSWC, Crane IN	0.250	0.535	1Q00	0.396	1Q01	0.402	2Q02	Continuing	Continuing	
Fire Spt Mods	WR	Marine Det, Ft Sill, OK	0.080	0.050	1Q00	0.050	1Q01	0.050	1Q02	Continuing	Continuing	
Fire Spt Mods	MIPR	USArmy CECOM, Ft Monmouth NJ	0.050	0.155	1Q00	0.198	2Q01	0.064	1Q02	Continuing	Continuing	
Fire Spt Mods	WR	NSWC, Crane IN			1Q00	0.030	1Q01			Continuing	Continuing	
IRV	MIPR	UDLP, York, PA		0.058	2Q00		2Q02			0.000	0.058	0.055
Inf Weapon Mods	WR/RCP	MCCDC, Quantico, VA	0.075	0.452	3Q00	0.198	1Q01	0.092	1Q02	Continuing	Continuing	
Inf Weapon Mods	MIPR	TACOM, Warren MI	0.008							0.000	0.008	0.008
ISURSS	RCP	TBD					2Q01	0.374	TBD	Continuing	Continuing	
M1A1 Firepower	RCP	TBD		5.372	07/00	2.807		7.137	2Q02	Continuing	Continuing	
M1A1 Firepower	MIPR	Nt Vision Lab, Ft Belvoir, VA		0.200	1Q00	0.200	2Q01	0.200	2Q02	Continuing	Continuing	
M1A1 Mods	RCP	Ctr Nav Anl, Alexandria, VA		0.300	2Q00		1Q01			Continuing	Continuing	
M1A1 Mods	WR/RCP	TACOM, Warren MI	0.193		2Q00		1Q01		2Q02	Continuing	Continuing	
M1A1 Mods	WR/RCP	TBD		0.023	2Q00	0.153	1Q01	0.188	1Q02	Continuing	Continuing	
Nt. Vision Mod	WR/RCP	NSWC, Crane IN		0.045	2Q00	0.050	2Q01	0.041	1Q02	Continuing	Continuing	
Nt. Vision Mod	MIPR	Nt Vision Lab, Ft Belvoir, VA		0.050	2Q00	0.100	2Q01	0.100	2Q02	Continuing	Continuing	
TWS	MIPR	Nt Vision Lab, Ft Belvoir, VA	0.225	0.017	2Q00	0.018	2Q01	0.018	2Q02	Continuing	Continuing	
TWS	RCP	MCSC, Quantico, VA	0.138		2Q00		1Q01			Continuing	Continuing	
TLDHS	RCP	Synetics, Inc King George, VA		1.709	2Q00	0.223	1Q01	0.126	1Q02	0.000	2.058	2.039
TLDHS	MIPR	Nt Vision Lab, Ft Belvoir, VA	2.031							0.000	2.031	
Subtotal Product Dev			3.050	9.121		4.373		8.993		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis			DATE: **June 2001**									
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206623M Marine Corps Ground Combat/Supporting Arms Sys**					PROJECT NUMBER AND NAME **C1901 Marine Corps Ground Weaponry PIP**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
SUPPORT												
AN/GVS-5	WR	MCSC, Quantico, VA						0.204	1Q02	1.089	1.293	1.333
AN/GVS-5	RCP	BAEST, Stafford, VA						0.109	10/05	0.111	0.220	0.220
AN/TPQ-46	RCP	BAEST, Stafford, VA						0.150	1Q02	0.000	0.150	0.150
AN/TPQ-46	WR	MCSC, Quantico, VA						0.015	1Q02	0.000	0.015	0.015
Fam Artillery Munitions	WR/RCP	BAEST, Stafford, VA		0.059	Various	0.049	10/01	0.046	1Q02	Continuing	Continuing	
Fam Small Craft Mods	RCP	ALS, Inc, Dumfries, VA	0.040	0.090	Various					0.000	0.130	0.130
Fam Small Craft Mods	RCP	BAEST, Stafford, VA				0.050	Various	0.050	1Q02	Continuing	Continuing	
Fam Small Craft Mods	WR	MCSC, Quantico, VA	0.050	0.046	1Q00	0.050		0.050	10/05	Continuing	Continuing	
Fire Supt Mods	WR/RCP	BAEST, Stafford, VA		0.373	Various	0.673		0.644	1Q02	Continuing	Continuing	
Fire Supt Mods	RCP	ALS, Inc, Dumfries, VA	0.205	0.247	Various					0.000	0.452	0.452
Fire Supt Mods	WR	NSWC, Dahlgren, VA	0.015	0.135	Various					Continuing	Continuing	
Fire Supt Mods	MIPR	TACOM, Rock Island, IL				0.030	1Q00			Continuing	Continuing	
IRV	RCP	ALS, Inc, Dumfries, VA		0.050	Various					0.000	0.050	0.050
IRV	WR	MCSC, Quantico, VA		0.093	1Q00					Continuing	Continuing	
Inf Wpns Mods	WR	MCSC, Quantico, VA	0.097	0.120	Various	0.130	1Q01	0.130	1Q02	Continuing	Continuing	
Inf Wpns Mods	RCP	ALS, Inc, Dumfries, VA	0.079	0.262	Various					0.000	0.341	0.455
Inf Wpns Mods	RCP	BAEST, Stafford, VA		0.096	Various	0.343	1Q01	0.350	1Q02	Continuing	Continuing	
Inf Wpns Mods	WR/RCP	NSWC, Dahlgren, VA	0.290	0.290	Various	0.200	1Q01	0.136	1Q02	Continuing	Continuing	
Inf Wpns Mods	WR	MCLB, Albana, GA	0.025	0.025	Various	0.025	1Q01	0.025	1Q02	Continuing	Continuing	
Inf Wpns Mods	WR/RCP	NSWC, Crane, IN		0.181	Various	0.031	1Q01	0.012	1Q02	Continuing	Continuing	
Inf Wpns Mods	WR/RCP	CSS, Panama City, FL		0.461	Various					Continuing	Continuing	
ISURSS	WR/RCP	BAEST, Stafford, VA			Various			0.127	1Q02	Continuing	Continuing	
M1A1 Firepower	RCP	ALS, Inc, Dumfries, VA		0.064	Various					0.000	0.064	0.075
M1A1 Firepower	RCP	BAEST, Stafford, VA			Various	0.064	2Q01	0.361	2Q02	Continuing	Continuing	
M1A1 Firepower	MIPR	GDLS, Warren, MI		0.472	1Q00	0.500	1Q01			Continuing	Continuing	
M1A1 Mods	RCP	ALS, Inc, Dumfries, VA	0.040	0.040	Various					0.000	0.080	0.080
M1A1 Mods	RCP	BAEST, Stafford, VA				0.040	Various	0.040	1Q02	Continuing	Continuing	
M1A1 Mods	WR	MCSC, Quantico, VA	0.062	0.048	Various	0.050		0.050	1Q02	Continuing	Continuing	
MBC	WR	MCSC, Quantico, VA	0.075							0.000	0.075	0.075

CLASSIFICATION:

Exhibit R-3 Cost Analysis									DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206623M Marine Corps Ground Combat/Supporting Arms Sys**					PROJECT NUMBER AND NAME **C1901 Marine Corps Ground Weaponry PIP**						
Nt Vision Mod	WR	MCSC, Quantico, VA		0.075	1Q00	0.121		0.125	Various	Continuing	Continuing		
Nt Vision Mod	RCP	ALS, Inc, Dumfries, VA		0.055	Various					0.000	0.055	0.055	
Nt Vision Mod	RCP	BAEST, Stafford, VA				0.147	Various	0.150	1Q02	Continuing	Continuing		
TWS	WR	MCSC, Quantico, VA	0.060	0.042		0.030	Various	0.030	Various	Continuing	Continuing		
TWS	RCP	ALS, Inc, Dumfries, VA	0.090	0.095	Various					0.000	0.185	0.185	
TWS	RCP	BAEST, Stafford, VA				0.030	Various	0.050	Various	Continuing	Continuing		
TLDHS	RCP	ALS, Inc, Dumfries, VA	0.092	0.073	Various					0.000	0.165	0.183	
TLDHS	RCP	BAEST, Stafford, VA				0.117	Various	0.045	Various	0.000	0.162	0.180	
TLDHS	WR	MCSC, Quantico, VA	0.080	0.080	Various	0.083		0.013	Various	0.000	0.256	0.256	
TLDHS	WR	NSWC, Dahlgren, VA	0.599	0.371	Various					0.000	0.970	0.970	
Subtotal Support			1.899	3.943		2.763		2.912					
Remarks:													
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
T&E													
Developmental Test & Eval											0.000		
Operational Test & Eval											0.000		
AN/GVS-5 Replcmnt	MIPR	AMCOM, Huntsville, AL						1.147		0.000	1.147	1.147	
Family Arty Mun	WR/RCP	NSWC, Crane, IN		0.089	1Q00	0.217	1Q01	0.222	1Q02	Continuing	Continuing		
Family Small Craft Mods	WR	NSWC, Crane, IN	0.063	0.083	Various	0.085	1Q01	0.092	1Q02	Continuing	Continuing		
Fire Spt Mods	WR	MCOTEA, Quantico, VA	0.014	0.011	1Q00					Continuing	Continuing		
IRV	WR	CSS, Panama City, FL		0.260						0.000	0.260	0.260	
Inf Wpn Mods	WR	MCOTEA, Quantico, VA	0.050	0.010	Various	0.010	Various	0.010	Various	Continuing	Continuing		
Inf Wpn Mods	WR	MCCDC, Quantico, VA	0.040	0.065	Various	0.065	Various	0.065	Various	Continuing	Continuing		
M1A1 Mods	MIPR	ARDEC, Rock Island, IL	0.020	0.010	Various	0.020	1Q01	0.020	1Q01	Continuing	Continuing		
M1A1 Mods	WR	MCOTEA, Quantico, VA	0.100							Continuing	Continuing		
Nt Vision Mods	WR	MCOTEA, Quantico, VA		0.050	Various	0.025	2Q01	0.025	2Q01	Continuing	Continuing		
TWS	WR	MCOTEA, Quantico, VA	0.050			0.035	Various	0.020	Various	Continuing	Continuing		
TLDHS	WR	NSWC, Dahlgren, VA	0.074	0.225	1Q00	0.175	1Q01	0.085	1Q01	0.000	0.559	0.559	
TLDHS	WR	MCOTEA, Quantico, VA	0.125	0.127	1Q00	0.117	2Q01	0.075	2Q01	0.000	0.444	0.444	
										Continuing	Continuing		
Subtotal T&E			0.536	0.930		0.749		1.761		Continuing	Continuing		
Remarks:													

CLASSIFICATION:

Exhibit R-3 Cost Analysis							DATE: **June 2001**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206623M Marine Corps Ground Combat/Supporting Arms Sys**					PROJECT NUMBER AND NAME **C1901 Marine Corps Ground Weaponry PIP**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
MANAGEMENT												
Fam Improved Mortars	WR	MCSC, Quantico, VA		0.008	1Q00					Continuing	Continuing	
Fire Supt Mods	WR	MCSC, Quantico, VA	0.225	0.167	1Q00	0.090	1Q02	0.080	1Q02	Continuing	Continuing	
Inf Wpns Mods	RCP	ALS, Inc, Dumfries, VA	0.026	0.088	Various					0.000	0.114	0.455
M1A1 Firepower	RCP	ALS, Inc, Dumfries, VA		0.011	Various					0.000	0.011	0.011
M1A1 Firepower	RCP	BAEST, Stafford, VA			Various	0.011	2Q01	0.064	2Q02	Continuing	Continuing	
TLDHS	RCP	ALS, Inc, Dumfries, VA	0.010	0.008	Various					0.000	0.018	0.183
TLDHS	RCP	BAEST, Stafford, VA				0.013	Various	0.005	Various	0.000	0.018	0.180
Subtotal Management			0.261	0.282		0.114		0.149		0.000	0.806	
Remarks:												
Total Cost				14.276		7.999		13.815		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat Arms Systems**					**C2086 Marine Enhanced Program (MEP)**				
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**1.472**	**1.640**	**2.555**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
RDT&E Articles Qty										

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

(U) This program was formerly titled Soldier/Marine Enhancement. MEP 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/commercial of the shelf (NDI/COTS) 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.

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2000 Accomplishments:

- (U) $ 0.458 Explored NDI equipment that will improve the combat effectiveness and enhance safety and survivability of the Individual Marine.
- (U) $ 0.565 Explored clothing and individual equipment NDI categories.
- (U) $ 0.449 Explored ground weapons, communications and command and control equipment NDI categories.

(U) Total $ 1.472

FY 2001 Planned Program

- (U) $ 0.560 Continue to explore NDI equipment that will improve the combat effectiveness and enhance safety and survivability of the Individual Marine.
- (U) $ 0.543 Continue to explore clothing and individual equipment NDI categories.
- (U) $ 0.525 Continue to explore ground weapons, communications and command and control equipment NDI categories.
- (U) $ 0.012 SBIR: Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

(U) Total $ 1.640

FY 2002 Planned Program

- (U) $ 0.903 Continue to explore NDI equipment that will improve the combat effectiveness and enhance safety and survivability of the Individual Marine.
- (U) $ 0.834 Continue to explore clothing and individual equipment NDI categories.
- (U) $ 0.818 Continue to explore ground weapons, communications and command and control equipment NDI categories.

(U) Total $ 2.555

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat Arms Systems**	**C2086 Marine Enhanced Program (MEP)**

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	1.475	1.656	2.604
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.011		
(U) Execution Adjustment			
(U) Minor Affordability Adjustment	-0.006	-0.016	-0.049
(U) Program Adjustment	0.014		
(U) FY 2002 President's Budget:	1.472	1.640	2.555

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC (BLI #221100) MEP	4.343	8.336	2.243	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
(U) O&M Initial Issue Active	44.693	32.173	27.662	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
(U) O&M Initial Issue Reserve	15.523	12.758	7.749	0.000	0.000	0.000			Continuing	Continuing

(U) Related RDT&E: PE 0604713A (Combat Feeding, Clothing and Equipment)

(U) C. ACQUISITION STRATEGY: * An explanation of acquistion, management, and contracting strategies shall be provided for each project.
Acquisition Strategies are program specific. They vary from modified NDI to short term developmental programs.

(U) D. SCHEDULE PROFILE: N/A

CLASSIFICATION:

Exhibit R-3 Cost Analysis							DATE: **June 2001**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206623M Marine Corps Ground Combat Arms Systems**					PROJECT NUMBER AND NAME **C2086 Marine Enhanced Program (MEP)**					
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Dev											0.000	
Ancillary Hardware Dev											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
	WR	Lexington-Bluegrass, Lexington KY	2.357	0.042	1Q00	0.048	1Q01	0.052	1Q02	Continuing	Continuing	
	WR	NOC PacDiv, Fallbrook, CA	0.173	0.030	1Q00	0.035	1Q01	0.040	1Q02	Continuing	Continuing	
	WR/RCP	MCTSSA, CamPen, CA	0.604	0.004	1Q00	0.005	1Q01	0.018	1Q02	Continuing	Continuing	
	WR/RCP	NCTRF, Aberdeen, MD	0.299	0.021	1Q00	0.021	1Q01	0.035	1Q02	Continuing	Continuing	
	MIPR	NATICK, Natick, MA	1.298	0.040	2Q00	0.070	2Q01	0.151	1Q02	Continuing	Continuing	
	MIPR	ARL/APG Aberdeen, MD	0.247	0.007	1Q00	0.008	1Q01	0.022	2Q02	Continuing	Continuing	
	MIPR	NSMA, Washington DC	0.175	0.014	1Q00	0.016	1Q01	0.020	1Q02	Continuing	Continuing	
	MIPR	TACOM, Warren MI	0.067	0.010	1Q00	0.011	2Q01	0.012	2Q02	Continuing	Continuing	
	MIPR	2nd MARDIV, CamLej, NC	0.389	0.018	2Q00	0.020	2Q01	0.038	2Q02	Continuing	Continuing	
	WR	2nd MARDIV, CamLej, NC	0.066	0.002	1Q00	0.004	1Q01	0.008	1Q02	Continuing	Continuing	
	WR	NCCOSC, San Diego, CA	0.217	0.016	1Q00	0.014	1Q01	0.022	2Q02	Continuing	Continuing	
	WR	NCSS, Panama City, FL	1.880	0.008	1Q00	0.012	2Q01	0.035	1Q02	Continuing	Continuing	
	WR	NSWC, Crane, IN	2.000	0.032	1Q00	0.040	1Q01	0.097	1Q02	Continuing	Continuing	
	WR	NAWC Air Div, Pax River, MD	0.256	0.038	1Q00	0.041	1Q01	0.072	1Q02	Continuing	Continuing	
	WR	II MEF, CamLej, NC	0.080	0.005	1Q00	0.005	1Q01	0.010	1Q02	Continuing	Continuing	
Subtotal Product Dev			10.108	0.287		0.350		0.632		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis			DATE: **June 2001**									
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206623M Marine Corps Ground Combat Arms Systems**					PROJECT NUMBER AND NAME **C2086 Marine Enhanced Program (MEP)**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equip											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
	WR	MCCDC, Quantico, VA	2.039	0.037	1Q00	0.037		0.095		Continuing	Continuing	
	Various	MISC	4.434	0.146	Various	0.029		0.070		Continuing	Continuing	
Subtotal Support			6.473	0.183		0.066		0.165				
Remarks:												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Eval											0.000	
Operational Test & Eval											0.000	
Tooling											0.000	
	WR/RCP	MCTSSA, CamPen, CA	1.818	0.024	1Q00	0.024	1Q01	0.054	1Q02	Continuing	Continuing	
	WR/RCP	NCTRF, Aberdeen, MD	0.851	0.005	1Q00	0.005	1Q01	0.018	1Q02	Continuing	Continuing	
	MIPR	NATICK, Natick, MA	2.470	0.125	2Q00	0.185	2Q01	0.290	2Q02	Continuing	Continuing	
	MIPR	ARL/APG Aberdeen, MD	0.801	0.012	1Q00	0.014	2Q01	0.035	2Q02	Continuing	Continuing	
	MIPR	PPSC, Phjladelphia, PA	0.046	0.004	3Q00	0.005	3Q01	0.024	3Q02	Continuing	Continuing	
	WR/RCP	MCAGCC 29 Palms, CA	0.351	0.008	1Q00	0.010	2Q01	0.020	2Q02	Continuing	Continuing	
	MIPR	NSMA, Washington DC	0.539	0.021	1Q00	0.021	1Q01	0.035	1Q02	Continuing	Continuing	
	MIPR	TACOM, Warren MI	0.199	0.021	1Q00	0.021	1Q01	0.031	1Q02	Continuing	Continuing	
	MIPR	NHRC, Crane, IN	1.473	0.150	2Q00	0.200	2Q01	0.292	2Q02	Continuing	Continuing	
	WR	2nd MARDIV, CamLej, NC	0.224	0.012	1Q00	0.012	1Q01	0.025	1Q02	Continuing	Continuing	
	WR	NCCOSC, San Diego, CA	0.674	0.036	1Q00	0.036	2Q01	0.046	2Q02	Continuing	Continuing	
	WR	NCSS, Panama City, FL	6.192	0.015	1Q00	0.015	1Q01	0.027	1Q02	Continuing	Continuing	
	WR	NSWC, Crane, IN	6.560	0.260	1Q00	0.284	1Q01	0.270	1Q02	Continuing	Continuing	
	WR	NAWC Air Div, Pax River, MD	0.788	0.162	1Q00	0.176	1Q01	0.275	1Q02	Continuing	Continuing	
	WR	NSWC, Indian Head, MD	0.556	0.010	4Q00	0.010	3Q01	0.020	3Q02	Continuing	Continuing	
	Various	MISC	8.851	0.137	Various	0.206		0.296		Continuing	Continuing	
Subtotal T&E			32.393	1.002		1.224		1.758		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: **June 2001**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206623M Marine Corps Ground Combat Arms Systems**				PROJECT NUMBER AND NAME **C2086 Marine Enhanced Program (MEP)**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Eng Suppt											0.000	
Govt Engineering Suppt											0.000	
Program Mngmnt Suppt											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost				1.472		1.640		2.555		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat Arms Systems**					PROJECT NUMBER AND NAME **C2237 Amphibious Vehicle Test Branch (AVTB)**				
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**0.598**	**0.717**	**0.732**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
RDT&E Articles Qty										

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

(U) The Amphibious Vehicle Test Branch (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 equipment. Because of its year-round temperate climate, diverse terrain, and 17 miles of coastline, the AVTB is ideal for the 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.

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2000 Accomplishments:

- (U) $ 0.490 Provided program support, supplies, and services at AVTB test site to support scheduled and unscheduled Assault Amphibious Vehicle 7A1 (AAV7A1) "rebuild to standard" testing, Advanced Assault Amphibious Vehicle (AAAV) Development Testing as well as other Marine Corps mobility and mine warfare programs. . Programmed on-site support, supplies, and services to support Naval Sea System Command and Naval Mine Warfare Command for development testing of Navy mine countermeasures system. Provided services and support to the Department of Defense Common Test and Training Range Architecture workshops. These funds provided organic supply support including management operations, advertising, general accounting, and a maintenance float of equipment. Provided intermediate maintenance (third echelon) of organic non-developmental communication electronic and ordnance equipment.

- (U) $ 0.108 Provided 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.

(U) Total $ 0.598

FY 2001 Planned Program

- (U) $ 0.550 Maintenance, refurbishment, upgrade, and replacement of test equipment and instrumentation needed to provide program support, supplies, and services at AVTB test site to support scheduled Assault Amphibious Vehicle 7A1 (AAV7A1) "rebuild to standard" testing, Advanced Amphibious Assault Vehicle (AAAV) Development Testing, Light Armored Vehicle Service Life Extension Program as well as other Marine Corps mobility and mine warfare programs. Upgrade instrumentation for over the horizon capability in developing weapons systems to support operational maneuver from the sea. Program on-site support, supplies, and services to support Naval Sea System Command and Naval Mine Warfare Command for development testing of Navy mine countermeasures system. Provide services and support to the Department of Defense Common Test and Training Range Architecture workshops. These funds provide organic supply support including management operations, advertising, general accounting, and a maintenance float of equipment. Provide intermediate maintenance (third echelon) of organic non-developmental communication electronic and ordnance equipment.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206623M Marine Corps Ground Combat Arms Systems**	**C2237 Amphibious Vehicle Test Branch (AVTB)**

- (U) $ 0.164 Provide funding for necessary services provided by Marine Corps Base, Camp Pendleton (MCB CAMPEN), California for electricity, heating, and other power charges; and long distance telephone support. Provide funding for calibration of laboratory test equipment and maintenance services provided by MCLB Barstow and 1st Force Service Support Group (FSSG).
- (U) $ 0.003 SBIR: Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

(U) Total $ 0.717

FY 2002 Planned Program

- (U) $ 0.571 Maintenance, refurbishment, upgrade, and replacement of test equipment and instrumentation needed to provide program support, supplies, and services at AVTB test site to support scheduled Assault Amphibious Vehicle 7A1 (AAV7A1) "rebuild to standard" testing, Advanced Amphibious Assault Vehicle (AAAV) Development Testing, Light Armored Vehicle Service Life Extension Program as well as other Marine Corps mobility and mine warfare programs. Upgrade instrumentation for over the horizon capability in developing weapons systems to support operational maneuver from the sea. Program on-site support, supplies, and services to support Naval Sea System Command and Naval Mine Warfare Command for development testing of Navy mine countermeasures system. Provide services and support to the Department of Defense Common Test and Training Range Architecture workshops. These funds provide organic supply support including management operations, advertising, general accounting, and a maintenance float of equipment. Provide intermediate maintenance (third echelon) of organic non-developmental communication electronic and ordnance equipment.
- (U) $ 0.161 Provide funding for necessary services provided by Marine Corps Base, Camp Pendleton (MCB CAMPEN), California for electricity, heating, and other power charges; and long distance telephone support. Provide funding for calibration of laboratory test equipment and maintenance services provided by MCLB Barstow and 1 Force Service Support Group (FSSG).

(U) Total $ 0.732

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	0.639	0.724	0.729
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.004		
(U) Execution Adjustment			
(U) Minor Affordability Adjustment	-0.003	-0.007	0.001
(U) Program Adjustment	-0.034		0.002
(U) FY 2002 President's Budget:	0.598	0.717	0.732

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206623M Marine Corps Ground Combat Arms Systems**	**C2237 Amphibious Vehicle Test Branch (AVTB)**

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

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost

(U) Related RDT&E: PE 0603611M (Marine Corps Assault Vehicles)

(U) C. ACQUISITION STRATEGY: * An explanation of acquisition, management, and contracting strategies shall be provided for each project.

Work will be lead in-house. Necessary contractor support will be provided by MCB Barstow by using existing contracts. General Services Administration will be used for vehicle leasing contract.

(U) D. SCHEDULE PROFILE:

Testing conducted at AVTB includes all aspects of Marine Corps Assault Amphibious Vehicles. Testing planned for FY 02 and beyond includes MK 155 Minefield Breaching System, NBC overpressure system, RAM/RS (Reliability, Availability and Maintainability/Rebuild to Standard) Proof of Principle Developmental Testing, Operational Testing Support and Production Assurance testing. Engineering Change Proposals (ECP) as required; Combined Recoil Booster (CRB) for adoption of Multiple Integrated Laser Engagement System (MILES) for AAV use; upgrade instrumentation for over the horizon capability in developing weapons systems to support operational maneuver from the sea, support for the Light Armored Vehicle Service Life Extension Program; C4I integrated support for AAV Communications and 7 RAM/RS. AVTB will also support the testing of the Advanced Amphibian Assault Vehicle (AAAV) as directed, by DRPM AAA, during the Program Definition & Risk Reduction phase of the AAAV Program Development.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Development**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Systems**					PROJECT NUMBER AND NAME **C2503 Initial Issue**				
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**2.007**	**1.403**	**1.307**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
RDT&E Articles Qty										

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

The Initial Issue program provides Research, Development, Test and Evaluation of low visibility, low cost items with emphasis on non-developmental/commercially available items. Items approved for procurement will transition into the O&M Initial Issue program. Focus is on clothing and equipment items (i.e. improved Jungle and Desert Boots, Light Weight Helmet, combat boots, sleeping bags) which will benefit the individual Marine by reducing the load with less bulky, lightweight, comfortable equipment, increasing survivability and improving combat effectiveness. Initial Issue continues to explore the spectrum of technologies commercially available that can provide enhancement in individual protection, tactical mobility and application of state-of-the-art technologies through studies and testing.

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2000 Accomplishments:

- (U) $ 0.981 Explored and evaluated across a broad spectrum of commercially available technologies that could be incorporated into existing or new designs of individual clothing and equipment in an effort to reduce weight, increase survivability, increase lethality, improve safety, increase mobility, and improve combat performance of the individual Marine. (Marine load system product improvement, redesigned, conducted testing and evaluation; improved jungle and desert boots; conducted boot outsole traction study to optimize performance of boot soles for traction, durability, and resole-ability; body armor and light weight helmet ballistic testing which included cadaver testing and analysis of ballistic effects of shock forces of the torso, neck and spine; reviewd uniform sizing integration (less sizes covering same population with potential cost savings associated with stock and storage). Provided recommendations to uniform board on Marine uniform product improvements in an effort to reduce cost, utilize commercial manufacturing techniques, improve durability, and retain sharp appearance.
- (U) $ 0.070 Performed trade studies and system alternative analysis, evaluations, verification and validation of the Marine Casualty Flow Model to address casualties on the battlefield.
- (U) $ 0.442 Conducted validation of the model and testing of the Forward Resusitative Surgery System prototypes.
- (U) $ 0.314 Developed and purchased 2 complete Digital Radiography Systems for field testing and evaluation.
- (U) $ 0.200 Conducted Blunt Trauma Studies at the Armed Forces Pathology Laboratory.

(U) Total $ 2.007

FY 2001 Planned Program

- (U) $ 1.024 Continue to validate and incorporate commercial technologies into individual combat clothing and equipment. Conduct comparative analysis through boot study (fatigue, shear force, injury rates, energy consumption) of new infantry combat boots and existing foot wear. Conduct study/analysis of the Army's Land Warrior program for commercial technology insertion to complement the Marine Corps Integral Combat System (our version of Land Warrior). Evaluate commercial power source/recharging systems through individual movement (Piezoelectrics). Evaluate and incorporate cost-effective commercial fabric technologies into the Battle Dress uniform.
- (U) $ 0.284 Complete development and test of the Forward Resusitative Surgery System.
- (U) $ 0.095 Continue operational assessment of Forward Resusitative Surgery System and provide test data to Medical Community for acceptance.

(U) Total $ 1.403

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Development**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Systems**	PROJECT NUMBER AND NAME **C2503 Initial Issue**

FY 2002 Planned Program

- (U) $ 1.064 Continue the exploration of new commercial technologies that can be inserted into current body armor, load bearing, footwear and clothing systems to reduce weight, increase survivability, lethality and mobility. Both torso and head/neck ballistic studies will be conducted to assess blunt trauma/shock forces on the body and how ballistic materials/designs can afford the most protection while reducing weight. Modeling and simulation initiatives will enable the baselining of current equipment and configuration/compatibility management of new equipment initiatives. Funding will go toward research and development of the Military Eye Protection System which will be designed to protect Marines' eyes from laser and ballistic threats.
- (U) $ 0.243 Develop software interface for Marine Casualty Flow Model for estimating supply program.

(U) Total $ 1.307

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	1.613	1.416	1.301
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.004		
(U) Execution Adjustment	0.397		
(U) Minor Affordability Adjustment	-0.005	-0.013	-0.019
(U) Program Adjustment	0.006		0.025
(U) FY 2002 President's Budget:	2.007	1.403	1.307

CHANGE SUMMARY EXPLANATION:

(U) Funding: See Above.

(U) Schedule: Digital Radiography Program Schedule accelerated to take advantage of cost savings and technology available now.

(U) Technical: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Development**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Systems**	PROJECT NUMBER AND NAME **C2503 Initial Issue**

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC Line (BLI#652200) Field Med Equip **			3.412	0.000					Cont.	Cont.

**Forward Resuscitative Surgery System & Digital Radiography are the procurement programs contained within PMC Field Medical Equipment and associated with Initial Issue.

(U) Related RDT&E: Not Applicable.

(U) C. ACQUISITION STRATEGY: * Initial Issue items are all ACAT IV programs and utilize various acquisition strategies. Initial Issue programs leverage heavily off of current developments and technology in commercial industry. As a result, government's R&D phase is relatively short. Contracting is performed by either Marine Corps Systems Command Contracting Directorate or the U.S. Army Natick Research, Development and Engineering Center via Indefinite Delivery/Indefinite Quanity (ID/IQ) contracts. ID/IQ contracts are used to decrease the government risk, allow maximum contract flexibility and capitalize on the savings realized by utilizing Economic Order Quanities.
SHELTERS: The Initial Issue R&D Shelter acquisition strategy is to modify non-developmental Items (NDI) to further meet the requirements of the Marine Corps, to support development of multi-service items through inter-service agreements and to adopt Commercial-Off-the-Shelf (COTS)/NDI Marine Corps specific items.

(U) D. SCHEDULE PROFILE: Not Applicable.

CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: **June 2001**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Development**		PROGRAM ELEMENT **0206623M Marine Corps Ground Combat/Supporting Arms Systems**					PROJECT NUMBER AND NAME **C2503 Initial Issue**						
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Dev											0.000	
Ancillary Hardware Dev											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
	MIPR	USASSCOM		0.980	2Q/00	0.908	1Q/01	0.932	1Q/02	Continuing	Continuing	
	FFP	MCSC CTQ		0.314		0.000		0.000		Continuing	Continuing	
Subtotal Product Dev			0.000	1.294		0.908		0.932		Continuing	Continuing	
Remarks:												

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equip											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
Subtotal Support			0.000									
Remarks:												

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Eval											0.000	
Operational Test & Eval											0.000	
Tooling											0.000	
	MIPR	USASSCOM		0.251	3Q/00	0.368	3Q/01	0.253	3Q/02	Continuing	Continuing	
	FFP	MCSC CTQ		0.342	3Q/00	0.000		0.000		Continuing	Continuing	
Subtotal T&E			0.000	0.593		0.368		0.253		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Development**		PROGRAM ELEMENT **0206623M Marine Corps Ground Combat/Supporting Arms Systems**					PROJECT NUMBER AND NAME **C2503 Initial Issue**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Eng Suppt											0.000	
Govt Engineering Suppt											0.000	
Program Mngmnt Suppt											0.000	
	WR	MCSC Travel		0.020	1Q/00	0.020	1Q/01	0.021	1Q/02	Continuing	Continuing	
	FFP/O	SVERDRUP		0.100	4Q/00	0.107	4Q/01	0.101	4Q/02	Continuing	Continuing	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.120		0.127		0.122		0.000	0.369	
Remarks:												
Total Cost			0.000	2.007		1.403		1.307		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Development**	PROGRAM ELEMENT NUMBER AND NAME **26623M Marine Corps Ground Combat/Supt Arms**					PROJECT NUMBER AND NAME **C2928 HIMARS**				
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**0.000**	**17.141**	**10.891**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Continuing**	**Continuing**
RDT&E Articles Qty		**2**								

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

The High Mobility Artillery Rocket System (HIMARS) is an artillery system capable of firing rockets and/or guided missiles. It will provide long-range indirect fire support (45km or greater) to the Fleet Marine Force. It is composed of a Launcher Loader Module (LLM) and a fire control system mounted on a vehicle platform. The system will be C-130 aircraft transportable and rockets and missiles will be compatible with the current and future Multiple Launch Rocket System (MLRS) Family of Munitions. It will provide indirect fire support for the duration of tactical operations, accurately engaging targets at long range with high volumes of lethal fire under all weather conditions, both day and night. During a 24 hour period, the system will conduct multiple moves and multiple fire missions.

The HIMARS will satisfy the Marine Corps requirement for an indirect fire system that is responsive, maneuverable, and is capable of engaging targets at long range.

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2000 Accomplishments: Not Applicable.

FY 2001 Planned Program:

- (U) $ 9.962 Purchase two HIMARS maturation launchers.
- (U) $ 2.678 Program Management.
- (U) $ 1.730 Engineering and Manufacturing Development.
- (U) $ 0.276 Rockets, reduced range proctice.
- (U) $ 0.500 MLRS Joint Program Management.
- (U) $ 1.595 Launcher and Family of Medium Tactical Vehicles (FMTV) initial spares.
- (U) $ 0.400 SBIR: Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 usc 638.

(U) Total $ 17.141

FY 2002 Planned Program:

- (U) $ 5.694 Engineering and Manufacturing Development. Includes contractor support, USMC R&D effort.
- (U) $ 2.439 Program Management.
- (U) $ 0.426 Support Test and Evaluation Program with Army. Includes contractor support, USMC R&D effort.
- (U) $ 1.240 Systems test using equipment purchased with anticipated FY01 Congressional Enhancement.
- (U) $ 0.033 MLRS PMO Program Management.
- (U) $ 0.399 Launcher and Family of Medium Tactical Vehicles (FMTV) contracter support.
- (U) $ 0.260 Launcher and FMTV Annual Repairs/Spares.
- (U) $ 0.400 Training.

(U) Total $ 10.891

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Development	**26623M Marine Corps Ground Combat/Supt Arms**	**C2928 HIMARS**

PROJECT CHANGE SUMMARY

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	0.000	0.000	0.000
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer			
(U) Execution Adjustment			
(U) Minor Affordability Adjustment			
(U) Program Adjustment	0.000	17.141	10.891
(U) FY 2002 President's Budget:	0.000	17.141	10.891

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC, 205001,EIFGSWS (HIMARS)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Cont.	Cont.

(U) Related RDT&E: Not Applicable.

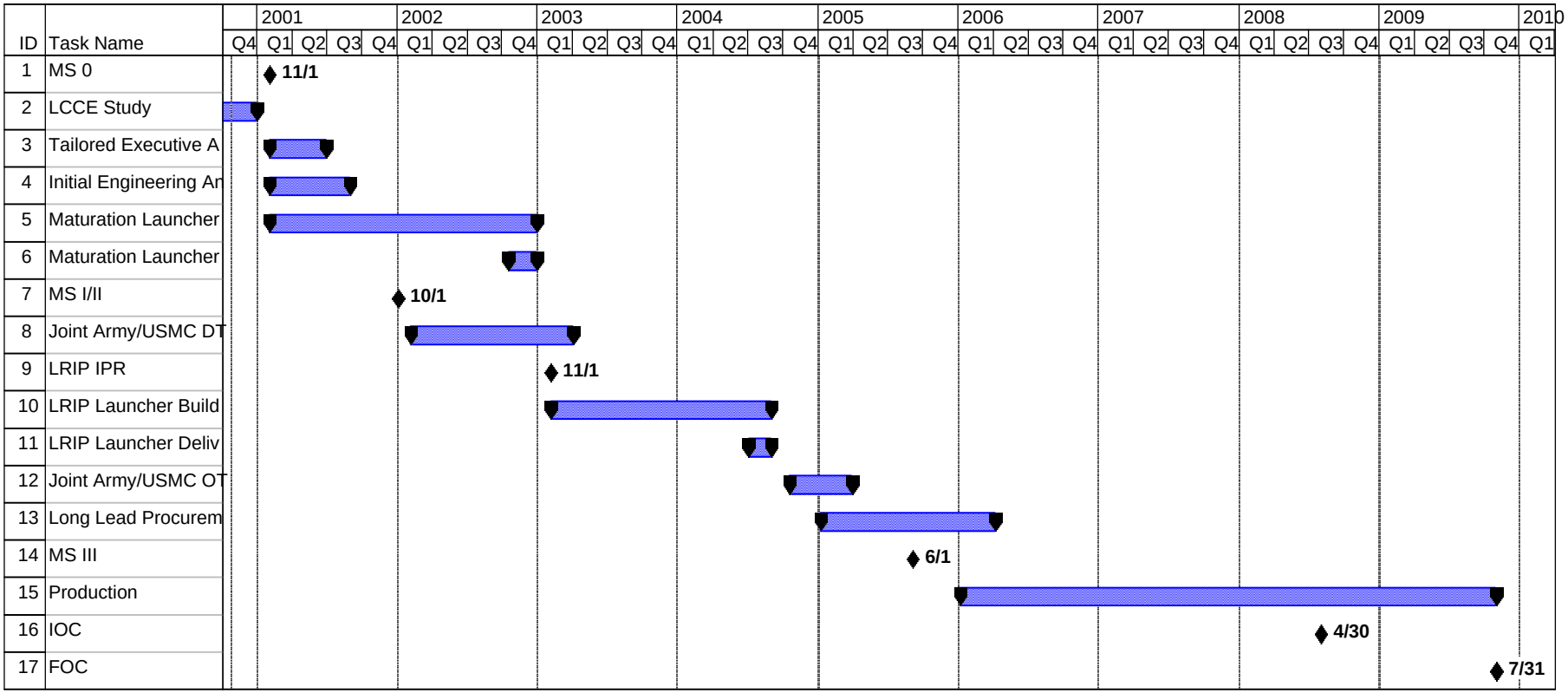
(U) C. ACQUISITION STRATEGY: * An explanation of acquistion, management, and contracting strategies shall be provided for each project.

HIMARS will be a procurement of the Army rocket launcher and rockets currently under development. Program Management efforts will focus on ensuring the Army components are effective and suitable in a Marine Corps environment. Additionally, development of a MTVR truck variant and an associated trailer will be done by the Marine Corps.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Development	**26623M Marine Corps Ground Combat/Supt Arms**	**C2928 HIMARS**

(U) D. SCHEDULE PROFILE:



Program Funding Summary	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) 0603635M, RDT&E,M	0.000	17.141	10.891	0.000	0.000	0.000	0.000	0.000	0.000	Cont.
(U) PMC, 205001,EIFGSWS (HIMARS)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Cont.

CLASSIFICATION:

Exhibit R-3 Cost Analysis							DATE: **June 2001**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Development**		PROGRAM ELEMENT **26623M MC Ground Combat/Supt Arms**					PROJECT NUMBER AND NAME **C2928 HIMARS**					
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Dev											0.000	
Ancillary Hardware Dev											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
	SS/CPAF	Lockheed Martin, Dallas, TX	0.000	0.000		12.188	12/20/00	1.858	01/02/02	Continuing	Continuing	
	SS/CPAF	O'Gara-Hess, Cincinnati, OH	0.000	0.000		0.300	12/20/00	0.214	01/02/02	Continuing	Continuing	
	SS/CPAF	Steward & Stevenson, Sealy, TX	0.000	0.000		0.005	12/20/00	0.652	07/02/02	Continuing	Continuing	
	FFP	USMC R&D, Quantico, VA	0.000	0.000		0.000		2.617	03/15/02	Continuing	Continuing	
	MIPR	US Army R&D (MSL),Huntsville,AL	0.000	0.000		0.300	01/02/01	0.900	11/01/01	Continuing	Continuing	
	SS/CPAF	Oshkosh Truck Corp, Oshkosh,WI	0.000	0.000		1.075	0727/01	0.000		0.000	1.075	
	WR	NSWC-Carderock,MD	0.000	0.000		0.075	02/28/01	0.000		0.000	0.075	
	WR	NSWC-Dahlgren, VA	0.000	0.000		0.080	11/24/00	0.000		0.000	0.080	
	FFP	John J. McMullen Assocs,Pittsb.,PA	0.000	0.000		0.040	04/15/01	0.000		0.000	0.040	
Subtotal Product Dev			0.000	0.000		14.063		6.241		0.000	20.304	
Remarks:												

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equip	WR	MARCORSYSCOM,Quantico, VA	0.000	0.000		0.699	02/28/01	2.091	10/15/02	Continuing	Continuing	
Development Support Equip	WR	MCCDC, Quantico, VA	0.000	0.000		0.945	04/30/01	0.000		0.000	0.945	
Program Support	MIPR	US Army-MSL,Huntsville, AL	0.000	0.000		0.450	01/02/01	0.133	11/01/02	Continuing	Continuing	
Training Development Support	MIPR	Fort Sill-Training,Ft. Sill, OK	0.000	0.000		0.225	06/30/01	0.360	12/01/01	0.000	0.585	
Integrated Logistics Support	FFP	BAE Systems, Stafford, VA	0.000	0.000		0.368	01/31/01	0.000		0.000	0.368	
Subtotal Support			0.000	0.000		2.687		2.584		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Development**		PROGRAM ELEMENT **26623M MC Ground Combat/Supt Arms**					PROJECT NUMBER AND NAME **C2928 HIMARS**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Eval											0.000	
Operational Test & Eval											0.000	
Tooling											0.000	
	WR	Cold Region Test Center, Ft Greely,AK		0.000		0.000		0.032	11/15/01	0.000	0.032	
	FFP	KTR SPT TMI		0.000		0.000		0.105	12/01/01	Continuing	Continuing	
	WR	Redstone Tech Test Ctr,Huntsville,AL		0.000		0.000		0.115	10/31/01	0.000	0.115	
	FFP	RAM GEN SPT		0.000		0.000		0.032	12/01/01	Continuing	Continuing	
	WR	Aberdeen Proving Grd,Aberdeen,MD		0.000		0.000		0.078	11/15/01	0.000	0.078	
	CPAF	Systems Test - TBD		0.000		0.000		1.240	03/03/02	0.000	1.240	
	WR	User Evaluation - TBD		0.000		0.000		0.000		Continuing	Continuing	
	CPAF	KTR SPT - OT		0.000		0.000		0.053	07/15/02	Continuing	Continuing	
	TRAVEL	Travel - OT		0.000		0.000		0.011	10/15/01	Continuing	Continuing	
	WR	OT Test Conduct		0.000		0.000		0.000		Continuing	Continuing	
	CPAF	OT Ammo-Lockheed Martin,Dallas,TX		0.000		0.000		0.000		Continuing	Continuing	
Subtotal T&E			0.000	0.000		0.000		1.666		Continuing	1.465	
Remarks:												

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Program Mngmnt	WR	MCSC, QUANTICO				0.116	2/28/01	0.348	10/15/02		0.464	
Program Mngmnt	WR	MCCDC, QUANTICO				0.105	4/30/01	0.000			0.105	
Program Mngmnt	MIPR	US ARMY, AL				0.050	1/02/02	0.116	11/01/01		0.166	
Program Mngmnt	MIPR	FT. STILL, TRNG				0.010	6/30/01	0.004	12/01/01		0.014	
Program Mngmnt	FFP	BAE SYSTEMS				0.092	1/31/01				0.092	
											0.000	
Subtotal Management			0.000	0.000		0.373		0.468		0.000	Continuing	
Remarks:												
Total Cost				0.000		17,141		10,891		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**				PROGRAM ELEMENT (PE) NAME AND NO. **0206624M Marine Corps Combat Services Support**						
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	**11.852**	**3.876**	**8.483**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
C0076 Medium Tactical Vehicle Replacement (MTVR)	**5.178**	**1.018**	**2.011**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**8.207**
C0201 Logistical Vehicle Replacement (LVSR)	**2.686**	**0.007**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**2.693**
C2316 Combat Services Support Engineering Equipment	**3.176**	**1.558**	**5.894**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**10.628**
C2509 Motor Transport Modernization	**0.812**	**1.293**	**0.256**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
C2929 Testing Measuring Diagnostic Equip (TMDE) & SE	**0.000**	**0.000**	**0.322**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
Quantity of RDT&E Articles										

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

This program element (PE) provides funding for Marine Air-Ground Task Force requirements for Combat Service Support equipment improvement. It will enhance combat breaching capabilities of the ground combat elements, provide potable water from any available raw water source, logistics, maintenance and transportation requirements. It will also determine the reconfiguration of the current Twin Agent Unit firefighting apparatus and provide a portable, highly mobile general-purpose automatic tester designed for use by technicians in the garrison and at the forward edge of the battlefield.

The PE also provides improvements in all areas of Combat Service Support Equipment Vehicles by determining the replacement for the heavy, medium and light fleet vehicles. Alternative Power Sources for Communications Equipment (APSCE) is a suite of devices that provides the commander with the capability to use existing power to operate his communication equipment, computers and peripheral equipment instead of using batteries or fossil fuel generators. The Marine Corps Family of Automatic Test Systems (ATS), formerly TETS, provides automatic testing capability for use by technicians both in garrison and forward edge of Battlefield

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT (PE) NAME AND NO. **0206624M Marine Corps Combat Services Support**

B. PROGRAM CHANGE SUMMARY

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	8.337	2.854	15.304
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.137	0.000	0.000
(U) Execution Adjustment	1.328	0.000	0.000
(U) Minor Affordability Adjustment	-0.039	-0.026	-0.091
(U) Program Adjustment	2.363	1.048	-6.730
(U) FY 2002 President's Budget:	11.852	3.876	8.483

CHANGE SUMMARY EXPLANATION:

(U) Funding: See Above.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206624M Marine Corps Combat Services Suppor**				PROJECT NUMBER AND NAME **C0076 Medium Tactical Vehicle Replacement (MTVR)**					
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**5.178**	**1.018**	**2.011**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**8.207**
RDT&E Articles Qty										

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

The Medium Tactical Vehicle Replacement (MTVR) Program will determine the replacement vehicle for the Medium 5-ton fleet. This project will increase mobility, maintainability, and reliability for the medium fleet.

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2000 Accomplishments:

- (U) $ 4.259 Continued MTVR variant prototype development.
- (U) $ 0.919 Initial Operational Test and Evaluation.

(U) Total $ 5.178

FY 2001 Planned Program

- (U) $ 1.018 Begin MTVR variant prototype testing.

(U) Total $ 1.018

FY 2002 Planned Program

- (U) $ 2.011 Complete MTVR variant prototype development and testing.

(U) Total $ 2.011

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	6.776	1.027	2.026
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.081		
(U) Execution Adjustment	-0.935		
(U) Minor Affordability Adjustment	-0.027	-0.009	-0.033
(U) Program Adjustment	-0.555		0.018
(U) FY 2002 President's Budget:	5.178	1.018	2.011

CHANGE SUMMARY EXPLANATION:

(U) Funding: See Above.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206624M Marine Corps Combat Services Suppor**	PROJECT NUMBER AND NAME **C0076 Medium Tactical Vehicle Replacement (MTVR)**	

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC Line (BLI# 508800) MTVR	138.315	322.594	312.199	0.000	0.000	0.000	0.000	0.000	0.000	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 Equip/Engr Development
(U) PE 0206313M Marine Corps Communications

(U) C. ACQUISITION STRATEGY:

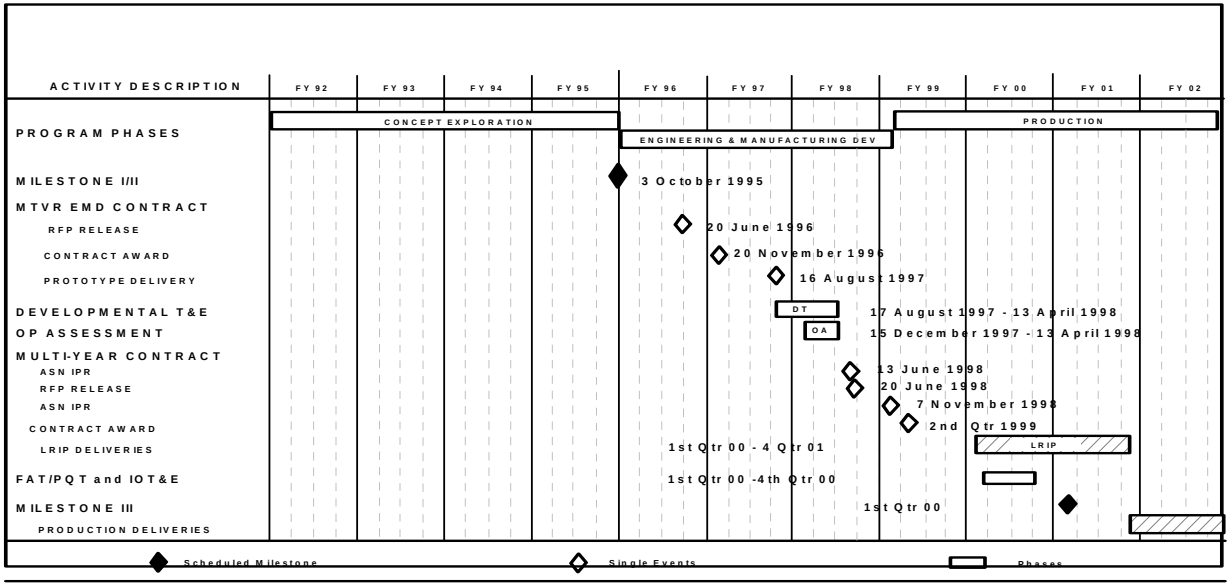
The Medium Tactical Vehicle Replacement (MTVR) production program is a multi-year, fixed price contract with an economic price adjustment. The program has both an Acquisition Strategy and an Acquisition Plan that addresses the total program fielding. The contractor will deliver 5,666 vehicles on the base contract, with 2,502 vehicles included as options. There are four MTVR configurations, which include standard cargo, extra long wheel base cargo, dump and wrecker. The Acquisition Strategy includes Contractor Logistics Support (CLS) after fielding.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206624M Marine Corps Combat Services Suppor**	**C0076 Medium Tactical Vehicle Replacement (MTVR)**

(U) D. SCHEDULE PROFILE:

MEDIUM TACTICAL VEHICLE REPLACEMENT SCHEDULE



Program Funding Summary	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(APPN, BLI #, NOMEN)										
(U) RDT&E,N	5.178	1.018	2.011						0.000	8.207
(U) PMC, BLI# 508800 MTVR	138.315	322.594	312.199	0.000	0.000	0.000			0.000	Cont.

CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206624M Marine Corps Combat Services Spt**					PROJECT NUMBER AND NAME **C0076 Medium Tactical Veh Replacement (MTVR)**					
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Dev											0.000	
Ancillary Hardware Dev											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
	MIPR	TACOM, Michigan	12.893	4.259	03/00					0.000	17.152	17.152
Subtotal Product Dev			12.893	4.259		0.000		0.000		Continuing	Continuing	
Remarks:												

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equip											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
	MIPR	TACOM, Michigan	2.891							0.000	2.891	2.891
	RCP	MKI	0.502							0.000	0.502	0.502
	WR	MCSC, Quantico, VA	0.331							0.000	0.331	0.331
Subtotal Support			3.724	0.000		0.000		0.000				
Remarks:												

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Eval											0.000	
Operational Test & Eval											0.000	
Tooling											0.000	
	MIPR	TACOM, Michigan	5.198			0.260	01/01	1.211	11/01		6.669	6.669
	WR	MCOTEA, Quantico		0.919		0.758		0.800			2.477	2.992
Subtotal T&E			5.198	0.919		1.018		2.011			9.146	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis							DATE: **June 2001**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206624M Marine Corps Combat Services Spt**					PROJECT NUMBER AND NAME **C0076 Medium Tactical Veh Replacement (MTVR)**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Eng Suppt											0.000	
Govt Engineering Suppt											0.000	
Program Mngmnt Suppt											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost				5.178		1.018		2.011		0.000	8.207	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206624M Marine Corps Combat Services Suppo**				PROJECT NUMBER AND NAME **C2316 Combat Services Support Engineering Equipment**					
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**3.176**	**1.558**	**5.894**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**10.628**
RDT&E Articles Qty										

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

with the maneuver force. It will breach minefields with Marine Corps integrated items to include a full width mine plow, two line charges, remote control kit, weapons station and ground marking system. The ABV is a fully tracked, heavy protection level combat system used to enhance the combat breaching capabilities of the ground combat elements. The overall system is integrated on the ABRAMS tank chassis to provide commonality with the tank fleet while providing the latest technology in direct fire armor protection. It will provide capabilities to breach minefields, neutralize obstacles, and demolish berms.

producing 1,200/1,500 gallons per hour (GPH). This system will replace the aging 600 GPH ROWPUs at a 2 old systems to 1 enhanced system ratio. The 1500-ROWPU will reduce logistics, maintenance, and transportation requirements allowing significant potential cost avoidance in out year support costs. The 1500-ROWPU is a joint Marine Corps program with the Army as the lead service.

The Marine Corps Family of Automatic Test Systems (ATS) provides automatic testing capability for use by technicians both in garrison and at the forward edge of the battlefield.

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2000 Accomplishments:

- (U) $ 0.101 ATS: Assessed integration of Measurement Hardware Emulator into the USMC Automatic Test Systems Platform.
- (U) $ 0.118 ABV: Conducted Manpower Study to determine impact on operational forces to operate and maintain the ABV.
- (U) $ 2.957 ABV: Systems engineering/integration, trade studies, build prototype and conduct proof of principle testing.

(U) Total $ 3.176

FY 2001 Planned Program

- (U) $ 0.404 1500-ROWPU: Test and evaluate ancillary equipment to include membrane cleaning and preservation system and ocean intake structures.
- (U) $ 0.109 ATS: Initiate development of new Revision D technology for Simplified Test Equipment for Internal Combustion Engines (STE ICE) replacement.
- (U) $ 0.397 ABV: Program management support/travel.
- (U) $ 0.648 ABV: Continue systems engineering/integration, trade studies, build prototype and conduct proof of principle testing.

(U) Total $ 1.558

FY 2002 Planned Program

- (U) $ 1.782 ABV: Program management support, travel, technical manuals and drawings. Funding in support and management includes gaining safety certification from the Weapons Systems Safety Explosive Review Board (WSSERB).
- (U) $ 1.440 ABV: Begin developmental testing.
- (U) $ 2.672 ABV: Integration of line charges, ground-marking system, weapons station, remote control kit.

(U) Total $ 5.894

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206624M Marine Corps Combat Services Suppo**	PROJECT NUMBER AND NAME **C2316 Combat Services Support Engineering Equipment**	

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	0.267	0.515	0.138
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.048		
(U) Execution Adjustment			
(U) Minor Affordability Adjustment	-0.007	-0.005	-0.062
(U) Program Adjustment	2.964	1.048	5.818
(U) FY 2002 President's Budget:	3.176	1.558	5.894

CHANGE SUMMARY EXPLANATION:

(U) Funding: See Above.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC Line (BLI# 627400) 1500 ROWPU			5.686	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
(U) PMC Line (BLI# 440200) TETS	28.747	4.670	0.616						0.000	34.033
(U) PMC Line (BLI# 613300) ABV					0.000	0.000	0.000		0.000	0.000

(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 Equip/Engr Development

(U) PE 0206313M Marine Corps Communications

(U) C. ACQUISITION STRATEGY:

ATS: The ATS program will determine the replacement for STE ICE and identify technology insertions that will enable automatic test systems to meet weapon system testing requirements. The program will be managed by PM Test, Measurement and Diagnostic Equipment (TMDE) with engineering support from the Automatic Test Equipment Program (ATEP), Albany, GA. Systems Engineering suppport and product development for the STE ICE replacement will come from Army Research, Development and Engineering Center (ARDEC), Huntsville, AL., through use of a MIPR.

ABV: SYSTEM DEVELOPMENT & DEMONSTRATION PHASE: Conduct modeling to support vehicle platform choice and trade studies for mine plows. Upon program initiation build Demonstrator vehicle. Modeling applications to support Analysis of Alternatives/Testing & Evaluation Alternatives (AOA/TEA). Contract with Anniston Depot/General Dynamics Land Systems (GDLS) to integrate full width mine plow to M1A1. Conduct plow test on M1A1 tank with full width mine plow. Conduct AOA/TEA. Conduct trade study (examining capabilities and cost to down select).

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206624M Marine Corps Combat Services Suppo**	PROJECT NUMBER AND NAME **C2316 Combat Services Support Engineering Equipment**

PROGRAM DEFINITION AND RISK REDUCTION/ENGINEERING & MANUFACTURING DEVELOPMENT PHASE: Integrate line charges to M1A1 (if M1A1 is chosen following down select). Integrate remote control unit and Ground Marking System. Conduct plow testing against mines and obstacles. LRIP decision. LRIP 4 vehicles. Conduct IOT&E, RAM and live mine test.

PRODUCTION, FIELDING/DEPLOYMENT & OPERATIONAL SUPPORT PHASE: Fixed price contract for 44 systems, provide platform as Government Furnished Equipment (GFE). Initial Operational Capability (IOC) (FY05); Full Operatonal Capability (FOC) (FY06).

1500-ROWPU: Joint US Army/US Marine Corps program (US Army lead). Adopted US Army Operational Requirements Document (ORD) with USMC Organization & Operations (O&O). Integrated product and process management. Prototype hardware development using Advanced Technology and Mature Design. Continue to monitor Army Engineering and Manufacturing Development (EMD) progress. Conduct USMC testing during Initial Operational Testing & Evaluation (IOT&E).

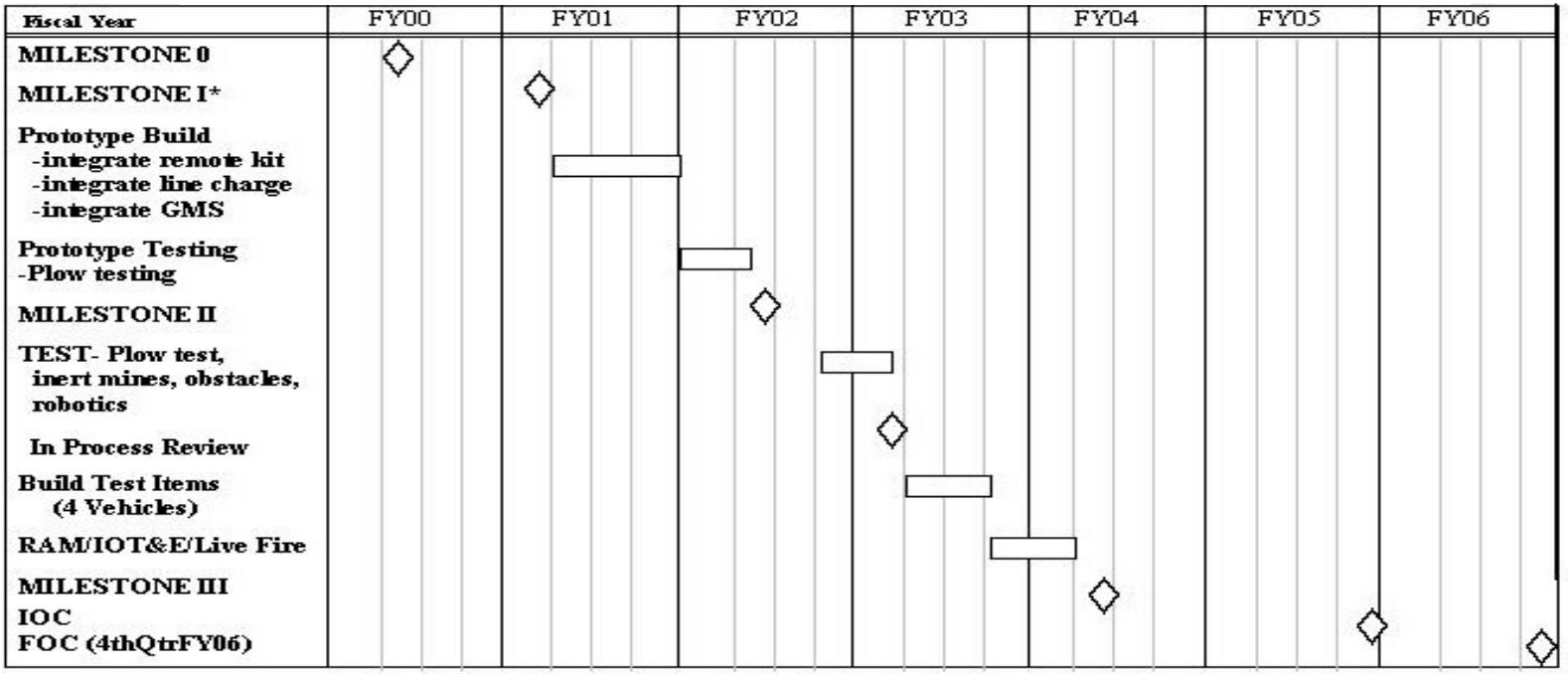
SCHEDULE: Production qualification test - (May-July 00); Milestone IIIA - (Jan 01); Award Low-Rate Initial Production (LRIP) contract - (Feb 01); IOT&E - (Jun-Aug 01); First Article Test (FAT) - (Apr-Jun 02); Milestone III - (Sep 02); IOC - (Apr 03); FOC - (Dec 05)

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206624M Marine Corps Combat Services Suppo**	**C2316 Combat Services Support Engineering Equipment**

(U) D. SCHEDULE PROFILE:

Schedule: ASSAULT BREACHER VEHICLE



Program Funding Summary (APPN, BLI #, NOMEN)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N	3.075	1.045	5.894	0.000	0.000				0.000	Cont.
(U) PMC, BLI# 613300 ABV					0.000	0.000	0.000		Cont	Cont.

CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206624M Marine Corps Combat Services Spt**					PROJECT NUMBER AND NAME **C2316 Combat Services Support Engineering Equip**					
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Dev											0.000	
Ancillary Hardware Dev											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
	MIPR	TACOM, Michigan	0.741	2.530		0.932		2.672		6.941	13.816	13.816
	Various	Various	0.288							0.000	0.288	0.288
	MIPR	NSWC, Crane, IN				0.120				0.215	0.335	0.335
Subtotal Product Dev			1.029	2.530		1.052		2.672		7.156	14.439	
Remarks:												

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equip											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
	RCP	MKI/SVERDRUP	0.068	0.300		0.197	12/00	0.200		0.628	1.393	1.393
	RCP	MCSC, Quantico, VA	0.216	0.245		0.200	02/01	0.982		0.185	1.828	1.828
	WR	Albany	0.105	0.101		0.109		0.600		0.643	1.558	1.558
Subtotal Support			0.389	0.646		0.506		1.782		1.456	4.779	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206624M Marine Corps Combat Services Spt**					PROJECT NUMBER AND NAME **C2316 Combat Services Support Engineering Equip**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Eval											0.000	
Operational Test & Eval											0.000	
Tooling											0.000	
	MIPR	TACOM	0.295					1.440		0.550	2.285	2.285
	WR	MCOTEA, Quantico, VA								0.750	0.750	0.750
	MIPR	APG, MD	0.160							0.936	1.096	1.096
Subtotal T&E			0.455	0.000		0.000		1.440		2.236	4.131	
Remarks:												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Eng Suppt											0.000	
Govt Engineering Suppt											0.000	
Program Mngmnt Suppt											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			1.873	3.176		1.558		5.894		10.848	23.349	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**		PROGRAM ELEMENT NUMBER AND NAME **0206624M Marine Corps Combat Services Supp**				PROJECT NUMBER AND NAME **C2509 Motor Transport Modernization**					
COST ($ in Millions)	Prior Yrs Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**0.000**	**0.812**	**1.293**	**0.256**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
RDT&E Articles Qty											

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

The Marine Corps Tactical Transportation Program manages procurement and life cycle sustainment for more than 40,000 principle end items divided among four fleets: Light Fleet, Medium Fleet, Heavy Fleet, and Special Fleet. A sustained effort is maintained in the Marine Corps for development and testing in support of fleet Service Life Extension Program (SLEP) initiatives, vehicle quality deficiency resolutions, safety initiatives, environmental/state transportation mandated vehicle changes, and system component refresh modernization efforts. Given transportation asset operational availability declines at a steady rate over time, Service Life Extension Programs (SLEP), Fleet overhauls, and enhanced depot level modernization is essential in maintaining a viable transportation capability in the Marine Corps Operating Forces. This project line allows for a consolidated and prioritized approach to USMC modernization and SLEP of transportation assets. It provides a bridge for technology insertion and transition efforts to PM Transportation from Advanced Technology Demonstrations/Advanced Concept Technology Demonstrations (ATDs and ACTDs), Warfighting Experimentation, and outputs from Industry/DoD

and foreign cooperative research efforts in support of Marine Corps tactical vehicle fleet sustainment. This program line specifically develops Marine Corps unique improvements/modernizations to transportation systems and supports monitoring the commercial automotive industrial base for technology insertions to increase Reliability Availablity and Maintainability, Durability (RAM-D), reduce total ownership costs, resolve unplanned safety hazards, and monitor/implement emerging state and federal transportation/environmental regulations as required. This is a sustained program line for "level of effort" programs. Funding will focus on streamlined acquisitions of Commercial-Off-the-Shelf/Non-Developmental Items (COTS/NDI) that can be identified, integrated, and tested in a short amount of time. Successful modifications/modernizations and tests are intended for follow-on procurement and incorporation into existing system component upgrades, SLEPs, or rapid COTS/NDI fielding for the Fleet Marine Force (FMF).

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2000 Accomplishments:

- (U) $ 0.032 Logistical Vehicle System (LVS): Program Management and travel in support of Transportation Systems modifications, COTS/NDI modernizations, and SLEP.
- (U) $ 0.119 LVS: Initiated integration and evaluation on Transportation Systems modifications, COTS/NDI modernizations, and SLEP.
- (U) $ 0.162 Aviation Refueler Capability (ARC): Purchased Aviation Refueler prototype for testing.
- (U) $ 0.479 ARC: Initiate and complete testing. Initiate and complete operation evaluation of the Aviation Refueler.
- (U) $ 0.020 ARC: Provide travel in support of the Aviation Refueler.

(U) Total $ 0.812

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206624M Marine Corps Combat Services Supp**	PROJECT NUMBER AND NAME **C2509 Motor Transport Modernization**

FY 2001 Planned Program

- (U) $ 0.053 MTM: Program Management and travel in support of Transportation Systems modifications, COTS/NDI modernizations.
- (U) $ 0.194 MTM: Continue testing, intergration, evaluation of Transportation Systems modifications
- (U) $ 0.026 SBIR: Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.
- (U) $ 0.326 LVS: Develop kits/platforms for Transportation Systems modifications, COTS/NDI modernizations, and SLEP
- (U) $ 0.694 LVS: Continue testing, integration and evaluation on Transportation Systems modifications, COTS/NDI modernizations, and SLEP.

(U) Total $ 1.293

FY 2002 Planned Program

- (U) $ 0.038 Program Management and travel in support of Transportation Systems modifications, COTS/NDI modernizations, and SLEP.
- (U) $ 0.218 Evaluate potential alternatives for LVS SLEPs.

(U) Total $ 0.256

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	**0.245**	**0.248**	**0.252**
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.005		
(U) Execution Adjustment	0.678		
(U) Minor Affordability Adjustment	-0.001	-0.019	
(U) Program Adjustment	-0.105	1.064	0.004
(U) FY 2002 President's Budget:	**0.812**	**1.293**	**0.256**

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC (BLI# 523000) < $5M (MT-MOD)	7.042	10.840	1.239	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

(U) Related RDT&E: Not Applicable.

(U) C. ACQUISITION STRATEGY: This is a sustained program line for "level of effort" programs. Funding will focus on streamlined acquisitions of Commercial-Off-the-Shelf Non-Developmental Items (COTS/NDI) that can be identified, integrated, and tested in a short amount of time. Successful modifications/modernizations and tests are intended for follow-on procurement and incorporation into existing system component upgrades, SLEPs, or rapid COTS/NDI fielding for the Fleet Marine Force (FMF).

(U) D. SCHEDULE PROFILE: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206624M Marine Corps Combat Services Suppo**				PROJECT NUMBER AND NAME **C2929 Testing Measuring Diagnostic Equip (TMDE) & SE**					
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**0.000**	**0.000**	**0.322**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont**	**Cont**
RDT&E Articles Qty										

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

Alternative Power Sources for Communications Equipment (APSCE) is a suite of devices that provides the commander with the capability to use existing power to operate his communication equipment, computers and peripheral equipment instead of using batteries or fossil fuel generators.

The Marine Corps Family of Automatic Test Systems (ATS), formerly TETS, provides automatic testing capability for use by technicians both in garrison and forward edge of Battlefield.

PROGRAM ACCOMPLISHMENTS AND PLANS

(U) FY 2000 Accomplishments: ATS funded in project C2316 in this PE.

(U) FY 2001 Planned Program: ATS funded in project C2316 in this PE.

(U) FY 2002 Planned Program

- (U) $ 0.119 APSCE: Provide for research, evaluation, test and selection of alternative power source products for the APSDE suite of equipment.
- (U) $ 0.203 ATS: Continue development of new technology testing applications in support of emerging weapon systems.

(U) Total $ 0.322

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206624M Marine Corps Combat Services Suppo**	PROJECT NUMBER AND NAME **C2929 Testing Measuring Diagnostic Equip (TMDE) & SE**	

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	0.000	0.000	0.000
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer			
(U) Execution Adjustment			
(U) Minor Affordability Adjustment			0.004
(U) Program Adjustment			0.318
(U) FY 2002 President's Budget:	0.000	0.000	0.322

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC Line (BLI# 462000) APSCE			4.590	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
(U) PMC Line (BLI# 440200 ATE	28.747	4.670	0.616						0.000	34.033

(U) Related RDT&E:
(U) PE 0206624M Marine Corps Ground Supporting Arms Systems, Project C2316

(U) C. ACQUISITION STRATEGY: All work is being done in-house at MCLB, Albany, NSWC, Seal Beach, CA and MCAGCC, 29 Palms, CA.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206624M Marine Corps Combat Services Suppo**	PROJECT NUMBER AND NAME **C2929 Testing Measuring Diagnostic Equip (TMDE) & SE**

(U) D. SCHEDULE PROFILE:

APSCE MILESTONE SCHEDULE					
PHASE	FY 99	FY 00	FY 01	FY 02	FY 03
MILESTONE 0	▲				
MILESTONE I/II			▲		
MILESTONE III				▲	
PRODUCTION CONTRACT AWARD				▲	
PRODUCTION					▲
IOC					▲

Program Funding Summary	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(APPN, BLI #, NOMEN)										
(U) RDT&E,N			0.119	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
(U) PMC, BLI# 462000 APSCE			4.590	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification									DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0207161N-Tactical Air Intercept					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	**184.800**	**38.872**	**21.473**	**16.402**							
E0457 AIM-9X	**184.800**	**38.872**	**21.473**	**16.402**							
Quantity of RDT&E Articles	**1**	**6**	**6**	**11**							

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The AIM-9X is a long-term evolution of the AIM-9, a fielded system, qualifying this as a research category operational systems development. The AIM-9X (Sidewinder) short range air-to-air missile modification program provides a launch and leave, air combat munition that uses passive infrared (IR) energy for acquisition and tracing of enemy aircraft and complements the Advanced Medium Range Air-to-Air Missile. Air superiority in the short range air-to-air missile arena is essential and includes first shot, first kill opportunity against an enemy employing IR countermeasures. The AIM-9X employs several components common with the AIM-9M. Anti-Tamper features are being incorporated to protect improvements inherent in AIM-9X design.

Status: In September 2000, the AIM-9X program received approval from the DAB to enter Low-Rate Initial Production (LRIP). Additionally the AIM-9X program was re-designated an Acquisition Category 1C (ACAT-1C) program with the milestone decision authority delegated to the Navy Acquisition Executive for LRIP II & III and MSIII Full Rate Production (FRP). The modeling and simulation suite was accredited by the program manager for use in specification compliance and to support the LRIP DAB.

The joint flight test program has completed 16 unguided and 14 guided launches proving capabilities well beyond the fielded AIM-9M.

(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.

R-1 SHOPPING LIST - Item No. 199

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0207161N-Tactical Air Intercept					PROJECT NUMBER AND NAME E0457-AIM-9X					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**184.800**	**38.872**	**21.473**	**16.402**							
RDT&E Articles Qty	**1**	**6**	**6**	**11**							

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The AIM-9X is a long-term evolution of the AIM-9, a fielded system, qualifying this as a research category operational systems development. The AIM-9X (Sidewinder) short range air-to-air missile modification program provides a launch and leave, air combat munition that uses passive infrared (IR) energy for acquisition and tracking of enemy aircraft and complements the Advanced Medium Range Air-to-Air Missile. Air superiority in the short range air-to-air missile arena is essential and includes first shot, first kill opportunity against an enemy employing IR countermeasures. The AIM-9X employs several components common with the AIM-9M. Anti-Tamper features are being incorporated to protect improvements inherent in AIM-9X design.

Status: In September 2000, the AIM-9X program received approval from the DAB to enter Low-Rate Initial Production (LRIP). Additionally the AIM-9X program was re-designated an ACAT-1C program with the milestone decision authority delegated to the Navy Acquisition Executive. The modeling and simulation suite was accredited by the program manager for use in spec compliance and to support the LRIP DAB. The AIM-9X test program has demonstrated capabilities beyond those of the currently fielded AIM-9M short range missile. USN and USAF warfighters have jointly emphasized the need to aggressively field the AIM-9X to counter the already fielded and superior threat air-to-air systems.

The joint flight test program has completed 16 unguided and 14 guided launches proving capabilities well beyond the fielded AIM-9M.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS: (Navy Share Only)

- (U) ($21.175) Continued the manufacturing and development contract to include OT-IIA Test Readiness Review (TRR), Production Readiness Review (PRR) leading to a Defense Acquisition Board Low Rate Initial Production (LRIP) decision in the 4th Qtr FY00 with production option award in FY01, and delivery of six test articles. Continued flight testing (DT) and OT flight test support for Operational Assessment.
- (U) ($1.320) Continued to provide aircraft interface support to the EMD contractor in support of OT-IIA, DT-IIB/DT-IIC (Launches) and completed OT-IIA and delivery of Production Representative Test Articles.
- (U) ($13.245) Continued providing Government flight test support through implementation of DT-IIC/OT-IIA and Captive Carry Reliability Flight Program and Government engineering support to the EMD activities.
- (U) ($2.936) Provided for consulting services, technical engineering, and management support.
- (U) ($.196) Headquarters travel performed.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0207161N-Tactical Air Intercept	E0457-AIM-9X

2. FY 2001 PLANS: (Navy Share Only)
- (U) ($14.128) Continue EMD efforts to include completion of DT-IIC and execution of DT-IID (TECHEVAL).
- (U) ($5.951) Continue providing government flight test support through implementation of DT-IID and DT assist with operational testers.
- (U) ($0.825) Provide for consulting services, technical engineering, and management support.
- (U) ($0.128) Headquarters travel.
- -(U) ($0.441) Portion of extramural program reserved for Small Business Innovation Research assesment in accordance with 15 USC 68.

3. FY 2002 PLANS: (Navy Share Only)
- (U) ($6.505) Continue EMD efforts to include completion of OT-IIB.
- (U) ($8.994) Continue providing Government flight test support.
- (U) ($0.845) Provide for consulting services, technical engineering, and management support.
- (U) ($0.058) Headquarters travel.

R-1 SHOPPING LIST - Item No. 199

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0207161N-Tactical Air Intercept	E0457-AIM-9X

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	39.830	21.705	13.885
(U) Adjustments from the President's Budget:	-0.958	-0.232	2.517
(U) FY 2002 President's Budget Submit:	38.872	21.473	16.402

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net decrease of $.958 million reflects a decrease of $.586 million for a Small Business Innovative Research assessment, a decrease of $.216 million for a reprioritization of requirements within the Navy and a decrease of $.156 million for a Congressional Recission. The FY 2001 net decrease of $.232 million reflects a decrease of $.033 million for a reprioritization of requirements within the Navy, a decrease of $.152 million for a Congressional Reduction and $.047 million for a Congressional Recission. The FY 2002 net increase of $2.513 million reflects a $2.600 million increase in AIM-9X to support additional RDT&E requirements due to the program rebaselining approved Sep 00, $.069 million decrease for a reprioritization of requirements within the Navy and a $.018 million decrease for economic assumptons.

(U) Schedule: Engineering Milestone (TRR for TECHEVAL) deleted. AIM-9X contractor Integrated Development Testing has no Government dedicated TECHEVAL test period.
(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002
AIM-9X Mods*	0.000	23.779	
AIM-9X Missile*	0.000	0.000	27.310
AIM-9M Mods	0.000	0.600	0.802
AIM-9X Spares	0.000	0.753	0.978

*FY01 is a modification program/FY02 and future years are a missile program (resulting from FY01 Appropriations Conference language).

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0207161N-Tactical Air Intercept	E0457-AIM-9X

(U) D. ACQUISITION STRATEGY: After a full and open competition, a Cost Plus Incentive Fee/Award Fee contract was awarded to Hughes Missile System Company (now Raytheon Systems Corporation) (RSC) to complete missile system development and prepare for production. This Engineering and Manufacturing Development (EMD) contract includes three Fixed Price options for Low Rate Initial Production (LRIP) Lots I, II and III. The FY01 LRIP I option was exercised in Nov 2000, LRIP II option is planned for FY02 and LRIP III option is planned to be exercised in FY03. The EMD contract and production options provide strong incentives for the contractor to control costs, achieve reliability performance and deliver on schedule. In September 2000, the AIM-9X program received approval from the DAB to enter Low-Rate Initial Production (LRIP). Additionally the AIM-9X program was re-designated an ACAT-1C program with the milestone decision authority delegated to the Navy Acquisition Executive.

The Navy Acquisition Executive will make the Full Rate Production (FRP) decision with advice from the Air Force Acquisition Executive subsequent to the successful completion of the associated exit criteria. FRP Lots 4 through 7 contracts will be Firm Fixed-Price (FFP) with incentives provided the contractor meets or beats his Procurement Price Commitment Curve (PPCC). Rewards or penalties are provided depending on RSC's performance relative to the PPCC. A Service review of RSC's Lot 4 through 7 proposals relative to the PPCC will be held prior to award of those contracts.

(U) E. SCHEDULE PROFILE:

	FY 2000	FY 2001	FY 2002
(U) Program Milestones	4Q/00 LRIP I DAB		
(U) Engineering Milestones			1Q/02 TRR for OPEVAL
(U) T&E Milestones		2Q/01-4Q/01 DT-IID	1Q/02-1Q/03 OT-IIB
(U) Contract Milestones		1Q/01 LRIP I award	1Q/02 LRIP II award

R-1 SHOPPING LIST - Item No. 199

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0207161N-Tactical Air Intercept				PROJECT NUMBER AND NAME E0457-AIM-9X						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
DEM/VAL	C/CPIF	Hughes, Tucson, AZ	6.685									
DEM/VAL	C/CPIF	Raytheon, Bedford, MA	8.587									
EMD	C/CPIF/AF	Raytheon, Tucson, AZ	97.327	12.582	10/00	5.495	10/00					
EMD Award Fee		Raytheon, Tucson, AZ	11.367	1.546	11/00	1.010	11/00					
Aircraft Integration	C/CPFF	Boeing, St. Louis, MO	24.397									
Engineering Services	WX	NAWCWD	31.644	1.174	11/00	0.740	11/00					
Engineering Services	WX	NAWCAD	2.637	0.939	11/00	0.250	11/00					
Miscellaneous I/H (Efforts <$1.0)	Various	Various	6.446	0.744	11/00	0.575	11/00					
LAU-7 Launcher	C/CPFF	Boeing, St. Louis, MO	4.552									
Contract (P3I)	TBD	TBD										
Engineering Services	MIPR	Eglin AFB, FL		1.810	11/00							
Subtotal Product Development			193.642	18.795		8.070						

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0207161N-Tactical Air Intercept			PROJECT NUMBER AND NAME E0457-AIM-9X						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NAWCWD	18.259	1.178	11/00	8.004	11/00					
Developmental Test & Evaluation	WX	NAWCAD	4.683									
Subtotal T&E			22.942	1.178		8.004						
Remarks: Prior Years included in Product Development.												
Contractor Engineering Support	ID/IQ,T&M	Endmark, Arlington, Va	3.670									
Contractor Engineering Support	ID/IQ,T&M	MSTT, Arlington, Va	0.776	0.210	12/00							
Program Management Support	ID/IQ,T&M	NSM, Arlington, Va.	1.359	0.081	11/00							
Travel	WX	PMA259 IPT	1.077	0.128	10/00	0.058	10/01					
Various Eng. Support Contracts	ID/IQ,T&M	Various	0.206	0.640		0.270						
SBIR Assessment				0.441								
Subtotal Management			7.088	1.500		0.328						
Remarks:												
Total Cost			223.672	21.473		16.402						
Remarks: Support Costs included in Management Costs.												

R-1 SHOPPING LIST - Item No. 199

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification										DATE: **June 2001**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0207163N AMRAAM					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	**40.301**	**13.063**	**12.011**	**10.795**							
E0981 AMRAAM	**40.301**	**13.063**	**12.011**	**10.795**							
Quantity of RDT&E Articles **Not Applicable**											

(U) A. 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.

R-1 SHOPPING LIST - Item No. 200

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0207163N AMRAAM					PROJECT NUMBER AND NAME E0981 AMRAAM					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**40.301**	**13.063**	**12.011**	**10.795**							
RDT&E Articles Qty **Not Applicable**											

(U) A. 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) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) ($11.351) Continued systems engineering/aircraftintegration activities in AMRAAM P3I Phase 3 EMD program (incorporating additional Air Force funding of $49.597) conducting proof of design (POD) testing of Phase 3 components with emphasis on Navy unique compatibility requirements and aircraft integration/compatibility requirements. Conducted Phase 3 Preliminary Deisgn Reviews. Continued Joint Tactical Air-to-Air Management Office (JTAAMO) Air-to-Air Roadmap activities including technology studies.

-(U) ($1.462) Continued engineering support of AMRAAM, including investigation and analysis of technologies that offer potential improvements in AMRAAM lethality/performance and compatibility with related weapons systems.

-(U) ($.250) Continued aircraft integration activities and test and evaluation for Navy unique requirements.

2. FY2001 Plans:

-(U) ($9.855) Continue system engineering activities in AMRAAM P3I Phase 3 EMD program (incorporating Air Force funding of $53.214) which include conducting proof of design (POD) testing of Phase 3 components, developing, coding, and testing P3I Phase 3 software, and integrating hardware and software into missile test articles for use in ground testing.

-(U) ($1.534) Continue engineering support of AMRAAM, including investigation and analysis of technologies that offer potential improvements in AMRAAM lethality/performance and compatibility with related weapons systems.

-(U) ($.250) Continue aircraft integration activities and test and evaluation for Navy unique requirements.

-(U) (.372) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.

3. FY2002 Plans:

-(U) ($8.842) Continue system engineering activities in AMRAAM P3I Phase 3 EMD program (incorporating Air Force funding of $57.707) which include fabrication and integration of proof of manufacturing (POM) hardware, and unit all-up-round missile ground qualification testing. Captive carriage flight-testing will also begin.

-(U) ($1.503) Continue engineering support of AMRAAM, including investigation and analysis of technologies that offer potential improvements in AMRAAM lethality/performance and compatibility with related weapons systems.

-(U) ($.450) Continue aircraft integration activities and test and evaluation for Navy unique requirements.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0207163N AMRAAM	E0981 AMRAAM

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	13.469	12.140	10.831
(U) Adjustments from the President's Budget:	(0.406)	(0.129)	(0.036)
(U) FY 2002 President's Budget:	13.063	12.011	10.795

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net decrease of $.406 million reflects a reduction of $.343 million for a Small Business Innovative Research assessment, $.010 million decrease for reprioritization of requirements within the Navy, and a decrease of $.053 million for a Congressional recission. The FY 2001 net decrease of $.129 million reflects a decrease of $.085 million for a congressional rescission and a decrease of $.044 million for reprioritization of requirements within the Navy. The FY 2002 net decrease of $.036 million reflects a decrease of $.065 for reprioritization of requirements within the Navy and an increase of $.027 million for economic assumptions.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name		FY 2000	FY 2001	FY 2002
WPN/P1#6	QTY	91	63	57
	$	45.825	38.585	40.028

Related RDT&E

(U) PE 0207130F F-15
(U) PE 0204126N F/A-18 Squadrons
(U) PE 0207163F AMRAAM P3I
(U) PE 0207133F F-16
(U) PE 0604239F F-22
(U) PE 0207134F F-15E

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0207163N AMRAAM	E0981 AMRAAM

(U) D. ACQUISITION STRATEGY: With the December 1997 merger of Raytheon and Hughes into the Raytheon Systems Company, the government implemented a new acquisition strategy labeled AMRAAM Vision 2000. The Vision 2000 strategy capitalizes on a multi-year hardware pricing agreement between Raytheon and the government under the auspices of the Department of Justice which supported the Raytheon/Hughes merger and a shift in government business practices toward a more "commercial" business arrangement. The lot 12 procurement contract award includes an overarching price control strategy and a transfer of Total System Performance Responsibility (TSPR) to the prime contractor, Raytheon Defense Systems Segment in Tucson, Arizona. The purchase includes missiles, warranties, spares, missile performance tracking, and reliability tests. Raytheon assumes responsibility for all specifications below missile performance. Also included in the Lot 12 contract are pre-priced options for Lots 13 thru 15 (FY19 thru FY2001).

(U) E. SCHEDULE PROFILE:

	FY 2000	FY 2001	FY 2002
(U) Program Milestones			
(U) Engineering Milestones	3Q P3I-3 PDR	4Q P3I-3 CDR	
(U) T&E Milestones			2Q Begin P3I FLT TEST
(U) Contract Milestones			

R-1 SHOPPING LIST - Item No. 200

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0207163N AMRAAM			PROJECT NUMBER AND NAME E0981 AMRAAM							
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	SS/CPAF	AAC Eglin AFB FL	19.526	7.731	11/00	6.913	11/01					
Primary Hardware Development	WX	NAWC-WD China Lake CA		0.050	11/00	0.051	11/01					
Award Fees	SS/CPAF	AAC Eglin AFB FL	2.089	1.364	11/00	1.220	11/01					
SBIR Assessment				0.372								
Prior Years Development			21.653									
Subtotal Product Development			43.268	9.517		8.184						
Remarks: Prior year award fees were $2.089 and are estimated to be approximatly 15% of contract value for future years.												
Development Support	SS/FFP	JHU/APL Laurel MD		0.435	05/01	0.374	05/02					
Development Support	RX	NSMA VA		1.055	12/00	1.006	12/01					
Development Support	WX	NAWC-WD China Lake CA		0.050	10/00	0.123	10/01					
Prior Years Support			6.467									
Subtotal Support			6.467	1.540		1.503						
Remarks:												

R-1 SHOPPING LIST - Item No. 200

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)						DATE: **June 2001**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0207163N AMRAAM			PROJECT NUMBER AND NAME E0981 AMRAAM						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NAWC WD China Lake CA		0.250	10/00	0.450	10/01					
Prior Years Test & Evaluation			0.956									
Subtotal T&E			0.956	0.250		0.450						
Remarks:												
Program Management Support	WX	NAWC WD China Lake CA		0.404	10/00	0.408	10/01					
Travel	MIPR	PMA-259 Eglin AFB FL		0.200	10/00	0.250	10/01					
Program Management Support	WX	NAWC AD Patuxent River		0.100	10/00							
Prior Years Management Support			2.673									
Subtotal Management			2.673	0.704		0.658						
Remarks:												
Total Cost			53.364	12.011		10.795						
Remarks:												

R-1 SHOPPING LIST - Item No. 200

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N**
PROGRAM ELEMENT TITLE: Satellite Communications (Space)

(U) Cost ($ in Thousands)	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	COST TO COMPLETE	TOTAL COST
X0728 EHF SATCOM Terminals	6,295	9,238	12,266							
X0731Fleet Satellite Comm	2,470	3,448	4,595							
X2472 Mobile User Segment	31,250	26,727	37,369							
Total PE Cost	40,015	39,413	54,230							

A. (U) Mission Description and Budget Item Justification:

(U) 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/detection communications capability for Command and Control of the fleet. NESP operates with Fleet Satellite (FLTSAT) EHF Packages (FEP), Ultra High Frequency (UHF) Follow On (UFO),and Milstar I/II Satellite Packages. 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 Advanced EHF (AEHF) Operational Requirements Document (ORD) was validated by the Joint Requirements Oversight Council (JROC) on 22 Mar 99. AEHF development cost estimates are included in the budget.

(U) The Navy Super High Frequency (SHF) Satellite Communications (SATCOM) program provides for the development and production of terminals to provide high capacity reliable, low probability of intercept (LPI), secure, and jam resistant communications to Joint and Allied Forces. SHF SATCOM operates with the Defense Satellite Communication System (DSCS), DSCS Service Life Extension Program (SLEP), Wideband Gapfiller Satellite (WGS) System, and the Advanced Wideband System (AWS) satellites. The SHF SATCOM system is comprised of satellites, ground stations, and aircraft, ship and ground terminals to provide assured worldwide access to services such as Defense Information Systems Network (DISN), Global Command and Control System (GCCS), Plain Old Telephone Service (POTS), Secure Telephone Unit III (STU III) Secure Communications Service, Internet Protocol Routed Networks, and other digital services. The satellite systems SHF SATCOM operate over are transitioning from old technology DSCS III satellites to the more advanced DSCS SLEP and WGS satellites beginning in FY 99 and continuing through FY 05. The population of Navy SHF SATCOM terminals is also growing at a rapid pace. In order to meet the communication requirements of Navy users, advanced communication technologies for SHF SATCOM terminals must be developed to take full advantage of the capabilities of the new satellites in an efficient manner.

(U) Fleet Satellite Communications includes Sensitive Compartmented Information (SCI) Automated Digital Network System (ADNS), which provides real time indications and warning communications support and enhanced SCI interoperability with other services, agencies, and allies permitting a level of integration not available with current systems.

(U) The Digital Modular Radio (DMR) provides tactical Joint interoperable UHF satellite communications. Per CJCSI 6251.01, DMR replaces all non-compliant, mostly 1970's design radios and multiplexers, with a software programmable radio that can meet present and future requirements in a cost effective and forward thinking manner. DMR provides the framework for meeting the planned future SATCOM and Line of Sight (LOS) communications requirements in the 100 KHz to 2 GHz spectrum. Additionally, DMR provides for advanced higher data rate and capacity waveforms in the UHF spectrum supporting the Navy IT-21 Network Centric strategy and Joint Vision 2010 and provides the radio for incorporation of the developing Advanced Narrowband System (ANS) waveform, the next generation UHF follow-on satellite constellation.

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N**
PROGRAM ELEMENT TITLE: Satellite Communications (Space)

(U) The Mobile User Objective System (MUOS) program provides for the development of the next generation DoD advanced narrowband communications satellite constellation. The current UHF Follow-On (UFO) constellation is expected to degrade below acceptable availability parameters by FY07 and will require phased replacement starting at that time. In addition, new user requirements have been identified and strategies have been modified to incorporate new concepts and technologies. The joint MUOS Integrating Integrated Product Team (IIPT) has developed an acquisition strategy to address the exponential growth of narrowband communications demands, which has resulted in identifying the need to explore new approaches to acquiring satellite based communications capabilities. This program builds on state of the art technologies and commercial practices to develop a totally responsive joint warfighter system.

(U) An eleventh UFO satellite is being procured to maintain the current UFO constellation until the MUOS can be fielded. Additionally, the UFO receiver used on all previous UFO satellites is obsolete and no longer available. The contractor developed and tested a replacement UHF digital receiver for the UFO gapfiller satellite.

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

B. Program Change

(U) Funding:

FY 2000: -$187K net reduction in FY2000 funding is a combination of: -$200K ONR BTR update; -$10K Federal Technology Transfer; -$991K SBIR Load; -$153K Section 8055; -$466K SPAWAR BTRs; +$1,354K FY00 Midyear Review Adjustments; +$279K FY00 actual execution .

FY 2001: $1,635 increase in FY2001 funding is a combination of -$278K Section 8086 0.7% Pro Rata Reduction; -$87K Government-Wide Rescission PL106-554; and +$2,000K Space Activities.

(U) Schedule:

FY 2000: MST 6000 (Flight 5) moved from 5/00 to 8/00
FY 2001: MUOS Program Milestone A moved from 3rd Qtr 01 to 4th Qtr 01. MUOS CAD contracts award date moved from 3rd Qtr 01 to 4th Qtr 01. (X2472), Milstar II Launch (Flight 4) from 6/00 to 2/01 (X0728), MST 8000 (Flight 4) from 1/01 to 2/01 (X0728).

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N**
PROGRAM ELEMENT TITLE: Satellite Communications (Space)

PROJECT NUMBER& TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY2007 ESTIMATE	COST TO COMPLETE	TOTAL COST
X0728 EHF SATCOM Terminals	6,295	9,238	12,266							

A. Mission Description and Budget Item Justification:

(U) Navy Extremely High Frequency (EHF) Satellite Communications (SATCOM) Program provides for the development and production of terminals to provide anti-jam (A/J), low probability of intercept (LPI)/detection 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 environments. 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 11 and FLTSATCOM Satellites 7 and 8. 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 Super High Frequency (SHF) Satellite Communications (SATCOM) program provides for the development and production of terminals to provide high capacity reliable, low probability of intercept (LPI), secure, and jam resistant communications to Joint and Allied Forces. SHF SATCOM operates with the Defense Satellite Communication System (DSCS), DSCS Service Life Extension Program (SLEP), Wideband Gapfiller Satellite (WGS) System, and the Advanced Wideband System (AWS) satellites. The SHF SATCOM system is comprised of satellites, ground stations, and aircraft, ship and ground terminals to provide assured worldwide access to services such as Defense Information Systems Network (DISN), Global Command and Control System (GCCS), Plain Old Telephone Service (POTS), Secure Telephone Unit III (STU III) Secure Communications Service, Internet Protocol Routed Networks, and other digital services. The satellite systems SHF SATCOM operate over are transitioning from old technology DSCS III satellites to the more advanced DSCS SLEP and WGS satellites beginning in FY 99 and continuing through FY 05. The population of Navy SHF SATCOM terminals is also growing at a rapid pace. In order to meet the communication requirements of Navy users, advanced communication technologies for SHF SATCOM terminals must be developed to take full advantage of the capabilities of the new satellites in an efficient manner.

(U) The EHF Medium Data Rate (MDR) upgrade program is near development completion and provides increased bandwidth by providing higher data rates [4.8 kilobits per second (Kbps) – 1.544 megabits per second (Mbps)] when communicating with Milstar II satellites.

(U) The Navy EHF Communications Controller (NECC) provides automated, netted tactical data information exchange over jam resistant EHF LDR satellite links. The NECC will provide for load and channel sharing, resource management, communications management and planning, network control and monitoring, and packet switching.

(U) The EHF Time Division Multiple Access (TDMA) Interface Processor (TIP) will support wide area network (WAN) implementation through reliable, efficient, netted data exchange using MDR services. The MDR TIP combines support for general-purpose internet protocol (IP) data delivery and high speed, rapid delivery of tactical data within a single system architecture. TIP supports single-beam, multi-beam, and multi-satellite networks.

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N**
PROGRAM ELEMENT TITLE: Satellite Communications (Space)

(U) Advanced EHF is the follow-on satellite communications system that replenishes the existing Milstar I/II (LDR/MDR) satellite constellations. The Advanced EHF system will be compatible with today's Navy LDR/MDR terminals, and provide increased communications capability to the warfighter. The Advanced EHF system provides an increase in single service capability from 1.5 Mbps to 8 Mbps, increases the number of coverage areas, and retains A/J,LPI protection characteristics.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS:

(U) ($3,995) Continued to perform MDR software corrections resulting from MST-6000 (flights 3 & 4) testing with flight model MDR satellite. Completed MDR ILS development: updated MDR software documentation; performed software configuration management; performed system testing to reflect changes in terminal baseline; supported installation, checkout, and integration of EDM antenna/pedestals on operational platform, EDM MDR modems, and field change kits in support of Milstar testing; and continued MDR Satellite Simulator (SATSIM) and MDR modem development and modifications.

(U) ($238) Planned NESP MDR test resources, prepared and coordinated the NESP test and evaluation master plan (TEMP) and participated in Air Force Milstar System test working groups.

(U) ($1,168) Continued development of TIP/NECC modifications. Extend IP capability from MDR to LDR, add IDS 8648 GFCP Interface.

(U) ($894) Continued terminal development, engineering analysis and management.

2. (U) FY 2001 PLAN:

(U) ($1,035) Complete MDR Modem and MDR Satellite Simulator (SATSIM) upgrade and perform Over the Air (OTA) MDR communications testing and LDR regression testing. Provide software corrections as necessary.

(U) ($1,928) Continue development of TIP/NECC modifications and perform OTA testing to verify performance in multi-terminal configuration.

(U) ($3,612) Initiate identification of Advanced EHF terminal upgrade specification. Initiate system engineering studies and analysis. Perform waveform simulation and analysis. Participate in satellite to terminal interface requirements studies and analysis.

(U) ($1,650) Participate in Milstar on Orbit test and checkout of Milstar flight 4 (MST 8000). Conduct MDR Developmental Test and Operational Test (DT/OT) for ship and shore systems. Participate in joint interoperability communications with Army SMART-T MDR terminal.

(U) ($1,013) Continue terminal development engineering analysis and management.

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N**
PROGRAM ELEMENT TITLE: Satellite Communications (Space)

3. (U) FY 2002 PLAN:

(U) ($1,125) Complete development of TIP/NECC modifications.

(U) ($6,952) Continue AEHF system engineering studies and analysis, perform terminal upgrade design and development, develop test procedures, develop terminal and satellite simulators, perform ground based testing.

(U) ($1,206) Participate in Milstar on Orbit test and checkout of Milstar flight 5 and 6 (MST 8000). Continue to participate in joint interoperability communications with Army SMART-T MDR terminal.

(U) ($1,033) Continue terminal development engineering analysis and management.

(U) ($1,950) Develop advanced SHF modems for Wideband Gapfiller Satellite system and AN/WSC-6 terminal upgrades.

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

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	TO COMPLETE	TOTAL PROGRAM
OPN SHIP* 321000	82,115									
OPN SHIP & Shore* 321500		81,520	71,243							
OPN SHORE* 322000	26,935									

*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

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N**
PROGRAM ELEMENT TITLE: Satellite Communications (Space)

C. (U) ACQUISITION STATEGY:

	FY 2000	FY 2001	FY 2002
Program Milestones	N/A	Milstar II Launch (Flight 4) 2/01	Milstar II Launch (Flight 5) 2/02
Engineering Milestones	N/A	N/A	N/A
T&E Milestones	MST 6000 (Flight 5) 8/00	MST 8000 (Flight 4) 3/01	MDR FOT&E 11/01 MST 8000 (Flight 5) 3/02
Contract Milestones	Low Data Rate (LDR)/ Medium Data Rate (MDR) Prod Yr (1) Awd	N/A	AEHF Awd 04/02

D. (U) SCHEDULE PROFILE: N/A

EXHIBIT R-3, FY 2002 RDT&E, N PROJECT COST ANALYSIS **DATE: JUNE 2001**

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X0728**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: EHF SATCOM Terminal**

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY02 Cost	FY 02 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Prime Mission Equipment	SS/CPFF	Raytheon Marlborough, MA	37,177	4,424	12/99	5,762	12/00	6,522	12/01	CONT.	CONT.	
Prime Mission Equipment	WX	SSC SD	12,029	363	11/99	466	11/00	503	11/01	CONT.	CONT.	
Prime Mission Equipment	Various	Other	6,811	417	12/99	350	12/00	2,330	12/01	CONT.	CONT.	
Subtotal Product Development			56,017	5,204		6,578		9,355		CONT.	CONT.	
Remarks:												
Support Cost/Management Services												
Program Management	WX	SSC SD	6,561	210	12/99	224	12/00	245	12/01	CONT.	CONT.	
Program Management	WX	NUWC	5,133	172	12/99	340	12/00	380	12/01	CONT.	CONT.	
Program Management	Various	Other	4,162	316	12/99	129	12/00	153	12/01	CONT.	CONT.	
Subtotal Support			15,856	698		693		778		CONT.	CONT.	
Remarks												

EXHIBIT R-3, FY 2002 RDT&E, N PROJECT COST ANALYSIS **DATE: JUNE 2001**

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X0728**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: EHF SATCOM Terminal**

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation												
Test & Evaluation	Various	Various	5,617	393	12/99	1,967	12/00	2,133	12/01	CONT.	CONT.	
Subtotal T&E			5,617	393		1,967		2,133		CONT.	CONT.	
Remarks												
Management Services												
Subtotal Management												
Remarks												
Total Cost			77,490	6,295		9,238		12,266		CONT.	CONT.	
Remarks												

EXHIBIT R-2a, FY 2002 RDT&E, N PROJECT JUSTIFICATION: DATE: JUNE 2001

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X0731**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: SCI/ADNS**

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY2001 ESTIMATE	FY2002 ESTIMATE	FY2003 ESTIMATE	FY2004 ESTIMATE	FY2005 ESTIMATE	FY2006 ESTIMATE	FY 2007 ESTIMATE	COST TO COMPLETE	TOTAL COST
X0731 Fleet Satellite Communications	2,470	3,448	4,595							

A. Mission Description and Budget Item Justification:

(U) The Sensitive Compartmented Information (SCI) Automated Digital Network System (ADNS) implements the Integrated Special Intelligence Communications portion of the ADNS architecture, to provide services for transfer of Special Intelligence (SI) information between ships and shore activities in support of joint and combined operations. SCI ADNS has been combined into the SI communications architecture and will provide 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 Joint ultra high frequency (UHF) Military Satellite Communications Network Integrated Control System (JMINI) Control system will provide dynamic centralized control of joint 5-kHz and 25kHz UHF military satellite communications (MILSATCOM) voice and data resources (channels and Time Division Multiple Access (TDMA)) time slots via a globally integrated system of four control stations to be located at each of the three Naval Computer and Telecommunications Area Master Station (NCTAMS) sites plus Naval Computer and Telecommunications Station (NCTS) Guam. The Digital Modular Radio (DMR) serves as the JMINI Control System Channel Controller and provides tactical Joint interoperable UHF satellite communications. Per CJCSI 6251.01, DMR replaces all non-compliant, mostly 1970's design radios and multiplexers, with a software programmable radio that can meet present and future requirements in a cost effective and forward thinking manner. DMR provides the framework for meeting the planned future SATCOM and LOS communications requirements in the 100 KHz to 2 GHz spectrum. Additionally, DMR provides for advanced higher data rate and capacity waveforms in the UHF spectrum supporting the Navy IT-21 Network Centric strategy and Joint Vision 2010 and provides the radio for incorporation of the developing Advanced Narrowband System (ANS) waveform, the next generation UHF follow-on satellite constellation.

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X0731**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: SCI/ADNS**

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS:

   (U) ($2,470) Transitioned SCI ADNS functionality to Windows NT/IT 21 compliant architecture to include re-hosting to Cryptologic Workstation environment. Integrated and implemented SCI ADNS Build II. Continued development of voice, data and video integration into SCI ADNS environment. Prepared for SCI Defense Messaging System integration. Conducted Developmental Testing (DT) and Follow on Operational Testing and Evaluation (FOT&E) of SCI ADNS.

2. (U) FY 2001 PLAN:

   (U) ($1,448) Continue integration and implementation of SCI/ADNS and associated Special Intelligence Communication capabilities. Developmental testing of upgrades, OT&E, FOT&E, Functional Configuration Audit (FCA) and Physical Configuration Audit (PCA) of SCI/ADNS will be accomplished.

   (U) ($2,000) Space Activities SATCOM systems integration initiative.

3. (U) FY 2002 PLAN:

   (U) ($756) Continue integration and implementation of SCI/ ADNS and associated Special Intelligence Communication capabilities. Developmental Testing of upgrades, OT&E, FOT&E, FunctionalConfiguration Audit (FCA) and Physical Configuration Audit (PCA) of SCI /ADNS will be accomplished.

   (U) ($3,839) Modify DMR to be compliant with the new Joint Tactical Radio System (JTRS) architecture. Start development of the Integrated Waveform into DMR. Initiate development of the DMR automated Radio Frequency (RF) distribution system to maximize the capabilities of DMR and set the Navy on the path to an automated radio room.

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X0731**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: SCI/ADNS**

B. (U) OTHER PROGRAM FUNDING SUMMARY. (Dollars in Thousands)

	FY 2000	FY 2001	FY 2002	FY 2003	FY2004	FY2005	FY2006	FY2007	TO COMPLETE	TOTAL PROGRAM
OPN SHIP* 321000	7,395	10,629	0							
OPN SHIP/SHORE* 305000		0	5,522							
OPN SHORE* 322000	820	447	0							
OPN SATCOM 321500	0	21,740	28,640							
O&M,N	5,399	7,556	3,957							

*Includes terminal installation costs.
(U) Related RDT&E: N/A

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X0731**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: SCI/ADNS**

C. (U) ACQUISITION STRATEGY:

	FY2000	FY2001	FY2002
Program Milestones	SCI ADNS 2 IOC 6/00	N/A	N/A
	Down select to One DMR Vendor		DMR MS-III DMR IOC
Engineering Milestones	SCI ADNS 2 PCA 3/00	N/A	N/A
T&E Milestones	SCI ADNS 2 DT 7/00 OT 9/00	SCI ADNS 2 DT 7/01 FOTE 9/01	N/A
			DMR DT-IIIB DMR OT-IIIA, OT-IIIB
Contract Milestones	N/A	N/A	N/A

D. (U) SCHEDULE PROFILE: See paragraph C.

EXHIBIT R-3, FY 2002 RDT&E, N PROJECT COST ANALYSIS **DATE: JUNE 2001**

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X0731**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: SCI/ADNS**

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 00 Cost	FY00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost To Complete	Total Cost	Target Value of Contract
1.1.1 Prime Mission Product	FPI	Titan	6,309	0		0		0		CONT.	CONT.	
1.1.1 Prime Mission Product	FFP	SRC	18,505	0		0		0		CONT.	CONT.	
1.1.1 Prime Mission Product	PD	NAVSUP/SRC	5,223	0		0		0		CONT.	CONT.	
1.1.1 Prime Mission Product	VAR	VAR	9,779	1,815	12/99	806	12/00	569	12/01	CONT.	CONT.	
Subtotal Product Development			39,816	1,815		806		569		CONT.	CONT.	
Remarks:												
1.1.1 Prime Mission Product	CPFF	CSC	3,588	0		0		0		CONT.	CONT.	
1.1.1 Prime Mission Product	PD	NAVAIR/ISC	1,176	0		0		0		CONT.	CONT.	
1.1.1 Prime Mission Product	VAR	VAR	9,343	0		0		0		CONT.	CONT.	
1.1.1 Prime Mission Product	FFP	Motorola	0	0		0		2,750	TBD	CONT.	CONT.	
GFE												
Subtotal Support			14,107	0		0		2,750		CONT.	CONT.	
Remarks												

EXHIBIT R-3, FY 2002 RDT&E, N PROJECT COST ANALYSIS **DATE: JUNE 2001**

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X0731**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: SCI/ADNS**

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost To Complete	Total Cost	Target Value of Contract
1.2.5 System T&E	N/A	SSC SD	202	473	12/99	460	12/00	789	12/01	CONT.	CONT.	
1.2.5 System T&E	N/A	OPTEVFOR	80	49	12/99	50	12/00	60	12/01	CONT.	CONT.	
1.2.5 System T&E	VAR	VAR	9,296	0		0		0				
1.2.5 System T&E	N/A	SSC Chas	0			1,700	TBD					
Subtotal T&E			9,578	522		2,210		849		CONT.	CONT.	
Remarks												
1.1.3 Program Management	CPFF	CSC	3,588							CONT.	CONT.	
1.1.3 Program Management	PD	NAVAIR/ISC	1,176							CONT.	CONT.	
1.1.3 Program Management	N/A	ACS	542	133	12/99	0		0		CONT.	CONT.	
1.1.3 Program Management	VAR	VAR	9,343			132	12/00	127	12/01	CONT.	CONT.	
1.1.3 Program Management	VAR	VAR	0					300	TBD	CONT.	CONT.	
1.1.3 Program Management	N/A	SSC Chas	0			300	TBD					
Subtotal Management			14,649	133		432		427		CONT.	CONT.	
Remarks												
Total Cost			78,150	2,470		3,448		4,595		CONT.	CONT.	

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X2472**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: Satellite Development**

Cost ($ in Thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	To Complete	Total Cost
X2472 Mobile User Segment	31,250	26,727	37,369							

A. Mission Description and Budget Item Justification:

(U) This program provides for: (1) the development of the digital receiver for the UHF Follow-On (UFO) F11 gapfiller satellite and (2) the development of the next generation DoD narrowband communications satellite constellation.

(U) The RDT&E effort for the UFO F11 satellite is to develop and test a digital receiver to replace the obsolete analog receiver used on UFO F1-F10. The F11 is required to maintain the health of the UFO constellation until the Mobile User Objective System (MUOS) system can be fielded.

(U) The current UFO constellation is expected to degrade below acceptable availability parameters and will require phased replacement by FY07. In addition, new user requirements have been identified and strategies have been modified to incorporate new concepts and technologies. The joint MUOS Integrating Integrated Product Team (IIPT) has developed an acquisition strategy to address the exponential growth of narrowband communications demands, which has resulted in identifying the need to explore new approaches to acquiring satellite based communications capabilities. This program builds on state of the art technologies and commercial practices to develop a comprehensive joint warfighter system.

(U) This RDT&E effort supports the program objectives by assisting in identifying the most effective way to field a new system by FY07. Multiple Concept Exploration (CE) contracts were awarded in early FY00. Additional CE contracts will be awarded in FY01, along with commercial demonstrations, to support a MS I Defense Acquisition Board (DAB) in 3Q FY01. Multiple Risk Reduction contracts will be awarded after the DAB.

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X2472**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: Satellite Development**

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY00 ACCOMPLISHMENTS:

(U) ($7,100) Awarded multiple Concept Exploration contracts for MUOS and funded commercial SATCOM offload demo.
(U) ($22,650) Design and test a digital receiver for UFO F11 gapfiller and program office support
(U) ($1,500) Funded required independent Analysis of Alternatives for MUOS.

2. (U) FY01 PLAN:

(U) ($25,485) Award multiple contracts for MUOS and conduct demonstration to evaluate commercial services viability in satisfying requirements.
(U) ($1,242) Funded required independent Analysis of Alternatives for MUOS.

3. (U) FY02 PLAN

(U) ($37,369) Fully fund up to two Risk Reduction contracts for MUOS.

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

NUMBER TITLE	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Program
(U)WPN Line 243300 Fleet Satellite Communication Follow-On	9,634	94,660	77,840							

C. (U) ACQUISITION STRATEGY

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X2472**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: Satellite Development**

D. (U) SCHEDULE PROFILE:

	FY 2000	FY 2001	FY 2002
MUOS			
Program Milestones	N/A	4Q – MS A	N/A
Engineering Milestones	3Q-Concepts Delivered	N/A	3Q-Preliminary Designs Delivered
T&E Milestones	N/A	N/A	N/A
Contract Milestones	1Q-Multiple CE contracts Awarded	4Q-CAD Contracts Awarded	N/A
UFO F11			
Program Milestone	N/A	N/A	N/A
Engineering Milestone	3Q-Digital Receiver (Initial Design Review) IDR	N/A	N/A
T&E Milestone	N/A	N/A	N/A
Contract Milestone	SS/FFP 1Q-Mod for F11	1Q-Production Option Exercised	1Q-Launch Services Option Exercised

(U) Acquisition Strategy

UFO F11: A modification for F11 was added to the current UFO Contract. The RDT&E,N funds are to redesign the obsolete UHF receiver (FY00).

MUOS: Concept Exploration contracts were awarded in early FY00. After Government evaluation of the studies delivered under the Concept Exploration contracts, up to two Risk Reduction Contracts will be awarded in FY01. Funding for the Government's required independent Analysis of Alternatives was also provided.

EXHIBIT R-3, FY 2002 RDT&E, N PROJECT COST ANALYSIS **DATE: JUNE 2001**

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X2472**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: Satellite Development**

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	Cost To Complete	Total Cost	Target Value of Contract
MUOS Contracts And Demos	COM/FP	Various	7,100	20,411	Various	35,969		CONT.	CONT.	CONT.
AoA for MUOS	MIPR	Various	1,500	1,242	Various				2,742	2,742
UFO Gapfiller – Digital Receiver	SS/FP	Hughes, El Segundo	18,200						18,200	18,200
Subtotal Product Development			26,800	21,653		35,969		CONT.	CONT.	CONT.
Remarks:										
Support Cost										
Program Support	Various	Program Support	4,450	5,074	Var.	1,400	Var.	CONT.	CONT.	CONT.
Subtotal Support Cost			4,450	5,074		1,400		CONT.	CONT.	CONT.
Remarks										
Total Cost			31,250	26,727		37,369		CONT.	CONT.	CONT.

EXHIBIT R-2, FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N
PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT TITLE: ISSP

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY2006	FY2007	TO COMPLETE
X0734 Information Systems Security	20,105	31,835	20,942						
TOTAL	20,105	31,835	20,942						

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The goal of the Navy Information Systems Security Program (ISSP) is to ensure the continued protection of Navy and Joint information and information systems from hostile exploitation and attack. The ISSP is the Navy's implementation of statutory and regulatory requirements specified in Presidential Decision Directive 63, the Computer Security Act of 1987 (Public Law 100-235), Appendix III of Office of Management and Budget (OMB) Circular A-130, and DOD Directive 5200.28. ISSP activities address the triad of Defensive Information Operations defined in Joint Publication 3-13; protection, detection, and reaction. Evolving detection and reaction responsibilities extend far beyond the traditional ISSP role in protection or Information Security (INFOSEC). Focused on the highly mobile forward-deployed subscriber, the US Navy's adoption of Network-Centric Warfare (NCW) places demands upon the ISSP, as the number of users explodes and the criticality of their use escalates. Today, the ISSP protects an expanding core service critical to the effective performance of the Navy's mission.

(U) The interconnectivity of Naval networks, attachment to the public information infrastructure, and their use in modern Naval and Joint war fighting means that the Naval Information Infrastructure (NII) is a higher value and more easily attainable target. An adversary has a much broader selection of attack types from which to choose than in the past. In addition to the traditional attacks that involve the theft or eavesdropping of information, USN information systems face advanced attacks involving malicious changes to critical information, changes to the functioning of critical systems, denial of service, and the destruction

of systems and networks. Since many Navy information systems are based on commercially available technologies, an adversary often has access to the very technologies they want to exploit.

(U) The rapid rate of change in the underlying commercial and government information infrastructures makes the provision of security an increasingly complex and dynamic problem. ISSP provides the Navy's war fighter the essential information trust characteristics of availability, integrity, authentication, privacy, and non-repudiation. Information Assurance (IA) technology mix and deployment strategies must evolve quickly to meet the rapidly evolving threats and vulnerabilities. No longer can information security divorce the information infrastructure.

(U) The Navy ISSP RDT&E program works to provide the Navy with these essential IA elements: (1) Assured separation of information levels and user communities, including coalition partners; (2) Assurance of the telecommunications infrastructure; (3) Assurance of Joint user enclaves, using a Defense in Depth architecture; (4) Assurance of the computing base and information store; and, (5) Supporting assurance technologies, including a Public Key Infrastructure (PKI) and directories. The goal of all ISSP RDT&E activities is to produce the best USN operational system that can meet the certification and accreditation requirements outlined in DOD Instruction 5200.40. Modeling DOD and commercial information systems evolution (rather than being one-time developments), the ISSP RDT&E program must be predictive, adaptive, and technology coupled. The program develops frameworks, architectures, and products based on mission threats, information criticality, exploitation risks, risk management, and integrated Joint information system efforts.

(U) All ISSP RDT&E efforts comply with the National Technology Transfer and Advancement Act of 1995 (Public Law 104-113) as implemented through Office of Management and Budget Circular A-119 of February 10, 1998, DoD Instruction 4120.24, *Defense Standardization Program (DSP),* and DoD Instruction 4120.3-M*, Defense Standardization Program Policies and Procedures*. The predominant commercial standards bodies in ISSP-related matters include International Standards Organization (ISO), American National Standards Institute (ANSI), Institute of Electrical and Electronics Engineers (IEEE), Internet Engineering Task Force (IETF), World Wide Web Consortium (W3C), and National Institute of Standards and Technologies (NIST). The Joint interoperability required in today's telecommunications systems makes standards compliance a must.

EXHIBIT R-2, FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N
PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT TITLE: ISSP

(U) The interconnection of USN and the National Information Infrastructure (NII) requires all ISSP RDT&E activities to adopt a minimum standard of “best commercial IA practice.” The ISSP RDT&E program examines commercial technologies to determine their fit within the USN architectures, provides feedback to vendors about what the Navy requires, and participates in the standards bodies themselves. When necessary to protect mission critical systems specified in Clinger/Cohen Act, the ISSP RDT&E develops or tailors commercial technologies, standards, and processes to meet Navy-unique requirements; prototypes systems or portions of systems and examines their utility in operational Navy settings; and, provides IA expertise and engineering to Navy and Joint information system developments. All ISSP technology development efforts solve specific Navy and Joint IA problems using techniques that speed transition to procurement as soon as ready.

(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 2002 RDT&E,N BUDGET ITEM JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N
PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT TITLE: ISSP

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY2006	FY2007	TO COMPLETE	TOTAL PROGRAM
X0734 Information Systems Security	20,105	31,835	20,942							

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Navy ISSP RDT&E program provides IA solutions for USN forward-deployed, highly mobile information subscriber. The Network-Centric afloat war fighter must rely upon an assured information infrastructure, and the ISSP RDT&E program architects, engineers, and provides the Quality of Assurance (QoA) consistent with risks faced.

(U) ISSP RDT&E must work closely within the Navy's Information Operations – Exploit (Signals Intelligence - SIGINT) and Information Operations – Attack (INFOWAR) communities. ISSP RDT&E developed systems must dynamically change the Navy's current assurance vector, based upon operational indications and warnings. To ensure interoperability, ISSP RDT&E must integrate fully with the Maritime Cryptologic Architecture. ISSP RDT&E developed systems can provide the trigger for offensive warfare activities, such as those developed by the Naval Information Warfare Activity (NIWA).

(U) This program element includes a continuing effort to modernize National-Security-grade (type-1) cryptographic equipment and ancillaries with state-of-the-art replacements in order to counter evolving and increasingly sophisticated threats. Communication Security (COMSEC) and Transmission Security (TRANSEC) evolution is from stand-alone dedicated devices to embedded modules incorporating National Security Agency (NSA) approved cryptographic engines, loaded with the certified algorithms and key, and interconnected via industry-defined interfaces.

(U) In addition to protecting National Security information, ISSP RDT&E must provide enterprise-wide assurance for statutorily protected information under the Privacy Act of 1974, Computer Matching and Privacy Protection Act of

1988, Medical Records Confidentiality Act of 1995, Model State Public Health Privacy Act, 45 CFR subtitle A subchapter C, parts 160- 164, 1999, and the Federal Education Records Privacy Act. ISSP RDT&E efforts must also provide assurance to the broad spectrum of Sensitive-but-Unclassified (SBU) information such as financial, personnel, contractor proprietary, and procurement sensitive.

(U) The ISSP today includes much more that legacy Communications Security (COMSEC), Computer Security (COMPUSEC), and Network Security (NETSEC) technology. IA, or Defensive Information Operations, exists to counter a wide variety of threats in a Navy environment. ISSP activities cover all telecommunications systems, and RDT&E projects must provide protection, detection, and reaction capabilities to the operational commander. ISSP RDT&E provides dynamic risk managed IA solutions to the Navy Information Infrastructure, not just security devices placed within a network.

(U) Few technology areas change as fast as telecommunications and computers, and IA must keep pace. This results in the continuing need to evaluate, develop, and/or test IA products and approaches. Technology base efforts include developing or applying: (1) new secure voice prototypes; (2) technology for a new family of programmable Communications Security (COMSEC) and Transmission Security (TRANSEC) modules; (3) security appliances and software for switched and routed networks; (4) technology to interconnect networks of dissimilar classification, as either Multiple Security Level (MSL) or Multi-Level Security (MLS); (5) techniques for assuring code and data residing in and transiting the Navy’s computing base and information store; and (6) a public key infrastructure (PKI) and associated access control technologies (such as SmartCards and similar security tokens).

(U) The resulting expertise applies to a wide variety of Navy development programs that must integrate IA technology. Unlike traditional single-product development programs, the ISSP RDT&E holds a unique Navy-enterprise responsibility outlined in SECNAVINST 5239.3.

(U) The ISSP RDT&E efforts must conclude with certified and accredited systems. This requires (1) Assured separation of information levels and user communities, including coalition partners; (2) Assurance of the telecommunications infrastructure; (3) Assurance of Joint user enclaves; (4) Assurance of the computing base and information store; and, (5) Supporting assurance technologies, including a public key

infrastructure (PKI) and directories. To ensure interoperability and commercial standards compliance, these efforts often encompass the research, selective evaluation, integration, and test of Commercial off-the-shelf (COTS)/Non-developmental Item (NDI) IA security products. For example, evaluation may include defensible network boundary capabilities such as firewalls, secure routers and switches, guards, virtual private networks (VPN), and network intrusion and misuse (IDS) detection systems.

(U) The current operating environment has virtually eliminated the traditional distinction between telecommunications and information systems. Because IA is a cradle-to-grave enterprise-wide discipline, this program develops the technology and methodology to systems in development, production and operation, and develops the infrastructure needed to support and evaluate the security of deployed systems.

(U) The following describe several major ISSP technology areas.

(U) Under the Navy Secure Voice (NSV) program, ISSP RDT&E develops and assesses technology to provide high grade, secure tactical and strategic voice connectivity. Efforts include designing, demonstrating and integrating a secure voice capability for shipboard networks (IT-21) and other Command, Control, Communications, Computers, and Intelligence (C4I) programs and initiatives. Secure voice capabilities must include switched, wired, routed, and wireless. ISSP RDT&E technologies support will prototype and demonstrate the secure integration and transport of voice, video, and data over Internet Protocol (IP) and Asynchronous Transfer Mode (ATM) networks. Specifically, the secure voice program will examine digital cellular and land mobile satellite secure voice technology.

(U) Under the Navy Security Management Infrastructure (SMI) program, ISSP RDT&E develops, evaluates, and applies new emerging technology and enhanced capabilities to the Electronic Key Management System (EKMS) and other Navy Information Systems. Additional efforts will focus on the architecture, design, and development of systems to manage the security parameters (i.e., cryptographic keys) necessary to the operation of the systems developed by the Secure Data and Secure Voice portions of the ISSP. This includes the application of Public Key Infrastructure (PKI) and Certificate Management Infrastructure (CMI) technology, and the development of improved techniques for key and certificate management to support emerging, embedded cryptographic technology.

EXHIBIT R-2, FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N
PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT TITLE: ISSP

(U) Under the Secure Data program, efforts focus on architectures, designing, acquiring, demonstrating and integrating the IA technologies into Navy distributed information systems (e.g., Information Technology for the 21st Century (IT-21), new total ship computing environments, and the Navy Marine Corp Intranet (NMCI). This portion of the ISSP supports delivery of network security engineering expertise needed to stand-up the NMCI and securely deploy IT-21 constituent systems such as Advanced Digital Network System (ADNS), Global Command and Control System - Maritime (GCCS-M) and Base Level Information Infrastructure (BLII). It includes activities to:

- Ensure that USN IA systems and networks follow a consistent architecture and are protected against denial of service
- Ensure that all data within the USN Enterprise is protected in accordance with its classification and mission criticality.
- Provide the ability to protect from, react to, and restore operations after an intrusion or other catastrophic event
- Enable dynamic throttling of services due to change in risk posture resulting from changing Information Operation Conditions (INFOCONs)
- Defend against the unauthorized modification or disclosure of data sent outside enclave boundaries
- Provide a risk-managed means of selectively allowing essential information to flow across the enclave boundary
- Provide strong authentication of users sending or receiving information from outside their enclave
- Defend against the unauthorized use of a host or application
- Maintain configuration management of all hosts to track all patches and system configuration changes
- Ensure adequate defenses against subversive acts of trusted people and systems, both internal and external
- Provide a cryptographic infrastructure that supports key, privilege and certificate management; and that enables positive identification of individuals utilizing network services
- Provide an intrusion detection, reporting, analysis, assessment, and response infrastructure that enables rapid detection and reaction to intrusions and other anomalous events, and that enables operational situation awareness

1. (U) FY 2000 Accomplishments:

(U) ($2,000) Initiated efforts to develop a flexible, digital modular cryptographic solution based on multi-channel, programmable technology to replace a wide variety of aging and obsolete cryptos in existing and new navy communications systems/circuits (e.g., cryptographic equipments including the ANDVT, VINSON, KG-84, KG-40 in support of Link-11, and the Thornton family in support of Link-16). This capability will yield significant benefits including simplified operation, improved interoperability, and reduced space and weight requirements. Identified and documented performance parameters, form factors, and interface requirements for the digital modular cryptographic solution. These efforts were fully coordinated with the National Security Agency. Continued development of programmable embedded COMSEC solutions for the KG-3X family of cryptos to satisfy requirements associated with Submarine Low Frequency / Very Low Frequency VMEBUS Receiver (SLVR) for cryptographic equipment (KG-3X) replacement. Began the development and implementation of benign keying technology for crypto replacement efforts.

(U) ($4,025) Continued development of Electronic Key Management System (EKMS), and ensured compatibility with the Tier 0, Tier 2, and Tier 3 components and software.

(U) ($2,675) Continued the development of Electronic Key Management System (EKMS) Phase IV for Tier 1, Tier 2 and Tier 3. This included support for incorporation of enhanced key management capabilities/solutions for shipboard networks (IT-21) and the Navy Marine Corps Intranet (NMCI). Addressed the development and inclusion of web-based technology and support for the incorporation of the Key Systems Operations (KSO) exchange. Began the requirements definition for integration of certificate management and key management. Additional efforts focus on the development and prototyping of the Navy Single Point Command, Control, and Keying ($NSPC^2K$) design and solution for Navy platforms, supporting the development and prototyping of the Data Transfer Device (DTD) 2000, and key management support for embedded cryptographic technology and the Navy’s crypto replacement efforts. Conducted laboratory assessments of the latest National Security Agency (NSA) and industry commercial-off-the-shelf (COTS) key management technology and products, and demonstrations of prototype key management systems. Provided system security and Certification and Accreditation (C&A) engineering and testing for key management components and systems.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N
PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT TITLE: ISSP

(U) ($750) Continued the design, development, evaluation and application of public key and certificate management infrastructure technologies and systems to support DoD and DON initiatives, including integration with IT-21 and N/MCI initiatives. Prototype and assessed the use and application of medium and high assurance commercial products for public key and certificate management infrastructures (PKI/CMI) applications, including the assessment of these technologies over tactical communications paths. Continued assessing the feasibility of integrating PKI/CMI technology with key management products and initiatives. Work closely with the commercial developers and vendors, infuse technology and requirements into the commercial products, and support efforts to PKI-enable applications. Evaluated, assessed, and integrated multiple related technologies including security tokens, such as SmartCards, and virtual private networks (VPNs). Supported the definition of standards for smart cards and the evolution of computer workstation technology to support the widespread introduction of smart card technology.

(U) ($708) Continued the design, development and assessment of security solutions/capabilities for next generation voice systems. Developed prototypes/demonstrations to illustrate secure voice, video, and data capabilities over Internet Protocol (IP) and Asynchronous Transfer Mode (ATM) networks, specifically addressing quality of service and reliability issues. Continued research into new secure voice technology, developing technology and techniques for secure voice over government and commercial communications backbones, specifically addressing wireline/wireless telephony and network applications applicable to strategic and tactical communications. Continued to develop and assess the technology for low data rate algorithms, voice compression technology in conjunction with cryptographic algorithm technology, and voice/speaker recognition. Investigated the application of digital cellular and satellite secure voice technology.

(U) ($500) Initiated the analysis, design and assessment of the Secure Voice-21 (SV-21). This included the design and interfaces of the crypto gateways (i.e., network interface card, crypto interface card, and the voice processing card), crypto replacement technology, the SPC^{2}K technology to support the embedded crypto replacements, and new voice algorithms (e.g., Mixed Excitation Linear Prediction (MELP)). This suite of equipment/solutions is targeted to support the LPD-17 class ships, the DDG-51 class ships, NSSN (submarine), and CVX (carrier) class of ships by providing a secure voice solution for telephonic, tactical and secure voice problems, specifically addressing the IT-21 initiatives.

(U) ($250) Continued to support secure voice and biometric access consortia. Continued laboratory assessments of the latest NSA and industry INFOSEC technology and demonstrations of prototype voice systems. Continued research into new high assurance secure voice technology.

(U) ($650) Continued the evolutionary development of security architectures for IA that include virtually all Navy distributed information system development programs. Ensured the architecture evolves to provide proper protection as technology, DOD missions, and the threat all evolve. Provided inputs to the major Navy and joint initiatives that are defining and building distributed systems including shipboard networks (IT-21), Maritime Cryptologic Architecture, the Joint Technical Architecture, and large development programs including Global Command and Control System – Maritime (GCCS-M), Global Command and Control System (GCCS), Defense Messaging System (DMS), Automated Digital Network System (ADNS), Base Level Infrastructure Improvement (BLII) and others. Included both defensive protections as well as intrusion monitoring in the architecture.

(U) ($3,187) Continued developing and testing distributed information system security solutions for Navy information systems. This included the examination and selection of various components required by the architectures that may include firewalls, intrusion detection systems, virtual private networking systems, public key based secure e-mail and web systems, operating systems and others as well as high assurance components for connection of Top Secret and sensitive compartmented information (SCI) systems to lower level systems. Examined and evaluated next generation network security components including scaleable security products, Asynchronous Transfer Mode (ATM) firewalls and intrusion detection systems, and sophisticated malicious code monitors. Designed and prototype standard security suites for delivery to Naval commands, bases, and afloat platforms. Supported the design of situational awareness and visualization capabilities to support active computer network defense and the development of a sensor grid, with underlying data mining and correlation tools. Prototype components and standard security suites at selected operational sites.

(U) ($2,010) Provided systems security engineering, C&A support to Navy information system developments such as Global Command and Control System – Maritime (GCCS-M), Global Command and Control System (GCCS), Defense Messaging System (DMS), Automated Digital Network System (ADNS), Base Level Infrastructure

Improvement (BLII), shipboard networks (IT-21), the Navy Marine Corps Intranet (NMCI), and new ship classes (e.g., LPD-17, DD-21, CVNX, NSSN,…), and others to ensure that security is integrated as early in the development process as possible. Worked with application and system developers across Navy system commands to implement security policies, architectures, and components during early stages of design. Focused on integration of the proper functions to ensure adherence to the common security architectures. Ensured that the security and performance of the tactical systems, including those operating at Top Secret and sensitive compartmented information (SCI) are consistent with Navy and DOD requirements.

(U) ($825) Continued developing and updating INFOSEC standards and engineering guidance documents to ensure they are consistent with the security architecture, the rapidly changing technology, and the evolving threat. Focused on the development of security procedures associated with standard network security suites and tools.

(U) ($1,265) Developed, prototyped, and tested solutions to the coalition interoperability problem. Based the solutions on available multilevel security technologies as well as emerging architectural methods of providing interoperability across different security levels.

(U) ($1,260) Continued vulnerability/threat assessments and development and systems integration of network countermeasures tools (NVACM) efforts.

3. (U) FY 2001 PLAN:

(U) ($2,000) Continue development of the digital modular cryptographic solution based on multi-channel, programmable technology. Begin prototyping candidate cryptographic replacement solutions for evaluation and assessment in representative Navy platforms. Demonstrate digital modular crypto solution at selected operational locations and platforms to illustrate benefits and capabilities. Support the COMSEC certification process, including the conduct of analyses required and the development of associated documentation. These efforts will be fully coordinated with the National Security Agency.

(U) ($2,533) Continue the development of Electronic Key Management System (EKMS) Phase IV for Tier 1, Tier 2, Tier 3

and ensure compatibility with Tier 0. Continue to research and investigate new key management technologies. Demonstrate web-based technology and KSO exchange capabilities. Demonstrate integration of certificate management and key management directory structures and workstation functions. Demonstrate prototype of the Navy Single Point Command, Control, and Keying ($NSPC^2K$)design and solution for Navy platforms. Continue to support development of the Data Transfer Device (DTD) 2000, and continue to provide key management support for embedded cryptographic technology and cryptographic replacement efforts. Conduct laboratory assessments of the latest National Security Agency and commercial-off-the-shelf key management technology and products. Provide system security, certification, and accreditation engineering and testing for key management components and systems.

(U) ($2,811) Continue the design, development, evaluation and application of public key and certificate management infrastructure technologies and systems to support DoD and DON initiatives, including integration with shipboard network systems (IT-21) and the Navy Marine Corps Intranet (NMCI) initiatives. Continue to assess the use and application of medium and high assurance commercial products for public key infrastructure and certificate management infrastructure (PKI/CMI) applications, including integrating key management and certificate management infrastructures. Continue to work closely with the commercial developers and vendors, infuse technology and requirements into the commercial products, and support efforts to PKI-enable specific applications. Continue to evaluate, assess, integrate and demonstrate related technologies including smart card security tokens and Virtual Private Networks (VPNs). Assess the potential application of biometric access control tokens (fingerprint, voiceprint, iris) and the evaluation/development of electronic commerce applications to more efficiently perform Navy business functions using PKI technologies.

(U) ($8,600) This is a Congressional plus-up. Accelerate the design, development, evaluation and fielding of a public key and certificate management system and the supporting infrastructure. Develop PKI applications and concepts as they relate to afloat platforms to include evaluation of Medium Grade Services (MGS), Directory Services Testing (Single Sign On) and Hardware Cryptographic Modules (HCM). Conduct afloat demonstration of PKI on SIPRNET which will encompass use of Class 3 certificates, Local Registration Authority (LRA) support and will formalize the process for introduction of PKI into IT-21 Afloat (Government Off-The-Shelf (GOTS) Delta) deployment plan. Evaluate current PKI enabled applications to determine compatibility with DOD PKI certificates and investigate DOD policy and procedures required for enabling for PKI object signing certificates.

(U) ($2,000) Continue the design, development and assessment of security solutions/capabilities for next generation

voice systems. Continue to examine ways to integrate secure voice, video, and data capabilities over Internet Protocol (IP) and Asynchronous Transfer Mode (ATM) networks. Demonstrate secure voice server Internet Protocol (IP) conversion capabilities to interoperate with legacy equipment. Continue research into new secure voice technology, developing technology and techniques for secure voice over government and commercial communications backbones, specifically addressing wireline/wireless telephony and network applications applicable to strategic and tactical communications. Continue to develop and assess the technology for low data rate algorithms, voice compression technology in conjunction with cryptographic algorithm technology, and voice/speaker recognition. Continue to assess the application of digital cellular and satellite secure voice technology.

(U) ($1,000) Continue development of Secure Voice-21 (SV-21). This includes the development and integration of the crypto gateways (i.e., network interface card, crypto interface card, and the voice processing card), crypto replacement technology, the Navy Single Point Command, Control, and Keying ($NSPC^2K$) technology to support the embedded crypto replacements, and new voice algorithms (e.g., Mixed Excitation Linear Prediction (MELP). Demonstrate the SV-21 suite capability on a new ship operational platform for test and evaluation purposes.

(U) ($250) Continue to support secure voice and biometric access consortia. Continue laboratory assessments of the latest NSA and industry INFOSEC technology and demonstrations of prototype voice systems. Continue research into new high assurance secure voice technology.

(U) ($750) Continue the evolutionary development of security architectures for IA that include virtually all Navy distributed information system development programs. Ensure the architectures evolve to provide proper protection as technology, DOD missions, and the threat all evolve. Provide inputs to the major Navy and joint initiatives that are defining and building distributed systems including shipboard networks (IT-21), Navy Marine Corps Intranet (NMCI), the Joint Technical Architecture (JTA), and large development programs including Global Command and Control System – Maritime (GCCS-M), Global Command and Control System (GCCS), Defense Messaging System (DMS), Automated Digital Network System (ADNS), Base Level Infrastructure Improvement (BLII), and others. Include both defensive protections as well as intrusion monitoring in the architecture.

(U) ($4,430) Continue developing and testing distributed information system security solutions for Navy information systems. This includes the examination and selection of next generation networking components required by the

architectures that may include firewalls, intrusion detection systems (including host-based systems), virtual private networking systems, public key based secure e-mail and web systems, operating systems and others as well as high assurance components for connection of Top Secret and SCI systems to lower level systems. Examine, evaluate, and demonstrate next generation network security appliances, specifically focusing on increasing performance rates to Optical Carrier Rate 12 (OC-12 = 622.08 Million Bits per Second (Mbps)) and greater. Continue to support the design of situational awareness and visualization capabilities to support active computer network defense and the development of a sensor grid, with underlying data mining and correlation tools. Develop capability to remotely manage and securely control the configurations of network security components to implement changes in real time or near real time. Continue to prototype components at selected operational sites.

(U) ($2,000) This is a Congressional plus-up. Develop and evaluate a network wide Intrusion Detection System (IDS) (referred to as Naval Intelligent Agent Secure Module (NIASM)) which monitors existing sensors and devices to include Firewalls, Virtual Private Network (VPN) servers, and IDS's. Define interfaces to existing Commercial Off-The-Shelf (COTS) products, collect and correlate data from these units and develop algorithms which will provide accurate, useful information to the System Administrator/Security Manager or Watch Officer. Design and develop a network defense visualization capability which displays data collected by the network IDS system and defines the level and severity of the attack, as well as options and responses.

(U) ($2,500) Provide systems security engineering, certification and accreditation (C&A) support to Navy information system developments such as shipboard networks (IT-21), Navy Marine Corps Intranet (NMCI), the Joint Technical Architecture (JTA), and large development programs including Global Command and Control System – Maritime (GCCS-M), Global Command and Control System (GCCS), Defense Messaging System (DMS), Automated Digital Network System (ADNS), Base Level Infrastructure Improvement (BLII) and new ship construction (e.g., NSSN, LPD-17, SCN-21,…) and others to ensure that security is integrated as early in the development process as possible. Work with application and system developers across Navy system commands to implement security policies, architectures, and components during early stages of design. Focus on integration of the proper functions to ensure adherence to the common security architectures. Ensure that the security and performance of the tactical systems, including those operating at Top Secret and at sensitive compartmented information (SCI) are consistent with Navy and DOD requirements.

(U) ($461) Continue developing and updating INFOSEC standards and engineering guidance documents to ensure they are

consistent with the security architecture, the rapidly changing technology, and the evolving threat. Focus on the development of security procedures associated with next generation network security suites and tools to facilitate rapid transition of these components and tools to the Fleet.

(U) ($1,500) Continue to design, develop, and prototype coalition interoperability and multi-level security solutions. Base the solutions on available multilevel security technologies as well as emerging architectural methods of providing interoperability across different security levels. Continue to examine multi-level aware applications and technologies including databases, web browsers, routers/switches, etc.

(U) ($1,000) Continue vulnerability/threat assessments and development and systems integration of network countermeasures tools (NVACM) efforts.

3. (U) FY 2002 PLAN:

(U) ($600) Secure Telecommunication – Internet Protocol (IP) Gateway/Inter-Working Function (IWF). Finalize development efforts for the production release of a secure voice IWF capability between Telecommunication and IP systems. Conduct demonstrations of the Secure Telecommunication – IP Gateway IWF capabilities over operational commercial and Navy communication systems for test and evaluation purposes. Support production readiness evaluation and environmental testing for new ship construction delivery. Finalize open system design requirements for the initial production specification release of Secure Voice 21 (SV-21) architecture.

(U) ($1,000) Tactical Secure Voice Internet Protocol Server IWF. Release Request for Proposal (RFP) for an Engineering Development Model (EDM) to support design and integration of tactical shipboard secure voice systems into the Secure Voice 21 (SV-21) architecture. Conduct laboratory demonstrations of secure voice interoperation between tactical crypto equipment and Voice over IP (VoIP) conversion capability. Evaluate VoIP technologies within fleet battle experiments over Non-classified IP Routed Network (NIPRNET) and Secret IP Routed Network (SIPRNET) to determine mission critical throughput reliability and impacts on tactical enclave network configurations.

(U) ($640) Secure Voice over Wireless Technologies. From next generation secure voice studies conducted in FY 01, demonstrate and evaluate VoIP using the IEEE 802.11 standard for Wireless Ethernet Protocol (WEP). Conduct operational

assessments on the applicability of digital cellular and hand-held satellite secure voice products within the Navy strategic and tactical communication environments.

(U) ($615) Advanced Secure Voice System Development. Continue the design, development and assessment of security solutions/capabilities for SV-21 architecture applicable to strategic and tactical communication integration. Conduct research on developing secure voice technologies and techniques for secure voice over government and commercial communications backbones, specifically addressing Asynchronous Transfer Mode (ATM) technology and voice over data network applications.

(U) ($300) Voice Processing and Biometric Access Consortia. Conduct exploratory research on digital voice processors and voice/speaker recognition technologies. Continue laboratory research on digital voice processing techniques to evaluate voice command and control communication suitability in tactical Navy operational environments. Develop and assess digital voice-processing techniques for low data rate, multi-rate, and variable rate voice processing algorithms. Support development of government and industry standards for digital voice processing technologies (e.g., Mixed Excitation Linear Prediction (MELP), in conjunction with joint cryptographic developments.

(U) ($2,000) Continue development of a digital modular cryptographic design solution based on multi-channel, programmable technology. Enter certification and accreditation (C&A) cycle with the National Security Agency (NSA) for first item Multipurpose Cryptographic Unit (MCU) that will replace aging cryptographic equipment where the USN is either the sole or lead user. Expand algorithm capability to Joint common legacy systems. Fully define the first 4 interface specifications, and prepare specification and request-for-proposal (RFP) for release. Support the Communications Security (COMSEC) equipment certification process, including the conduct of analyses required and the development of associated documentation. A new effort will be analysis and documentation required for software algorithm certification. These efforts will be fully coordinated with the National Security Agency.

(U) ($1,615) Continue developing and testing distributed IA solutions for Navy information systems. This includes the examination and selection of next generation IA components required by the architectures that may include firewalls, intrusion detection systems (including host-based systems), virtual private networking systems, public key based secure e-mail and web systems, operating systems and others as well as high assurance components for connection of Top Secret and sensitive compartmented information (SCI) systems to lower level systems. Examine, evaluate, and demonstrate next

generation network security appliances, specifically focusing on increasing performance rates to Optical Carrier Rate 12 (OC-12 = 622.08 Million Bits per Second (Mbps)) and greater. Continue to support the design of situational awareness and visualization capabilities to support active computer network defense and the development of a sensor grid, with underlying data mining and correlation tools. Develop capability to remotely manage and securely control the configurations of network security components to implement changes in real time or near real time. Continue to prototype components at selected operational sites.

(U) ($1,200) Work toward the Defense Advanced Research Projects Agency (DARPA) sponsored Common Intrusion Detection framework (CIDF) object model. Conduct experiment and prepare protection profile for Fleet Enclave boundary with intrusion detection system (IDS) driven auto-responding security policy. Continue integration of USN deployed afloat and ashore network security systems into the Joint (Commander-in-Chief Space Command (CINCSPACE), Joint Task Force – Computer Network Defense (JTF-CND)) IA common operating picture (IA-COP). Demonstrate the ability to share common IA enclave protection profiles definitions in response to Information Operations Condition (INFOCONs). Expand activities of the Fleet Information Warfare Center (FIWC) IDS correlation process, Navy Component Task Force – Computer Network Defense, and the unification of the USN enterprise network operational status with the currently separate IA alarm status. Continue to explore IDS alternatives to existing USN deployed pattern-recognition-based intrusion detection systems. Continuing tasks include: (1) expanding IDS requirements, to address detection of both network misuse and intrusion, (2) market survey of emerging agent and other sensor based IDS products, focusing on CIDS Framework standards, (3) defining architectures that optimize IDS monitoring while minimizing sensor count, (4) mobile subscriber, forward deployed and shipboard IDS techniques and products, (5) native Asynchronous Transfer Mode (ATM), Signaling System Seven (SS7), sensors and alarm definitions, (6) workstation (personal) IDS techniques and products, and (7) build upon IDS capabilities included in existing commercial-off-the-shelf operating systems. Working closely with the National Security Agency (NSA) and the Naval Information Warefare Activity (NIWA), develop electronic infrastructure defense rules of engagement (ROE) that maximize the probability of protection mission success. Tasks include: (1) defining potential rules of engagement for automatic response to attack, (2) modeling and war gaming of auto-defend and manual-defend scenarios, (3) optimal selection of methods, (4) Command, Control, Computers, Communications, and Intelligence (C4I) support plan, (5) battle damage assessment plan, and (6) assessment modeling of impact to overall USN enterprise. Response capabilities include localized automatic and manual defensive and authorized active engagement. Includes the ability to quantitatively describe attack recovery (fratricide and hostile).

(U) ($130) Use current Navy INFOSEC/IA problems (to include network security, multi-level security (MLS), public key infrastructure (PKI), tokens, biometrics, intrusion detection and reaction) as the basis for case studies, laboratory work and student thesis research efforts. Based on continuing research, act as a focal point within DoN for advanced education in INFOSEC/IA by creating new and innovative course materials addressing foundational issues in IA, INFOSEC and Computer Security (COMPUSEC). This effort should reflect the cumulative, and most recent, developments from IA theory and practice.

(U) ($1,178) Continue to design, develop, and prototype coalition interoperability and multi-level security solutions. Base the solutions on available multilevel security technologies as well as emerging architectural methods of providing interoperability across different security levels. Continue to examine multi-level aware applications and technologies including databases, web browsers, routers/switches, etc.

(U) ($1,800) Continue the evolutionary development of security architectures for IA that include virtually all Navy distributed information system development programs. Ensure the architectures evolve to provide proper protection as technology, DOD missions, and the threat all evolve. Provide inputs to the major Navy and joint initiatives that are defining and building distributed systems including shipboard networks (IT-21), Navy Marine Corps Intranet (NMCI), the Joint Technical Architecture (JTA), Global Command and Control System – Maritime (GCCS-M), Global Command and Control System (GCCS), Defense Messaging System (DMS), Automated Digital Network System (ADNS), Base Level Infrastructure Improvement (BLII), and others. Include both defensive protections as well as intrusion monitoring in the architecture. Continue IA engineering, product selection assistance, and certification and accreditation support to Navy information system developments such as shipboard networks IT-21, NMCI), JTA, GCCS-M, GCCS, DMS, ADNS, BLII new ship construction (e.g. (NSSN, LPD-17, SCN-21…), Maritime Cryptologic System for the 21st Century (MCS-21), and others. Ensure IA integration as early in the development process as possible. Focus on integration of the proper functions to ensure adherence to the common security architectures. Ensure that the security and performance of the tactical systems, including those operating at Top Secret and at sensitive compartmented information (SCI) are consistent with Navy and DOD requirements.

(U) ($1,000) Prepare and test lab model of a common criteria transition program that moves existing USN IA products and architectures to the newly required Common Criteria certified products and architectures, as published in March 2000

by the National Security Telecommunications and Information Systems Security Committee (NSTISSC), publication National Policy Governing the Acquisition of IA and IA-Enabled Information Technology Products" (NSTISSP No. 11).

(U) ($500) Continue vulnerability/threat assessments and development and systems integration of network countermeasures tools (NVACM) efforts.

(U) ($600) Begin a consolidated computing base and data store vulnerabilities program. Focus this year activities to secure delivery of tactical/command mobile code. Include the common DoD used forms of computer operating systems and mobile code. Tasks include (1) expansion of techniques to other operating systems, including public and private operating systems, (2) trusted code delivery, (3) enclave mobile code repository, (4) database entry assurance, and (5) other emerging uses and users. Build configuration guidance for server-to-server trust relationships.

(U) ($450) Conduct unclassified wireless local area network (LAN) products program testing and prepare protection profile for shipboard, office, and limited field use. Tasks include: (1) vulnerability testing of several common products (such as specifically within USN architectures), (2) security issues related to distributed antenna distribution within command centers and large offices, (3) configuration guidance for general use of the Wired Equivalent Privacy (WEP) protocol, and (4) complete a protection profile for "Wireless Network devices (access points and clients) used on Unclassified Networks."

(U) ($460) Continue developing and updating IA standards and engineering guidance to ensure they are consistent with the security architecture, the rapidly changing technology, and the evolving threat. Emphasis is on the paralleling of USN IA guidance to match the overall DoD Information Assurance Technical Framework (IATF). This includes rapid guidance publication in response to Fleet-demanded new technologies, usually several years prior to release of a CC protection profile. Work closely with Naval Postgraduate School to define a working set of IA metrics applicable to the USN enterprise. Goal is to work toward a Quality of IA value that is quantitative in nature, measurable, and optimizable. Tasks include: (1) defining current IA state vectors, (2) defining cost values, (3) defining reliability values, (4) defining availability values, (5) defining the Quality of IA value as stochastic model, and enterprise implementation modeling and measurements.

EXHIBIT R-2, FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N
PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT TITLE: ISSP

(U) ($500) Prepare protection profile for current Fleet enclave and shipboard security architectures for IA that include virtually all Navy distributed information system development programs. Continue refining an overall USN-wide enclave boundary policy - expanding upon OPNAV N64 USN firewall policy into a comprehensive mobile subscriber enclave IA plan. Ensure the architectures evolve to provide proper protection as technology, DOD missions, and the threat all evolve. Provide inputs to the major Navy and joint initiatives that are defining and building distributed systems including shipboard networks (IT-21), the Navy Marine Corps Intranet (NMCI), the Joint Technical Architecture, Maritime Cryptologic Architecture, and large development programs including Global Command and Control System – Maritime (GCCS-M), Global Command and Control System (GCCS), Defense Messaging System (DMS), Automated Digital Network System (ADNS), Base Level Infrastructure Improvement (BLII)and others. Specific tasks include: (1) technical requirements development, (2) architecture and campaign plan preparation, (3) policy framework documentation, (4) application to surface, subsurface, air, and first-ashore forces maintaining connectivity to shipboard and ashore networks, and (5) coordination with Fleet components.

(U) ($1,318) Conduct a detect-respond experiment as part of a Fleet Battle Experiment in support of the Joint Task Force – Computer Network Defense (JTF-CND) and the Navy Component Task Force – Computer Network defense (NCTF-CND). Working closely with the National Security Agency and the Naval Information Warfare Activity, field a test model of the electronic infrastructure that implement defense rules of engagement (ROE) that maximize the probability of protection mission success. Tasks include: (1) defining potential rules of engagement for automatic response to attack, (2) modeling and war gaming of auto-defend and manual-defend scenarios, (3) optimal selection of methods, (4) Command, Control, Computers, Communications, and Intelligence (C4I) support plan, (5) battle damage assessment plan, and (6) assessment modeling of impact to overall USN enterprise. Response capabilities include localized automatic and manual defensive and authorized active engagement. Includes the ability to quantitatively describe attack recovery (fratricide and hostile).

(U) ($400) Update the methods and tools for the afloat certification and accreditation (C&A) red-team. Revise experimental model, and understand network performance impacts. Formalizes the experimental model based upon OPNAV red-team goals. Establishes firm statistical model for team data gathering. Tasks include: (1) experimental model, including statistical estimation moment minimum values, (2) defining statistical methods, including random selection regime, (3) population definition, (4) data collection method and common worksheet, and (5) statistical analysis framework.

(U) ($2,000) Complete the development of Electronic Key Management System (EKMS) Phase IV for Tier 1, Tier 2, Tier 3 and ensure compatibility with Tier 0. Continue to research and investigate new key management technologies. Demonstrate web-based technology and exchange capabilities. Demonstrate integration of certificate management and key management directory structures and workstation functions. Demonstrate prototype of the Navy Single Point Command, Control, and Keying ($NSPC^2K$) design and solution for Navy platforms. Continue to support development of the DTD 2000, and continue to provide key management support for embedded cryptographic technology and cryptographic replacement efforts. Conduct laboratory assessments of the latest NSA and commercial-off-the-shelf key management technology and products. Provide system security, certification, and accreditation (C&A) engineering and testing for key management components and systems.

(U) ($786) Conduct analysis for Data Transfer Device (KOV-21), Single Point Keying, Netted Re-keying and Modular KOK-22 development. Conduct Security Testing, engineering and integration analysis for EKMS.

(U) ($1,000) Continue the design, development, evaluation and application of class 4 and 5 public key and certificate management infrastructure technologies and systems to support DoD and DON initiatives, including integration with IT-21 and other new ship initiatives. Continue to work closely with the commercial developers and vendors, infuse technology and requirements into the commercial products, and support efforts to PKI-enable specific applications. Continue to evaluate, assess, integrate and demonstrate related technologies including smart card security tokens and virtual private networks (VPNs).

(U) ($250) Begin key management architecture for forward-deployed tactical and shipboard “lights-out” or minimal crew communications centers. This includes architectures for platforms such as DD-21 and VA-Class submarines. The architectures and interfaces of systems such as Electronic Key Management System (EKMS), public key management (PKI), and certificate management infrastructure (CMI) must be analyzed to determine how isolated automated systems can be used to handle electronic keying, authentication, and code confirmation tasks.

(U) ($300) Prepare protection profile and specifications for gateway to Secure Terminal Equipment (STE) /Secure Telephone Unit Third Generation (STU-III) Public Switched Telephone Network (PSTN) and Integrated

Services Digital Network (ISDN) gateway keying system requirements. Establish architecture for user keying and access.

(U) ($300) Prepare protection profile and define key management architecture for secure wireless Ethernet local area network (LAN).

B. (U) CHANGE SUMMARY EXPLANATION:

(U) Funding:
(U) FY 2000: -$312K SBIR reduction; -$514K WINSAT; -$1,050K MUOS; -$100K NSS; -$448K ASN/RDA reduction; -$230K Miscellaneous Navy Adjustments; -$5K Federal Technology Transfer (FTT); -$90K Section 8055 Congressional Proportionate Rescission.

(U) FY 2001: +$8,600K Congressional Plus-Up for PKI (Public Key Infrastructure); +$2,000K Congressional Plus-Up for NIASM (Naval Intelligent Agent Secure Module); -$225K Section 8086 .7% Pro-Rata Reduction; -$70K Government-Wide Rescission: PL106-554, Section 14

(U) FY 2002: N/A

(U) Schedule: Navy's 1st Qtr IOC/GAT schedule was impacted due to the establishment of a master integrated EKMS schedule coordinated among NSA and Service representatives which synchronizes the individual EKMS efforts managed by the Navy and NSA. This master integrated schedule was briefed and approved by the Military Communications Electronics Board (MCEB) in October 1999 and again in June 2000. This replan adopted a system-oriented development approach and established a Final Operational Capability (FOC) date of August 2002. A medium degree of risk was associated with this date.

(U) Technical: N/A

EXHIBIT R-2, FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N
PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT TITLE: ISSP

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

	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE
COMPLETE PROGRAM:			
(U) OPN 3415 Information Systems Security Program (ISSP)	61,573	58,026	78,170
(U) O&MN 4A6M	11,874	27,419	18,304

(U) RELATED RDT&E:
(U) PE 0303140G (Cryptographic Equipments)

D. ACQUISITION STRATEGY

	FY 1999	FY 2000	FY 2001	FY 2002	To Complete
EKMS					
Program Milestones				1Q-Tier 1 IOC 4Q-Tier 1 FOC	
Engineering Milestones	1Q-Build Rev 3				
T&E Milestones	3Q-Tier 1 Test			1Q-Tier 1 Government Acceptance Test (GAT)	
Contract Milestones					

EXHIBIT R-3, FY 2002 RDT&E,N PROJECT COST ANALYSIS

DATE: JUNE 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N PROJECT NUMBER: X0734

PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT TITLE: ISSP

Exhibit R-3 Cost Analysis (page 1)											Date: MAY 2001	
APPROPRIATION/BUDGET ACTIVITY: 7		PROGRAM ELEMENT: 0303140N									PROJECT NAME AND NUMBER: ISSP (X0734)	
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	Cost	Award Date	Cost To Complete	Total Cost	Target Value of Contract
HARDWARE DEVELOPMENT	CPFF/	VIASAT	7,282	0		0				0	7,282	7,282
SOFTWARE DEVELOPMENT	CPAF	SAIC	29,597	233	03/01	0				0	29,830	42,590
HARDWARE DEVELOPMENT	VAR	MITRE	1,911	800	12/00	935	12/01			Cont.	Cont.	Cont.
HARDWARE DEVELOPMENT	VAR	VARIOUS	54,980	16,488	VAR	10,990	VAR			Cont.	Cont.	Cont.
Subtotal Product Development			93,770	17,521		11,925				Cont.	Cont.	Cont.
Remarks: SAIC target value of contract includes other services' funding (ARMY RDT&E).												
SYSTEMS ENGINEERING	VAR	VAR	2,976	11,446	VAR	6,148	VAR			CONT.	CONT.	CONT.

EXHIBIT R-3, FY 2002 RDT&E,N PROJECT COST ANALYSIS

DATE: JUNE 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N PROJECT NUMBER: X0734

PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT TITLE: ISSP

Subtotal Support			2,976	11,446		6,148				CONT.	CONT.	CONT.
Remarks												

EXHIBIT R-3, FY 2002 RDT&E,N PROJECT COST ANALYSIS

DATE: JUNE 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N PROJECT NUMBER: X0734

PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT TITLE: ISSP

Exhibit R-3 Cost Analysis (page 2)											Date: MAY 2001	
APPROPRIATION/BUDGET ACTIVITY: 7		PROGRAM ELEMENT: 0303140N									PROJECT NAME AND NUMBER: X0734	
Cost Categories	Contract Method & Type	Performing Activity & Location	Total Pys Cost	FY01Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	Cost	Award Date	Cost To Complete	Total Cost	Target Value of Contract
TEST AND EVALUATION	VAR	VAR		2,868	VAR	2,869	VAR			CONT.	CONT	CONT.
Subtotal T&E				2,868		2,869				CONT.	CONT.	CONT.
Remarks												
PROGRAM MGMT SUPPORT	VAR	VARIOUS	3,936	0		0						
Subtotal Management			3,936	0		0				Cont.	Cont.	Cont.
Remarks												

EXHIBIT R-3, FY 2002 RDT&E,N PROJECT COST ANALYSIS

DATE: JUNE 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N PROJECT NUMBER: X0734

PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT TITLE: ISSP

Total Cost			100,682	31,835		20,942				Cont.	Cont.	Cont.

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC)

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R0524 Navy METOC Support (Space)	16,644	17,732	21,627						CONT.	CONT.
X1452 GEOSAT	1,558	1,817	1,865						CONT.	CONT.
TOTAL	18,202	19,549	23,492						CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element supports Navy interests in meteorological and oceanographic (METOC) remote sensors. These interests include commitments to satellite, sensor, and operational demonstration/development activities associated with three satellite programs: 1) the Joint Service Defense Meteorological Satellite Program (DMSP), 2) The National Polar-orbiting Operational Environmental Satellite System (NPOESS) and 3) the Navy Geodetic/geophysical Satellite (GEOSAT) program, funded entirely by Navy. The passive microwave instruments carried on DMSP and future NPOESS provide global oceanic and atmospheric data of direct operational relevance, including sea surface wind, sea ice, and precipitation; GEOSAT altimeter data are used to observe significant wave height, ocean fronts and eddies, and internal acoustic structure. The Navy (METOC) Support (Space) project provides for Navy participation in Navy/Air Force cooperative efforts leading to DMSP sensor development, including calibration and validation of instruments and delivery of satellite products to the Fleet. WindSat, an initiative begun in 1997, is a partnered program that meets multiple Naval remote sensing requirements and provides a significant risk reduction for NPOESS, the converged Department of Commerce/National Oceanic and Atmospheric Administration/Department of Defense environmental satellite program. The Navy METOC Support (Space) project supports the Navy contribution to WindSat, which is fully funded via a formalized inter-agency agreement. The NPOESS Integrated

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC)

Program Office is providing a portion of the funds for the WindSat sensor and the DOD Space Test Program (STP) is funding the satellite bus and providing the launch vehicle. The GEOSAT provided ocean topography information from 1985-1990. In 1991, the Navy began the development of a follow-on capability to continue providing this required ocean topography information via the GEOSAT Follow-On satellite, launched on 10 February 1998. Both the GEOSAT and Navy METOC (Space) projects fulfill Navy's obligation to develop Navy-unique, mission critical Space-based METOC technology.

(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.

B. (U) PROGRAM CHANGE SUMMARY FOR TOTAL PE:

	FY 2000	FY 2001	FY 2002
(U) FY 2001 President's Budget:	14,497	19,730	21,618
(U) Adjustment from FY 2001 PRESBUDG:			
(U) Congressional Recissions	-57	-18	
(U) Execution Adjustment	+3,807		
(U) NWCF Rate Adjustment			+353
(U) NMCI Adjustment			+7
(U) Non Pay Inflation Adj			+13
(U) Program Adjustment			+1,501
(U) SBIR/STTR:	-45	-	-
(U) FY 2002 PRESIDENT'S Submission	18,202	19,549	23,492

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC)

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R0524 Navy (METOC) Support (Space)	16,644	17,732	21,627						CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Navy Meteorological and Oceanographic Sensor-Space (METOC)-Navy (METOC) Support (Space) project provides for Navy participation in Defense Meteorological Satellite (DMSP) Special Sensor Microwave/Imager (SSM/I) and Special Sensor Microwave Imager/Sounder (SSM/IS) calibration efforts, and future Navy-unique sensor development efforts (WindSat) in support of the Fleet operational requirements. The project ensures Navy operational requirements are satisfied primarily through demonstration of technologies for inclusion on operational constellations such as Defense Meterological Satellite Program (DMSP) and the National Polar-orbiting Operational Environmental Satellite System (NPOESS). These efforts fulfill Navy unique requirements that are not funded within the DMSP and NPOESS programs, and are in accordance with current inter-agency agreements. The project acquires information necessary to keep Navy ground receiving equipment compatible with future satellite data formats and data transfer rates. The project also provides for studies leading to operational improvements of satellite derived products and Navy participation as a voting member of the DMSP Configuration Control Board (CCB). Future funding plans respond to emerging Chief of Naval Operations requirements for Navy METOC data. Plans for FY 2000 and beyond address the requirement for high-resolution METOC imagery to ships, in particular the Indian Ocean and Arabian Gulf region. The Indian Ocean METOC Imager (IOMI) mission will be executed cooperatively with the development of the NASA EO-3 New Millenium Program Geostationary Imaging Fourier Transform Spectrometer (GIFTS). The NASA GIFTS instrument enhanced for extended operational utility will meet Navy imaging requirements while satisfying NASA's technology demonstration objectives. This enhanced operational utility will promote a rapid technology infusion into next generation NOAA Geo-stationary Operational Environmental

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC)

Satellites (GOES). An inter-agency partnership will be formed with NASA for the development of GIFTS and with NASA and NOAA for data calibration and validation.

FY 2002 RDT&E,N PE/PROJECT COST BREAKDOWN DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N PROJECT NUMBER: R0524
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC) PROJECT TITLE: Navy METOC Support (Space)

. (U) PROGRAM ACCOMPLISMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS:
   - (U) (1,190k) Continued participation in DMSP Special Sensor Microwave/Imager (SSM/I) calibration and validation. Continued data quality assurance activities in support of operational products. Continued fabrication and began integration of the Airborne Polarimetric Microwave Imaging Radiometer (APMIR) to use for calibration/validation of DMSP SSM/I, and SSM/IS, and WindSat development, calibration, and validation.
   - (U) (15,354k) Completed final design for WindSat and prototype component testing. Completed manufacturing readiness review and began flight hardware procurement. Continued development of algorithms and ground software for the delivery of environmental data records for use with WindSat data.
   - (U) (100k) Began support of IOMI sensor development and spacecraft development trade studies.

2. (U) FY 2001 PLAN:
   - (U) (1,128k) Conduct SSM/I calibration and validation and begin the calibration and validation effort associated with the new expected launch of the first DMSP SSM/IS. Complete the integration, and flight testing of Airborne Polarimetric Microwave Imaging Radiometer (APMIR) to use for calibration/validation of DMSP SSM/I and SSM/IS sensors, and WindSat development. Prepare for WindSat calibration and validation.
   - (U) (16,287k) Complete WindSat sensor development and deliver to spacecraft vendor. Integrate the sensor with the Coriolis spacecraft, begin system tests and prepare for launch operations. Continue development of algorithms and ground software for WindSat environmental data records.
   - (U) (190k) Continue support of IOMI sensor development. Continue spacecraft development efforts.
   - (U) (127k) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

3. (U) FY 2002 PLAN:

- (U) (1,400k) Continue to monitor SSM/I performance and continue validation effort associated with the DMSP SSM/IS. Conduct field experiments with APMIR to use for calibration/validation of DMSP SSM/I, SSM/IS sensors, and the WindSat sensor.

- (U) (9,751k) Complete flight payload and spacecraft testing and conduct full space vehicle system testing including environmental testing. Complete development and testing of algorithms and ground software for WindSat environmental data records. Complete WindSat launch processing, launch operations, early orbit checkout and on-orbit calibration and validation.
- (U) (10,476k) Begin spacecraft development in support of IOMI. Continue support of sensor development.

B. (U) PROGRAM CHANGE SUMMARY: See total program change summary for P. E.

C. (U) OTHER PROGRAM FUNDING SUMMARY: DOC/NOAA Appropriation Procurement, Acquisition, and Construction, Polar Convergence.

(U)RELATED RDT&E:
(U) PE 0603434F Air Force, NPOESS
(U) PE 0605864F, Air Force, DOD STP
(U) PE 0305160F, Air Force DMSP
(U) PE 0604218N, Air/Ocean Equipment Engineering
(U) SAT 809/00110 NASA 258-30, Science, Aeronautics, & Technology; Office of Earth Science Research and Technology

FY 2002 RDT&E,N PE/PROJECT COST BREAKDOWN DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N PROJECT NUMBER: R0524
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC) PROJECT TITLE: Navy METOC Support (Space)

D. (U) SCHEDULE PROFILE: Not applicable.

FY 2002 RDT&E,N PE/PROJECT COST BREAKDOWN DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N PROJECT NUMBER: R0524
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC) PROJECT TITLE: Navy METOC Support (Space)

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

Project Cost Categories	FY 2000	FY 2001	FY 2002
a. Satellite Development	2,300	7,370	12,028
b. Payload Development	13,154	9,234	8,199
c. Science and Calibration/Validation	765	854	1,000
d. Airborne Testbed	425	274	400
e. Support GFO	0	0	0
Total	16,644	17,732	21,627

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

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method Fund Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 2000 Budget	FY 2001 Budget	FY 2002 Budget	To Complete	Total Program
Product Development									
Misc.	Misc.	N/A	CONT.	CONT.	15,006	16,604	20,227	CONT.	CONT.
Support and Management:									

FY 2002 RDT&E,N PE/PROJECT COST BREAKDOWN DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N PROJECT NUMBER: R0524
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC) PROJECT TITLE: Navy METOC Support (Space)

Misc.	Misc.	N/A	CONT.	CONT.	0	0	0	CONT.	CONT.
Test and Evaluation:									
Misc.	Misc.	N/A	CONT.	CONT.	1,638	1,128	1,400	CONT.	CONT.
TOTAL:					16,644	17,732	21,627	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY: Not Applicable

	FY 2000 Budget	FY 2001 Budget	FY 2002 Budget	To Complete	Total Program
Subtotal Product Development	15,006	16,604	20,227	CONT.	CONT.
Subtotal Support and Management:	0	0	0	0	0
Subtotal Test and Evaluation:	1,638	1,128	1,400	0	0
Total Project	16,644	17,732	21,627	CONT.	CONT.

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC)

(U) COST (Dollars in thousands)

PROJECT NUMBER & Title	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	To Complete	Total Program
X1452 GEOSAT	1,558	1,817	1,865						CONT.	CONT.

(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, and eddies, wave heights, internal acoustic structure, 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. It also provides other agencies, such as National Oceanic and Atmospheric Administration and National Aeronautics and Space Administration with valuable inputs to studies involving Pacific Ocean temperature oscillations, global warming and climate change. Ocean topography data was previously provided by GEOSAT from 1985 until the satellite failed in January 1990. The GEOSAT Follow-On (GFO) satellite provides altimetry data until altimetry data becomes available from a future national environmental satellite system.

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC) PROJECT NUMBER: X1452
PROJECT TITLE: GEOSAT

- (U) PROGRAM ACCOMPLISMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS:

- (U) (135k) Funded on-orbit performance incentive.
- (U) (343k) Developed improved ground station satellite data processing techniques.
- (U) (1080k) Assessed on-orbit system performance, conducted payload calibration/validation and resolved performance anomalies.

2. (U) FY 2001 PLAN:

- (U) (753k) Fund on-orbit performance incentive.
- (U) (352k) Develop improved ground station satellite data processing techniques.
- (U) (665k) Continue to assess on-orbit system performance, conduct payload calibration/validation and resolve performance anomalies.
- (47K)Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

3. (U) FY 2002 Plan:

- (U) (800k) Fund on-orbit performance incentive.
- (U) (373k) Develop improved ground station satellite data processing techniques.
- (U) (692k) Continue to assess on-orbit system performance, conduct payload calibration/validation and resolve performance anomalies.

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC)
PROJECT NUMBER: X1452
PROJECT TITLE: GEOSAT

B (U) PROGRAM CHANGE SUMMARY: See Program change summary for total P.E.

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

(U) RELATED RDT&E:
(U) PE 0604218N (Air/Ocean Equipment Engineering)

D. (U) SCHEDULE PROFILE:

	FY 2000	FY 2001	FY 2002
Program Milestones			
Engineering Milestones			
T&E Milestones	On orbit tests	Oper Supt	Oper Supt
Contract Milestones	Not Applicable		

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC) PROJECT NUMBER: X1452
PROJECT TITLE: GEOSAT

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

Project Cost Categories	FY 2000	FY 2001	FY 2002
a. Satellite Development	1,558	1,817	1,865
b. Sensor Development	0	0	0
c. Contractor Engineering Support	0	0	0
Total	1,558	1,817	1,865

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

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method Fund Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 2000 Actual	FY 2001 Budget	FY 2002 Budget	To Complete	Total Program
Product Development									
Ball Aerospace w/Options	CPIF	8/92	85,213	85,213	788	965	1,119	CONT.	CONT.
Various	Various	N/A	CONT.	CONT.	770	852	746	CONT.	CONT.

Support and Management: Not Applicable

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC)
PROJECT NUMBER: X1452
PROJECT TITLE: GEOSAT

Contractor/ Government Performing Activity	Contract Method Fund Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 2000 Actual	FY 2001 Budget	FY 2002 Budget	To Complete	Total Program
Various					0	0	0	CONT.	CONT.
Test and Evaluation: Not Applicable									
TOTAL:					1,558	1,817	1,865	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY Not Applicable

	FY 2000 Actual	FY 2001 Budget	FY 2002 Budget	To Complete	Total Program
Subtotal Product Development	1,558	1,817	1,865	CONT.	CONT.
Subtotal Support and Management		0	0	CONT.	CONT.
Subtotal Test and Evaluation Not Applicable					
Total Project	1,558	1,817	1,865	CONT.	CONT.

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC)
PROJECT NUMBER: X1452
PROJECT TITLE: GEOSAT

EXHIBIT R-2, FY2002 RDT&E,N Budget Item Justification DATE: JUNE 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305188N PROJECT NUMBER: X2456
PROGRAM ELEMENT TITLE: Joint (C4ISR) Battle Center

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X2456 Joint (C4ISR) Battle Center	8,045	9,705	13,618							
TOTAL	8,045	9,705	13,618							

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Joint Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Battle Center (JBC) is the U.S. Joint Forces Command (JFCOM) and Chairman, Joint Chiefs of Staff (CJCS) facility for warfighter exploration and assessment of C4ISR capabilities. The Center provides the combatant commands, at the Joint Task Force (JTF) level, with a near term joint assessment and experimental environment for the warfighter and technologist in support of Joint Vision 2020 (JV2020). It serves as the technical analysis and assessment agency for the Joint Requirement Operating Council (JROC) in determining C4ISR system “value-added” PRIOR to introduction to the CINCs and in advance of system fielding in operational environments. The intent is for the JBC to be a forcing function for joint synchronization and a means to foster rapid, near-term insertion of C4ISR technology. The mission of the JBC is to provide rapid assessment of required C4ISR interoperability and warfighter utility, join emerging C4ISR technology with new operational doctrine, and result in fielding C4ISR capabilities that meet the joint warfighter’s needs. The Unified Command Plan 99 (UCP 99) assigned USJFCOM with the mission of joint integration. To execute this mission and to implement the Major Focus Area for interoperability, USJFCOM is standing up a Joint Interoperability and Integration (JI&I). JI&I will provide an on-ramp to the JROC for CINC interoperability shortfalls issues. It will also develop synchronization plans to provide the warfighter with interoperable capabilities across the DOTMLP spectrum for new and legacy systems.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it provides rapid assessment of required C4ISR interoperability, as well as rapid insertion of

emerging technology, with new operational doctrine that will result in fielding C4ISR capabilities that meet the joint warfighter's need.

B. (U) PROGRAM CHANGE SUMMARY:

FY 2000: FY00 SBIR Load Jun-00 (-$105K)
Miscellaneous Navy adjustments (+$101K)
Section 8055 Proportionate Rescission (-$32K)

FY 2001: Section 8086 .7% Pro-Rata Reduction (-$69K)
Interoperability Process Software Tools (+$2,000K)
Government-Wide Rescission: PL 106-554, Sec 1 (-$21K)

C. (U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS:

- (U) ($1,505K) Follow-on Joint Warrior Interoperability Demonstration (JWID). Upon completion and evaluation of each theme year JWID the CINC's and CJTF's involved identify systems which demonstrated warfighting utility but which require further refinement and follow-on assessment. These technologies are forwarded to the JBC for inclusion in the exploitation fiscal year plan. Enhancements and follow-on assessments are conducted by JBC and programmatic recommendations are prepared. FY 00 Accomplishments: CFBL, GCCS Enhancements, Geospatial Information Systems.

- (U) ($1,992K) Federated Battle Lab (FBL). The FBL is a consortium of Joint and Service battle centers/laboratories formed to promote solutions to operational problems in CJTF environments. The JBC is recognized as the joint FBL hub by CINC's, services, agencies and CJTF's. The JBC, as chairman of the consortium, will coordinate efforts to capitalize on lessons learned in order to continue these effective and successful collaborative experiments in future years. FY

00 Accomplishments: Wireless Asynchronous Transmission Mode (ATM)(Army-Ft. Gordon Lead); Global Positioning Satellite (GPS) Interference (Navy – SPAWAR Lead); Speech Recognition (USAF-CUBE Lead); Tactical Integrated Geographic Environment (TIGRE)(Army-SMDBL Lead); Fleet Battle Experiment I.

- (U) ($1,390K) Intelligence, Surveillance and Reconnaissance (ISR). The JBC, as written into the Joint Intelligence Interoperability Board (JIIB), will perform system integration and functional assessments of the identified intelligence systems, including shared segments, as appropriate. JBC will establish and maintain a JTF Integration Facility (JTFIF) to include current and BETA baselines of all the major Service ISR systems to support on-going maturity, operational utility, and jointness assessments of ISR systems. FY 00 Accomplishments: Data Warehousing and Data Mining, Joint Targeting Toolbox/Joint Continuous Strike Environment (JCSE), Information Dissemination Management (IDM), Joint Battle Management Integration (JBMI).

- ($1,251K) Information Assurance (IA). JBC will continue to be a key player in IA Tools integration with network management and for emerging network IA technologies. JBC will incorporate red-teaming into Joint exercises and FBL efforts in order to facilitate JBC assessments of new C4ISR IA technologies. JBC will also be looking at Information Operations Planning Tools that provide analysis, correlation, and fusion capabilities as well as greater visualization, rehearsal, and wargaming/situational analysis capabilities. FY 00 Accomplishments: Knowledge-centric Command and Control (K-C C&C), Virtual Information Center (VIC), Coalition Multi Level Security Hexagon Prototype (CMHP), JTF Network Security Management.

- (U) ($637K) MILSATCOM. JBC will be a host site for the Global Broadcast System (GBS) Test Bed/GBS Receive Suite. Included in this effort will be the installation of a GBS receive suite at the JBC and the associated program plan to move the Phase I GBS Test Bed equipment to the JBC from the Pentagon. The JBC will be involved in joint evaluation of system applications for various MILSATCOM initiatives as they are developed, thereby assuring that they will be “born joint”. FY 00 Accomplishments: Global Broadcast System (GBS), Joint Communications Infrastructure Synchronization (JCIS) Bandwidth Enhancement.

- (U) ($1,270K) Joint C4ISR Operational Architectures. The focus of Joint Operational Architectures is on C4ISR support to the warfighter across the "Range of Military Operations." The objective is to describe the doctrinally based tasks and activities, operational elements, and the time phased information flows required to accomplish Joint military operations. The architectures will be used to assess and analyze doctrine, Tactics Technics & Procedures (TTPs), system and procedural interoperability, processes, and synchronization issues that impact Joint Forces. These Operational Architectures will provide the baseline to identify warfighter requirements, design and structure assessments, and generate functional metrics. They will be developed and documented in close coordination with OSD, Joint staff, CINCs, and Services. FY 00 Accomplishments: Army/Navy Theater and Air Missile Defense (TAMD), Interoperability, Joint Collaborative Tools, Data Collection Tools, Requirements Database, CINC Requirements Expansion.

2. (U) FY 2001 PLAN:

- (U) ($1,549K) Follow-on JWID. Upon completion and evaluation of each theme year for JWID, the CINC’s and CJTF’s involved identify systems which demonstrated warfighting utility but which require further refinement and follow-on assessment. These technologies are forwarded to the JBC for inclusion in the exploitation fiscal year plan. Enhancements and follow-on assessments are conducted by JBC and programmatic recommendations are prepared.

- (U) ($1,992K) Federated Battle Lab (FBL). The FBL is a consortium of Joint and Service battle centers/laboratories formed to promote solutions to operational problems in CJTF environments. The JBC is recognized as the joint FBL hub by CINC’s, services, agencies and CJTF’s. The JBC, as chairman of the consortium, will coordinate efforts to capitalize on lessons learned in order to continue these effective and successful collaborative experiments in future years.

- (U) ($1,407K) Intelligence, Surveillance and Reconnaissance (ISR). The JBC, as written into the Joint Intelligence Interoperability Board (JIIB), will perform system integration and functional assessments of the identified intelligence systems, including shared segments, as appropriate. JBC will establish and maintain a JTF Integration Facility (JTFIF) to include

current and BETA baselines of all the major Service ISR systems to support on-going maturity, operational utility, and jointness assessments of ISR systems.

- (U) ($1,348K) Information Assurance (IA). JBC will continue to be a key player in IA Tools integration with network management and for emerging network IA technologies. JBC will incorporate red-teaming into Joint exercises and FBL efforts in order to facilitate JBC assessments of new C4ISR IA technologies. JBC will also be looking at Information Operations Planning Tools that provide analysis, correlation, and fusion capabilities as well as greater visualization, rehearsal, and wargaming/situational analysis capabilities.

- (U) ($657K) MILSATCOM. JBC will be a host site for the Global Broadcast System (GBS) Test Bed/GBS Receive Suite. Included in this effort will be the installation of a GBS receive suite at the JBC and the associated program plan to move the Phase I GBS Test Bed equipment to the JBC from the Pentagon. The JBC will be involved in joint evaluation of system applications for various MILSATCOM initiatives as they are developed, thereby assuring that they will be “Born Joint”.

- (U) ($823K) Joint C4ISR Operational Architectures. The focus of Joint Operational Architectures is on C4ISR support to the warfighter across the "Range of Military Operations." The objective is to describe the doctrinally based tasks and activities, operational elements, and the time phased information flows required to accomplish Joint military operations. The architectures will be used to assess and analyze doctrine, TTPs, system and procedural interoperability, processes, and synchronization issues that impact Joint Forces. These Operational Architectures will provide the baseline to identify warfighter requirements, design and structure assessments, and generate functional metrics. They will be developed and documented in close coordination with OSD, Joint staff, CINCs, and Services.

- (U) ($1,929) Interoperability Process Software Tools. Develop, prototype, demonstrate, and package an end-to-end process and related tools for anticipating and correcting C4ISR interoperability problems as well as defining interoperability requirements for future systems.

This includes the building of a representative integrated architecture at the Joint Task Force (JTF) level to support C4ISR system interoperability evaluation.

3. (U) FY 2002 Plan:

- (U) ($1,689K) Follow-on JWID. Upon completion and evaluation of each theme year of JWID, the CINC's and CJTF's involved identify systems which demonstrated warfighting utility but which require further refinement and follow-on assessment. These technologies are forwarded to the JBC for inclusion in the exploitation fiscal year plan. Enhancements and follow-on assessments are conducted by JBC and programmatic recommendations are prepared.

- (U) ($2,068K) Federated Battle Lab (FBL). The FBL is a consortium of Joint and Service battle centers/laboratories formed to promote solutions to operational problems in CJTF environments. The JBC is recognized as the joint FBL hub by CINC's, services, agencies and CJTF's. The JBC, as chairman of the consortium, will coordinate efforts to capitalize on lessons learned in order to continue these effective and successful collaborative experiments in future years.

- (U) ($1,514K) Intelligence, Surveillance and Reconnaissance (ISR). The JBC, as written into the Joint Intelligence Interoperability Board (JIIB), will perform system integration and functional assessments of the identified intelligence systems, including shared segments, as appropriate. JBC will establish and maintain a JTF Integration Facility (JTFIF) to include current and BETA baselines of all the major Service ISR systems to support on-going maturity, operational utility, and jointness assessments of ISR systems.

- (U) ($1,450K) Information Assurance (IA). JBC will continue to be a key player in IA Tools integration with network management and for emerging network IA technologies. JBC will incorporate red-teaming into Joint exercises and FBL efforts in order to facilitate JBC assessments of new C4ISR IA technologies. JBC will also be looking at Information Operations Planning Tools that provide analysis, correlation, and fusion capabilities as well as greater visualization, rehearsal, and wargaming/situational analysis capabilities.

- (U) ($707K) MILSATCOM. JBC will be a host site for the Global Broadcast System (GBS) Test Bed/GBS Receive Suite. Included in this effort will be the installation of a GBS receive suite at the JBC and the associated program plan to move the Phase I GBS Test Bed equipment to the JBC from the Pentagon. The JBC will be involved in joint evaluation of system applications for various MILSATCOM initiatives as they are developed, thereby assuring that they will be "Born Joint".

- (U) ($1,190K) Joint C4ISR Operational Architectures. The focus of Joint Operational Architectures is on C4ISR support to the warfighter across the "Range of Military Operations." The objective is to describe the doctrinally based tasks and activities, operational elements, and the time phased information flows required to accomplish Joint military operations. The architectures will be used to assess and analyze doctrine, TTPs, system and procedural interoperability, processes, and synchronization issues that impact Joint Forces. These Operational Architectures will provide the baseline to identify warfighter requirements, design and structure assessments, and generate functional metrics. They will be developed and documented in close coordination with OSD, Joint staff, CINCs, and Services.

- (U) Joint Integration and Interoperability (JI&I). USJFCOM will collect, consolidate and prioritize real world interoperability needs on behalf of the Joint warfighter. The JI&I will serve as a repository for these issues and will produce a single serialized and prioritized "list" of C/S/A interoperability concerns that can be attacked in a synchronized manner. This prioritized list will be provided to the JROC for endorsement. Following endorsement of the prioritized list, the JI&I will act as a routing function to recommend the best option to conduct assessments, insert technology or develop non-material solutions. FY 02 plans are identified below:

  - ($3,000K) Army and Marine Corps Digitization of the Battlefield: The JI&I will begin this synchronization effort by validating the requirement (developed IERs and KPPs), facilitate a MOA between Army and USMC to develop an initial digital interface between the Service systems at the Battalion level (messages), engaged the JFPO/CIPO office in SPAWAR for engineering support for the interface test plan and has engaged the Multi-Service C2 General Officer Steering Committee (MSC2GOSC) to develop a Concept of

Operations between the systems. The JI&I will coordinate and synchronize efforts as the material interface is developed and tested leading to a JDEP demonstration and validate the CONOPS/TTP during an ASCIET field exercise.

- ($2,000K) Collaborative Planning Tools: The JI&I will leverage this initial work by DISA and JBC and coordinate the selection/recommendation of a single joint solution or a set of tools that can be made interoperable through software development or use of commercial products. JI&I will coordinate getting the collaborative tools into joint venues to demonstrate/test their capabilities.

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

	FY 2000 ACTUAL	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OMN 1C6C	11,998	12,310	12,716							

D. (U) ACQUISITION STRATEGY

- FY 2000-3. The JBC does not have a major contract for its RDT&E efforts. Equipments that are required to support our various projects are either bought from other service contracts and/or from the GSA schedule. Services are provided by other services and/or various vendors with expertise on a specific assessment we are accomplishing.

EXHIBIT R-3, FY 2002 RDT&E,N PROJECT COST ANALYSIS DATE: JUNE 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305188N
PROGRAM ELEMENT TITLE: Joint (C4ISR) Battle Center

Exhibit R-3 Cost Analysis (page 1)												Date: MAY 2001
APPROPRIATION/BUDGET ACTIVITY 1319/BA 7			PROGRAM ELEMENT: 0305188N									PROJECT NAME AND NUMBER: JBC/X2456
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Dev Support Equip Acquisition	MIPR	GSA Schedule	617	392	Var	660	Var					
Systems Engineering	C-CPFF	S. Carolina Res.		1900	5/01							
Systems Engineering	C-CPFF	ODU	255	132	11/00	421	10/01					
Government Engineering Supt	C-CPFF	General Dynamics	450	596	4/01	641	11/01					
Contractor Engineering Supt	C-CPFF	SAIC		0		121	11/01					
Government Engineering Supt	MIPR	Various DoD	1592	612	Var	1158	Var					
Travel	N/A	N/A		67	Var	123	Var					
Subtotal ProductDevelopment			2914	3699		3124						
Remarks:												
Systems Engineering	C-CPFF	ODU	206	106	11/00	429	10/01					
Contractor Engineering Supt	C-CPFF	General Dynamics	579	433	4/01	466	11/01					
Contractor Engineering Supt	C-CPFF	SAIC				180	11/01					
Government Engineering Supt	MIPR	Various DoD	1489	665	Var	972	Var					
Travel	N/A	N/A		50	Var	86	Var					

EXHIBIT R-3, FY 2002 RDT&E,N PROJECT COST ANALYSIS DATE: JUNE 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305188N
PROGRAM ELEMENT TITLE: Joint (C4ISR) Battle Center

Subtotal Support			2274	1254		2133						
Remarks												

EXHIBIT R-3, FY 2002 RDT&E,N PROJECT COST ANALYSIS DATE: JUNE 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305188N
PROGRAM ELEMENT TITLE: Joint (C4ISR) Battle Center

Exhibit R-3 Cost Analysis (page 2)												Date: MAY 2001
APPROPRIATION/BUDGET ACTIVITY: 1319/BA 7			PROGRAM ELEMENT: 0305188									PROJECT NAME AND NUMBER: JBC/X2456
Cost Categories	Contract Method & Type	Performing Activity & Location	Total Pys Cost 99/00	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Dev Support Equipment Acq	MIPR	GSA Schedule	1119	770	Var	1336	Var					
Systems Engineering	C-CPFF	ODU	480	246	11/00	728	10/01					
Systems Engineering	C-CPFF	MITRE	130	396	11/00	426	10/01					
Systems Engineering	C-CPFF	Anzus, Inc				458	10/01					
Contractor Engineering Supt	C-CPFF	General Dynam	1175	1679	4/00	1806	11/01					
Contractor Engineering Supt	C-CPFF	SAIC				568	10/01					
Government Engineering Support	MIPR	Various DoD	5096	1472	Var	2714	Var					
Travel (T&E)	N/A	N/A		189	Var	325	Var					
Subtotal T&E			8000	4752		8361						
Subtotal Management												

EXHIBIT R-3, FY 2002 RDT&E,N PROJECT COST ANALYSIS DATE: JUNE 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305188N
PROGRAM ELEMENT TITLE: Joint (C4ISR) Battle Center

Remarks												
Total Cost			13188	9705		13618						
Remarks												

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305192N
PROGRAM ELEMENT TITLE: Joint Military Intelligence Program

(U) COST: (Dollars in Thousands)

PROJECT NUMBER TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	COST TO COMPLETE	TOTAL PROGRAM
X2295 GCCS-I3	0	6,936	7,179	7,004					CONT.	CONT.
TOTALS	**0**	**6,936**	**7,179**	**7,004**					**CONT.**	**CONT.**

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: As directed in an Office of Secretary of Defense Intelligence Program Decision Memorandum (IPDM), Joint Military Intelligence Program (JMIP) funds, under Navy Executive Agency, are to be employed in FY01 to implement Integrated Imagery and Intelligence (I^3) mission applications into the Defense Information Systems Agency (DISA) Global Command and Control System (GCCS) in support of the joint community. GCCS-I^3 provides Services and Agencies with a repository of C4I-related tools, services, and applications to minimize redundant development and maximize commonality and interoperability across the joint tactical intelligence community. This program is responsible for the development of interactive intelligence overlay integration, intelligence preparation of the battlefield, ground unit composition and decomposition, enemy intent and capability integration; terrain delimitation, trafficability and movement analysis; All Source Analysis System (ASAS) interface; weather data integration; collection status visualization; C2-to-Request for Information (RFI) integration; General Service (GENSER) and Sensitive Compartmented Information (SCI) synchronization and National Security Agency Technical Electronic Intelligence (NSA TECHELINT) data integration. It is expected that existing functionality within Army, Navy, Air Force and Marine Corps C4I systems will be leveraged to the maximum extent possible to meet these Joint requirements.

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

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305192N
PROGRAM ELEMENT TITLE: Joint Military Intelligence Program

B. (U) PROGRAM CHANGE SUMMARY: **FY 00**: Funds to commence in FY01. **FY 01**: Section 8086 .7% Pro-Rata Reduction (-$49K). Government-Wide Rescission (-$15K). FY01 Net Change **(-$64K).**

(U) COST (Dollars in thousands)

PROJECT NUMBER TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	COST TO PROGRAM	TOTAL PROGRAM
X2295 GCCS-I3	0	6,936	7,179						CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: As directed in an Office of Secretary of Defense Intelligence Program Decision Memorandum (IPDM), Joint Military Intelligence Program (JMIP) funds, under Navy Executive Agency, are to be employed in FY01 to implement Integrated Imagery and Intelligence (I^3) mission applications into the Defense Information Systems Agency (DISA) Global Command and Control System (GCCS) in support of the joint community. GCCS-I^3 provides Services and Agencies with a repository of C4I-related tools, services, and applications to minimize redundant development and maximize commonality and interoperability across the joint tactical intelligence community. This program is responsible for the development of interactive intelligence overlay integration, intelligence preparation of the battlefield, ground unit composition and decomposition, enemy intent and capability integration; terrain delimitation, trafficability and movement analysis; All Source Analysis System (ASAS) interface; weather data integration; collection status visualization; C2-to-Request for Information (RFI) integration; General Service (GENSER) and Sensitive Compartmented Information (SCI) synchronization and National Security Agency Technical Electronic Intelligence (NSA TECHELINT) data integration. It is expected that existing functionality within Army, Navy, Air Force and Marine Corps C4I systems will be leveraged to the maximum extent possible to meet these Joint requirements.

FY 2002 RDT&E,N PROJECT JUSTIFICATION DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305192N PROJECT NUMBER: X2295
PROGRAM ELEMENT TITLE: Joint Military Intelligence Program PROJECT TITLE: GCCS-I3

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS:

- No funding. Funding to commence in FY 2001.

2. (U) FY 2001 PLAN:

- (U) ($800) Develop an automated tool to assist analysts in creating local Doctrine, Event, and Situational Templates to use in the Intelligence Preparation of the Battlefield (IPB) process. Selectable and user defined options will result in maximum utility of the templates in conventional military operations and operations other than war.

- (U) ($600) Identify and integrate capability to analyze all dimensions (surface, sub-surface, endoatmospheric, exoatmospheric, electromagnetic, cyberspace, and human) of the battlespace, to determine an adversary's capability to operate in each and to visualize the battlespace and the full spectrum of adversary capabilities and potential courses of action (COA).

- (U) ($700) Build capabilities within GCCS-I^3 to exchange data with the Tactical Control System (TCS) directly from the Common Operational Picture (COP) display. Provide the ability to obtain direct data receipt of Unmanned Aerial Vehicle (UAV) data (both Moving Target Indicator (MTI) and imagery), selected inputs for payload control, and provide intelligence data to TCS to assist in the creation of flight planning routes for the auto-pilot UAV's.

- (U) ($600) Integrate Joint Targeting Toolbox (JTT) products into GCCS-I^3, providing seamless capability to edit and view the targeting tables in combination with the Order of Battle (OOB) maintenance function performed in GCCS-I^3. Provide a single set of interfaces (between JTT, the four Service C4I Systems and GCCS) for creation of target lists, selection of imagery, creation of task collection and plans. Provide means to share/disseminate electronic target folders, joint target lists, and no-strike lists to other command platforms.

- (U) ($400) Create a single imagery access and manipulation mechanism in GCCS-I^3 to enable multiple targeting and mission planning systems to access local and remote imagery repositories such as the Imagery Product Library (IPL), through a common interface.

- (U) ($400) Identify and integrate enhanced imagery analysis tools for integration into GCCS-I^3 to enable users to tile on the JTT. This will enable users to utilize the situational awareness display to search and display higher-quality imagery from other systems in order to support targeting-quality point mensuration capabilities.

- (U) ($400) Develop and integrate an auto-tracking mechanism into GCCS-I^3 imagery tools to enable users to automatically display moving objects within a video clip for display on the map for correlation with other sensor data such as Joint Surveillance Target Attack Radar System (JSTARS).

- (U) ($500) Develop capabilities to disseminate imagery products from national archives to users that require imagery but do not have the manning to support full-time imagery database administrator/managers. Scale implementation of the database so that data can be managed on a smaller desktop environment to support lower life-cycle costs and increased productivity for low-end users.

- (U) ($1,136) Develop an SCI version of GCCS-I^3 that will be interoperable with an SCI version of GCCS.

- (U) ($1,400) Identify and integrate an Intelligence Surveillance Reconnaissance (ISR) Management Tool to form the ISR Battle Management portion of an Integrated Collaborative Collection Management capability. The ISR Battle Management tool will enable users to identify collection opportunities at the national and theater level and to overlay those on other assets to assist in the allocation of resources. Capability will allow users to receive feedback on status of requirements submitted to collection centers.

3. (U) FY 2002 PLAN:

- (U) ($791) Continue to develop an automated tool to assist analysts in creating local Doctrine, Event, and Situational Templates to use in the Intelligence Preparation of the Battlefield (IPB) process. Selectable and

user defined options will result in maximum utility of the templates in conventional military operations and operations other than war.

- (U) ($788) Continue to identify and integrate capability to analyze all dimensions (surface, sub-surface, endoatmospheric, exoatmospheric, electromagnetic, cyberspace, and human) of the battlespace, to determine an adversary's capability to operate in each and to visualize the battlespace and the full spectrum of adversary capabilities and potential courses of action (COA).

- (U) ($700) Continue to build capabilities within GCCS-I^3 to exchange data with the Tactical Control System (TCS) directly from the COP display. Provide the ability to obtain direct data receipt of Unmanned Aerial Vehicle (UAV) data (both Moving Target Indicator (MTI) and imagery), selected inputs for payload control, and provide intelligence data to TCS to assist in the creation of flight planning routes for the auto-pilot UAV's.

- (U) ($600) Continue to integrate Joint Targeting Toolbox (JTT) products into GCCS-I^3, providing seamless capability to edit and view the targeting tables in combination with the Order of Battle (OOB) maintenance function performed in GCCS-I^3. Provide a single set of interfaces (between JTT, the four Service C4I Systems and GCCS) for creation of target lists, selection of imagery, creation of task collection and plans. Provide means to share/disseminate electronic target folders, joint target lists, and no-strike lists to other command platforms.

- (U) ($400) Continue to create a single imagery access and manipulation mechanism in GCCS-I^3 to enable multiple targeting and mission planning systems to access local and remote imagery repositories such as the Imagery Product Library (IPL), through a common interface.

- (U) ($400) Continue to identify and integrate enhanced imagery analysis tools for integration into GCCS-I^3 to enable users to tile on the JTT. This will enable users to utilize the situational awareness display to search and display higher-quality imagery from other systems in order to support targeting-quality point mensuration capabilities.

- (U) ($400) Continue to develop and integrate an auto-tracking mechanism into GCCS-I^3 imagery tools to enable users to automatically display moving objects within a video clip for display on the map for correlation with other sensor data such as Joint Surveillance Target Attack Radar System (JSTARS).

- (U) ($500) Continue to develop capabilities to disseminate imagery products from national archives to users that require imagery but do not have the manning to support full-time imagery database administrator/managers. Scale implementation of the database so that data can be managed on a smaller desktop environment to support lower life-cycle costs and increased productivity for low-end users.

- (U) ($1,200) Continue to develop an SCI version of GCCS-I^3 that will be interoperable with an SCI version of GCCS.

- (U) ($1,400) Continue to identify and integrate an Intelligence Surveillance Reconnaissance (ISR) Management Tool to form the ISR Battle Management portion of an Integrated Collaborative Collection Management capability. The ISR Battle Management tool will enable users to identify collection opportunities at the national and theater level and to overlay those on other assets to assist in the allocation of resources. Capability will allow users to receive feedback on status of requirements submitted to collection centers.

B. (U) OTHER PROGRAM SUMMARY: Not applicable.

C. (U) ACQUISITION STRATEGY: Not applicable.

D. (U) SCHEDULE PROFILE: Not applicable. This is not an acquisition program with milestones.

FY 2002 RDT&E,N PROJECT COST ANALYSIS DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305192N PROJECT NUMBER: X2295
PROGRAM ELEMENT TITLE: Joint Military Intelligence Program PROJECT TITLE: GCCS-I3

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Costs	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Software/Product Development												
1.1.1 Prime Mission Product	Various	Various	0	5,536	02/01	5,788	10/01			CONT.	CONT.	
Subtotal Product Development			0	5,536		5,788				CONT.	CONT.	
Remarks:												
System Engineering												
1.1.1 System Engineering	Various	Various	0	1,400	02/01	1,391	10/01			CONT.	CONT.	
Subtotal Support			0	1,400		1,391				CONT.	CONT.	

FY 2002 RDT&E,N PROJECT COST ANALYSIS DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305192N PROJECT NUMBER: X2295
PROGRAM ELEMENT TITLE: Joint Military Intelligence Program PROJECT TITLE: GCCS-I3

Remarks

FY 2002 RDT&E,N PROJECT COST ANALYSIS DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305192N PROJECT NUMBER: X2295
PROGRAM ELEMENT TITLE: Joint Military Intelligence Program PROJECT TITLE: GCCS-I3

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation			0	0		0						
Subtotal Operational T & E			0	0		0						
Remarks												
Project Management			0	0		0						
Subtotal Management			0	0		0						
Remarks												

R-1 Shopping List-Item No. 206-9 of 206-10

Exhibit R-3, Project Cost Analysis

FY 2002 RDT&E,N PROJECT COST ANALYSIS DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305192N PROJECT NUMBER: X2295
PROGRAM ELEMENT TITLE: Joint Military Intelligence Program PROJECT TITLE: GCCS-I3

Total Cost			0	6,936		7,179				CONT.	CONT.	

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0305204N Tactical Unmanned Aerial Vehicles					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost		**75.029**	**121.753**	**66.349**							
A2478 Tactical Control System		* **30.094**	**** **40.576**	**15.801**							
A2479 Applied Technology		** **10.109**	*** **14.749**								
A2768 VTUAV		**34.826**	**66.428**	**48.248**							
A2910 Joint Tactical Center/System Integration Lab				**2.300**							
Quantity of RDT&E Articles			**3**								

* The FY00 budget reflects a $3.000M Congressional add for the Tactical Control System executed under A2669; which, has been decreased by $.017M for Congressional undistributed reductions.

**The FY00 budget for PU A2479 reflects a $3.000M Congressional add for the Multi-function Self-Aligned Gate (MSAG) Array Technology executed under A2670; that has been decreased by $.017M for Congressional undistributed reductions.

*** The FY01 budget for PU A2479 reflects a $7.000M Congressional add for the MSAG Array Technology for Applied Technology; that will be executed under A2670.

**** The FY01 budget for PU A2478 reflects a $3.000M Congressional add for the Joint Forces Command Operational TestBed for TCS; that will be executed under A2669.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program provides for the development of Tactical Unmanned Aerial Vehicle (TUAV) systems for DoD that provide warfighters with a dedicated capability for day/night aerial Reconnaissance, Surveillance and Target Acquisition (RSTA); intelligence, communications/data dissemination; electronic warfare; weather data collection to support combat operations; minefield detection; and nuclear, biological and chemical reconnaissance in limited adverse weather. Specificall

TCS: Efforts are underway to develop a Tactical Control System (TCS) to provide an interoperablity for command and control of the present and future Tactical and Medium Altitude Endurance (MAE) UAVs and their payloads utilized by the military services for RSTA and combat assessment. TCS has the requirement to provide connectivity to service designated C4I systems and the objective requirement to interface with Global Hawk High Altitude Endurance (HAE) UAV system. TCS is being developed in concert with the development of UAV concept of operations so as to ensure system functionality satisfies operational requirements. TCS development and testing is being accomplished via a Government/Industry team. In FY2000 Raytheon assumed total system performance responsibility for all software block developments.

Applied Technology(AT): AT supports the advancement of systems on the Naval UAV Roadmap/Long Range Plan, including P3I of currently fielded or EMD programs, requirements definition efforts, support to CONOPS development efforts, and technology transition from science and technology efforts, leading to the next generation of Naval UAVs. Current AT efforts include the UAV Advanced Technology Review Board(ATRB), the Multi-Role Endurance (MRE) UAV requirements definition effort, small UAVs and miniaturized payloads and UAVs in Network Centric Warfare. AT also supports cooperative R&D arrangements with major allies and NATO, providing day-to-day management and policy oversight regarding UAV export control and foreign military sales case management.

R-1 SHOPPING LIST - Item No. 209

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY BA-7**	R-1 ITEM NOMENCLATURE 0305204N Tactical Unmanned Aerial Vehicles

VTUAV: The Vertical Takeoff and Landing Tactical Unmanned Aerial Vehicle (VTUAV) will provide users real-time and near-real-time data required to support intelligence surveillance and reconnaissance (ISR) efforts without the use of manned aircraft or reliance on limited joint theater or national assets. Missions supported under ISR and accomplished by a VTUAV include over-the-horizon classification and targeting, mine countermeasures, battle management, chemical/biological agent reconnaissance and signals intelligence. The VTUAV would be an organic asset of the ship to which it is attached or deployed. The forte of the VTUAV is that it launches and recovers vertically and can operate from any/all air capable ships as well as confined land based areas. Other capabilities of the VTUAV include: autonomous waypoint navigation; automatic launch and recovery of the vehicle both ashore and afloat; incorporation of a heavy fuel engine; and the ability to incorporate modular mission payloads. The data from the VTUAV System would be provided to the user through standard DoD Command, Control, Communications, Computers and Intelligence(C4I) systems, architectures and protocols.

JTC/SIL: The Joint Tactical Center/System Integration Laboratory provides a test- bed for UAV technology assessment, insertion, demonstration, and transfer, as well as simulation and excerise support.

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

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EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0305204N Tactical Unmanned Aerial Vehicles					PROJECT NUMBER AND NAME A2478 Tactical Control System					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		* **30.094**	** **40.576**	**15.801**							
RDT&E Articles Qty (EDU)		**2**									

* The FY00 budget reflects a $3.000 M Congressional add for the Tactical Control System executed under A2669; which, has been decreased by $.017 M for Congressional undistributed reductions.
** FY01 budget reflects a $3.000M Congressional add for the Joint Forces Command Operational Testbed; which will be executed under A2669.

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

The Tactical Control System (TCS) provides interoperability and commonality for mission planning, command, control, communications, and data dissemination for the current and future family of Tactical and Medium Altitude Endurance (MAE) Unmanned Aerial Vehicles (UAVs). It provides a full range of scaleable UAV capabilities from passive receipt of air vehicle and payload data to full air vehicle command and control. TCS functionality supports the joint warfighter with the software to receive, process, and disseminate the air vehicle and payload data from two or more different UAV types for reconnaissance, surveillance, and combat assessment. TCS also has an objective requirement to receive and disseminate payload information from the Global Hawk High Altitude endurance UAV. TCS supports seamless integration into the existing Command, Control, Communications Computers and Intelligence (C4I) architecture and interfaces with other manned and unmanned reconnaissance platforms and intelligence systems thereby providing information superiority through cross cueing. TCS maximizes the use of Commercial and Government off-the-shelf (COTs and GOTs) hardware and software wherever possible. TCS software will be interoperable and operate on existing standard service computer platforms and be compliant with the Assistant Secretary of Defense for Command, Control, Communications and Intelligence (ASD(C3I)) Joint Technical Architecture, Distributed Common Ground System (DCGS), Common Imagery Ground/Surface Station (CIGSS), and the United States Imagery Standards, and Defense Information Infrastructure/Common Operating Environment (DII/COE). The Systems Integrator, Raytheon, supports the assessment of system integration readiness prior to actual flight-testing. The NATO Naval Armaments Group, Project 35, has undertaken studies/technical demonstrations to define a common interoperable NATO UAV ground control system architecture. Canada and the United Kingdom have established TCS FMS cases, have procured TCS software/hardware, and are participating in TCS and NATO demonstrations.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) ($ 2.443) Completed testing of Engineering Development Units (EDU's) #1 and #2 and C4I certification.
- (U) ($23.086) Initiated development of TCS Block 1 (TUAV EDU #3) and Block 2 (VTUAV, MAE back-fit ECP, EDU #4).
- (U) ($ 4.565) Initiated development of training systems for TCS Blocks 1 and 2.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A2478 Tactical Control System

(U) PROGRAM ACCOMPLISHMENTS AND PLANS: (continued)

2. FY 2001 PLANS:

- (U) ($ 1.284) Completed software development and Developmental Testing (DT) of TCS Block 0 (EDU #2).
- (U) ($30.775) Continue development of TCS Block 1 (TUAV), conduct DT through Laboratory System Integration Test (LSIT) with EDU #3, and continue development of TCS Block 2 (VTUAV), MAE back-fit ECP, EDU #4 *.
- (U) ($ 3.244) Continue development of training systems for TCS Block 2.
- (U) ($ 2.300) Continue Joint Technology Center/Systems Integration Lab (JTC/SIL) Multiple UAV Simulation Environment (MUSE) efforts.
- (U) ($ 2.973) Support Joint Operational Test Bed System testing & experimentation support, system upgrades and risk reduction operations.

3. FY 2002 PLANS:

- (U) ($14.601) Complete development of TCS Block 1 (TUAV) and DT with EDU #3, and continue development of TCS Block 2 (VTUAV).
- (U) ($ 0.500) Continue General Test Support for Multiple Link Atenna System/Multi-function Self-Aligned Gate Array Technolgoy (MLAS/MSAG).
- (U) ($ 0.700) C4I Testing/Certification Assessments.

* This line does not represent a programmatic change. Block 1 and Block 2 are being developed concurrently by Raytheon under a single contract.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A2478 Tactical Control System

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	27.401	41.378	18.954
(U) Adjustments from the President's Budget:	2.693	-0.802	-3.153
(U) FY 2002 President's Budget Submit:	30.094	40.576	15.801

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net increase of $2.693 million consists of a $2.800 million internal reprograming effort from project unit A2768 for accelerated TCS hardware buy to realign schedule with Navy/Marine Corps VTUAV program and a decrease of $0.107 million for a Congressional Recission. The FY 2001 net decrease of $0.802 million consists of a $3.300 million decrease for an internal reprogramming effort to project unit A2768 for FY 01 VTUAV requirements, a $0.058 million decrease for reprioritization of requirements within the Navy, a $0.339 million decrease for a Congressional Reduction, a $3.000 million Congressional add for Joint Operational Testbed System, and a $0.105 million decrease for a Congressional Recission. The FY 2002 net decrease of $3.153 million consists of a $0.125 million decrease for reprioritization of requirements within the Navy, a $3.000 million decrease for Joint Operational Test Bed reprioritization, and a $0.032 million decrease for economic assumptions.

(U) Schedule:

The TCS schedule has been updated to reflect program realignment with the Army's TUAV and the Navy/Marine Corps VTUAV programs. In addition, program, engineering, test & evaluation, and contract milestone terminologies have been updated to reflect standard nomenclature and a more accurate description of terminology used in the current contract.

(U) Technical: N/A

(U) C. OTHER PROGRAM FUNDING SUMMARY: N/A

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A2478 Tactical Control System

(U) D. ACQUISITION STRATEGY:
The TCS initial design and development effort will be completed at the end of Program Definition and Risk Reduction phase (Phase I) in the 2Q of FY00; Engineering and Manufacturing Development (EMD) phase (Phase II) begins in 2Q FY00. A major effort during the EMD phase will be the integration of TCS hardware and software components by a System Design Test and Integration contractor for four EDUs. The SDTI contract was awarded to Raytheon 1Q FY99. Options for Full Rate Production (Phase III) of additional TCS systems will be included in the basic SDTI contract. The scheduled Milestone III, Initial Operational Capability (IOC) and Full Operational Capability (FOC) of TCS will occur as outlined in the current services Tactical and Medium Altitude Endurance UAV systems programs.

(U) E. SCHEDULE PROFILE:

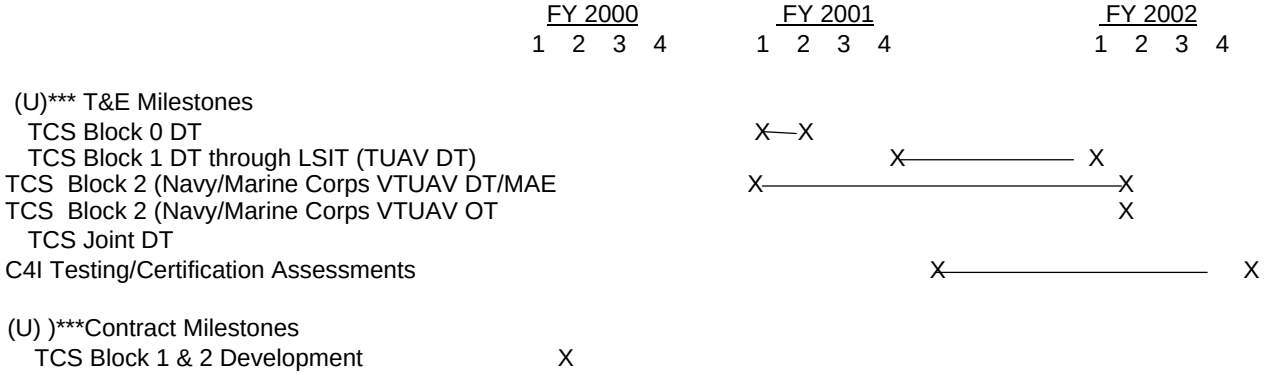
	FY 2000	FY 2001	FY 2002
	1 2 3 4	1 2 3 4	1 2 3 4
*** (U) Program Milestones			
TCS MS II	X		
Army TUAV MS III			X
Navy Marine Corps VTUAV MS III			
Air Force MAE BACKFIT ECP			X
(U) Engineering Milestones			
Engineering Design Unit (EDU) Deliveries	X	X X	X

*** Note: EDU Delivery on previous budget submission was move from Program Milestones to Engineering Milestones to replace VTUAV and MAE/TUAV interoperability. Each EDU delivery represents their respective interoperabiity (i.e VTUAV or MAE/TUAV). EMD Start was removed from Program Milestones due to redundancy with TCS MS II.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A2478 Tactical Control System

(U) E. SCHEDULE PROFILE: Continuation.



***Note: The following T&E milestones from the previous budget submission have been changed: Launch and Recovery is now incorporated into TCS Block 0 DT. C4I integration is included in each event. EDU Land-Based DT is incorporated into TVS Block 2; EB6 Pioneer Demo was removed from the program due to no future integration planned; TUAV IOT&E is incorporated into TCS Block 1 OT. In Contract Milestones, TCS Block 1 & 2 Development is a more accurate description than previously submitted terminology (VTUAV/TUAV SI Award).

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles			PROJECT NUMBER AND NAME A2478 Tactical Control System							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Tactical Control System Development	C/CPAF	Raytheon, Falls Church, VA	17.406	22.420	02/01	10.659	11/01					
Joint Operational TestBed System	WX	USJFCOM, Norfolk, VA	0.000	2.973	05/01	0.000						
TUAV System	MIPR	TUAV, Redstone, Al		0.808	11/00	0.000						
Award Fees	C/CPAF	Raytheon, Falls Church,VA		0.921	09/01	0.658	09/02					
Subtotal Product Development			17.406	27.122		11.317						
Remarks: Raytheon contract includes: Primary Software Development, Hardware Engineering, Systems Engineering, and Systems Integration												
Systems Engineering	WX	NSWC-Dalhgren, VA	2.740	1.704	11/00	0.782	12/01					
Systems Engineering	WX	NAWCAD, Pax River, MD	1.125	1.200	12/00	0.558	12/01					
MUSE	MIPR	JTC/SIL, Huntsville, AL	1.500	2.300	11/00	0.000						
Logistics Support	WX	Various	1.100	0.360	12/00	0.342	12/01					
Training	WX	NSWC-IH, Indian Head, MD	2.340	3.244	12/00	0.166	12/01					
Technical Engineering Services	WX	NAWCAD, Pax River, MD/Other	0.000	1.531	12/00	1.088	12/01					
Human Computer Interface Develop	WX	NAWCAD, Pax River, MD	0.300	0.200	10/00	0.000	12/01					
Subtotal Support			9.105	10.539		2.936						
Remarks:												

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Exhibit R-3 Cost Analysis (page 2)						DATE: **June 2001**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles			PROJECT NUMBER AND NAME A2478 Tactical Control System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	MIPR	JITC, FT Huachuca, AZ	0.000	0.749	10/00	0.700	12/01					
Developmental Test & Evaluation	WX	Various	1.070	0.984	02/01	0.000						
Operational Test & Evaluation	WX, MIPR	Various	1.480	0.000		0.000						
General Test Support	WX	NSWC-Dalgren, VA	0.000	0.500	03/01	0.500	12/01					
Subtotal T&E			2.550	2.233		1.200						
Remarks:												
Contractor Engineering Support	C/FFP	Summit, Waldorf, MD	0.100	0.000		0.000						
Government Engineering Support	WX	NAWCAD, Pax River, MD	0.300	0.000		0.000						
Program Management Support	WX	Various	0.313	0.334	04/01	0.214	12/01					
Travel/Misc.	WX, MIPR	Various	0.320	0.348	10/00	0.134	12/01					
Subtotal Management			1.033	0.682		0.348						
Remarks:												
Total Cost			30.094	40.576		15.801						
Remarks:												

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EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0305204N Tactical Unmanned Aerial Vehicles					PROJECT NUMBER AND NAME A2479 Applied Technology (AT)					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		* **10.109**	** **14.749**								
RDT&E Articles Qty											

*The FY00 budget reflects a $3.000 M Congressional add for the Multi-function Self Aligned Gate Array Technology (A2479) executed under A2670; which, has been decreased by $.017 M for Congressional undistributed reductions.

**The FY01 budget reflects a $7.000 M Congressional add for the Multi-function Self-Aligned Gate (MSAG) Array Technology for the Applied Technology (A2479); which will be executed under A2670.

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

Applied Technology (AT) supports the advancement of systems on the Naval UAV Roadmap/Long Range Plan, including P3I of currently fielded or EMD programs, requirements definition efforts, support to CONOPS development efforts, and technology transition from science and technology efforts, leading to the next generation of Naval UAVs. Current AT efforts include the UAV Advanced Technology Review Board (ATRB), the Multi-Role Endurance (MRE) UAV requirements definition effort, small UAVs and miniaturized payloads, and UAVs in Network Centric Warfare. AT is leading exploration of MRE concepts to better define system requirements. These defined requirements will then enable technology pull to draw industry into this growth area. Similar efforts are underway to develop mission definition and analysis for the Small and Micro UAVs. AT's technology focus also encourages approaches that are expected to address needs of Unmanned Combat Air Vehicle Systems. AT is the acquisition lead for the Naval UAV Advanced Technology Review Board (ATRB). The ATRB effort supports development of requirements definition and technology transition into existing and future Naval UAV programs. AT is also the focal point for working international initiatives to improve UAV integration into NATO Task Force Operations.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:
   - (U) ($ 1.920) Initiated and supported requirements definition, integration, demonstration, and test of growth payloads/small UAVs.
   - (U) ($ 2.583) Developed Naval MRE UAV concepts of operation. Awarded multi contracts for MRE risk assessments. Completed Phase I of contract, Mission Area Analysis and Missions Need Analysis.
   - (U) ($ 2.070) Demonstrated operational utility of key technologies endorsed by the UAV ATRB.
   - (U) ($ 0.553) Continued international initiatives to improve UAV integration into NATO Task Force Operation and common international support efforts.
   - (U) ($ 2.983) Conducted Congressionally-directed research of Multi-Link Antenna System (MLAS) active array antenna using MSAG technology. MLAS approved as ACTD New Start
2. FY 2001 PLANS:
   - (U) ($2.642) Complete requirements definition, integration, demonstration, and test of small UAV for USMC Interim Small Unit Remote Scouting System (I-SURSS) effort.
   - (U) ($2.462) Complete Phase II, System Design and Definition and Phase III, Systems Analysis and Risk Assessment of the MRE contracts.
   - (U) ($2.437) Complete demonstration of operational utility of key technologies endorsed by the UAV ATRB, including Touch Down Predictability (TDP) Landing Aid, and Plug and Play Modular Mission Payload (MMP) contracts.
   - (U) ($0.208) Support international initiatives to improve UAV integration into NATO Task Force Operations and common international support efforts.
   - (U) ($7.000) Continue to execute design, engineer and manufacture components using MSAG Technology for MLAS Demonstration.

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EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A2479 Applied Technology (AT)

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	9.647	7.832	7.335
(U) Adjustments from the President's Budget:	0.462	6.917	-7.335
(U) FY 2002 President's Budget Submit:	10.109	14.749	0.000

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net increase of $0.462 million consists of a $0.500 million for the Multi-role Endurance UAV effort, offset by a decrease of $0.038 million for a Congressional Rescission. The FY 2001 net increase of $6.917 million consists of a $7.000 million increase for a Congressional add for Multi-function Self Aligned Gate Array Technology offset by a $0.055 million decrease for a Congressional Reduction, a decrease of $0.017 for a Congressional Rescission, and a $0.011 million decrease for reprioritization of requirements within the Navy. The FY 2002 net decrease consist of $7.335 million for reprioritization of requirements within the Navy.

(U) C. OTHER PROGRAM FUNDING SUMMARY: N/A

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A2479 Applied Technology (AT)

(U) D. ACQUISITION STRATEGY:The key objectives of this program element are: Technology transition and insertion of emerging technologies to Naval UAV programs to address warfighter needs; Requirements definition and roadmapping in support of the Naval UAV Roadmap/Long Range Plan, including CONOPS development efforts and feedback into the development and acquisition process; Development of Naval UAV Network Centric Warfare Concepts; International cooperation to avoid unnecessary and costly duplication and enhance interoperability; And focusing basic research on future needs through the ATRB process. AT supports the ATRB, the MRE requirements definition effort, small UAVs and miniaturized payloads, and UAVs in Network Centric Warfare, including P3I of currently fielded or EMD programs, requirements definition efforts, and technology transition from science and technology efforts, leading to the next generation of Naval UAVs. Participates in international cooperative agreements to share common interest developments.

(U) E. SCHEDULE PROFILE:

	FY 2000				FY 2001			
	1	2	3	4	1	2	3	4
T&E Milestones								
Comms Relay Demo			X					
Pan-tilt-zoom for IR Microcam			X					
Real-time Precision Targeting Demos	X			X				
Small UAV Rqmts Def and CONOPS Dev/Tests (I-SURSS)						X		
Ship Based UCARS TDP Landing Aid Dev/Tests							X	
MMP Plug and Play Dev/Tests							X	
See and Avoid Validation efforts			X				X	
Contracts Milestones								
New technology demos					X			
Pan-tilt-zoom for IR Microcam				X				
Real-time Precision Targeting Demos				X				
Comms Relay Demo			X					
MRE Risk Assessment			X	X	X			

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA7**			PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles			PROJECT NUMBER AND NAME A2479 Applied Technology (AT)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Product Development	Sect 845	Boeing, Long Beach, CA	0.781	0.246	01/01							
	Sect 845	Lockheed, Ft. Worth, TX	0.660	0.221	01/01							
	Sect 845	GDIS, Bloomington, MN	0.446	0.231	01/01							
	Sect 845	Northrop, Pico Rivera,CA	0.700	0.201	01/01							
	C/FFP	Aeroteam, Petach Israel	0.220									
	Sect 845	ITT Gilfillan, Nuys, CA	2.089									
	Sect 845	Battlespace, Arlington, VA	0.435									
	C/FFP	Sierra Nevada, Sparks, NV	0.250	0.250	12/00							
	WX	NSWC Indian Head, MD	0.234	0.250	12/00							
	PD	NAVSEA,Washington DC	0.370	0.750	12/00							
	MIPR	Joint Spectrum Center, MD		0.300	04/01							
	WX	NAWCAD, Pax River, MD		0.700	04/01							
MSAG	WX/RX	NSWC DD Dahlgren, VA		7.000	12/00							
Subtotal Product Development			6.185	10.149		0.000						

Remarks:

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Exhibit R-3 Cost Analysis (page 2)											DATE: **June 2001**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles			PROJECT NUMBER AND NAME A2479 Applied Technology (AT)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Technical & Engineering Support	WX	NAWCWD, China Lake, CA	0.650	0.155	12/00							
Technical & Engineering Support	WX	NAWCAD, Pax Riv., Md	0.665	1.704	12/00							
Technical & Engineering Support	WX	NSWC Crane, IN.	0.150									
Technical & Engineering Support	WX	NSWC, Dahlgren, VA.	0.570									
Subtotal Support			2.035	1.859		0.000						

Remarks:

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Exhibit R-3 Cost Analysis (page 2)						DATE: **June 2001**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles			PROJECT NUMBER AND NAME A2479 Applied Technology (AT)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Demonstration/Exercises	WX	NAWCAD, Pax Riv	0.950	0.890	12/00							
Demonstration/Exercises	WX	NAWCWD, China Lake, CA		0.600	12/00							
Demonstration/Exercises	WX	NSWC Crane, IN		0.100	12/00							
Subtotal T&E			0.950	1.590		0.000						
Remarks:												
Program Management Support	WX,RX	Various/Pax Riv, Md	0.839	0.750	04/01							
Travel	WX	NAWCAD, Pax Riv, Md	0.100	0.100	12/00							
Miscellaneous	WX	Various		0.301	12/00							
Subtotal Management			0.939	1.151		0.000						
Remarks:												
Total Cost			10.109	14.749		0.000						
Remarks:												

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification									DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0305204N Tactical Unmanned Aerial Vehicles					PROJECT NUMBER AND NAME A2768 Vertical Take-off Landing UAV					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		**34.826**	**66.428***	**48.248**							
RDT&E Articles Qty		2	3								

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Vertical Takeoff and Landing Tactical Unmanned Aerial Vehicle (VTUAV) will provide users real-time and near-real-time data required to support intelligence surveillance and reconnaissance (ISR) efforts without the use of manned aircraft or reliance on limited joint theater or national assets. Missions supported under ISR and accomplished by a VTUAV include over-the-horizon classification and targeting, mine countermeasures, battle management, chemical/biological agent reconnaissance and signals intelligence. The VTUAV would be an organic asset of the ship to which it is attached or deployed. The forte of the VTUAV is that it launches and recovers vertically and it can operate from any/all air capable ships as well as confined land based areas. The quantities above represent the air vehicle and payload hardware sets procured in EMD and LRIP 1.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:
   - (U) ($28.053) Awarded EMD contract for system design, fabrication and testing
   - (U) ($ 4.551) Continued Government support of VTUAV proposal evaluations leading up to MSII decision, design evaluation, test and engieering support and logistics support. Initiated integration support.
   - (U) ($ 2.222) Funded miscellaneous EMD efforts including technical and management support and initial test efforts

2. FY 2001 PLANS:
   - (U) ($54.067) Continue contractor EMD system design, fabrication and component testing. Procure initial LRIP
   - (U) ($ 5.630) Continue test & engineering, logistics and integration support
   - (U) ($ 2.453) Conduct operational assessment and initiate developmental testing
   - (U) ($ 4.278) Continue contractor engineering management, program technical management and management support

3. FY 2002 PLANS:
   - (U) ($34.014) Continue contractor EMD design, fabrication and testing
   - (U) ($ 7.616) Continue test & engineering, logistics and integration support
   - (U) ($ 2.727) Complete developmental testing and initiate operational test and evaluation
   - (U) ($ 3.891) Continue contractor engineering management, program technical management and management support

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A2768 Vertical Take-off Landing UAV

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	38.277	63.842	48.478
(U) Adjustments from the President's Budget:	-3.451	2.586	-0.230
(U) FY 2002 President's Budget Submit:	34.826	66.428	48.248

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net decrease of $3.451 million consists of a $3.300 million decrease for an internal reprogramming effort to project units A2478 and A2768, and a $0.151 million decrease for a Congressional recission. FY2001 net increase of $2.586 million consists of a $3.300 million increase for an internal re-programming effort from project unit A2478 for FY 2001 VTUAV requirements offset by a $0.145 million decrease for a Congressional Rescission, $0.101 decrease for reprioritization of requirements within the Navy, and a $0.468 million decrease for Congressional Reductions. The FY 2002 net decrease of $0.230 million consists of a $0.202 million decrease for reprioritization of requirements within the Navy and a $0.038 million decrease for economic assumptions.

(U) Schedule: LRIP 1 has shifted to 3rd Qtr FY 2001. IDR and FDR were previously submitted as CDR and PRR, respectively. These are the same reviews but the titles have been changed so that contract and program terminology agrees. The operational assessment will start in 1Q for FY01 vice 3Q FY 00.

(U) Technical: Not Applicable

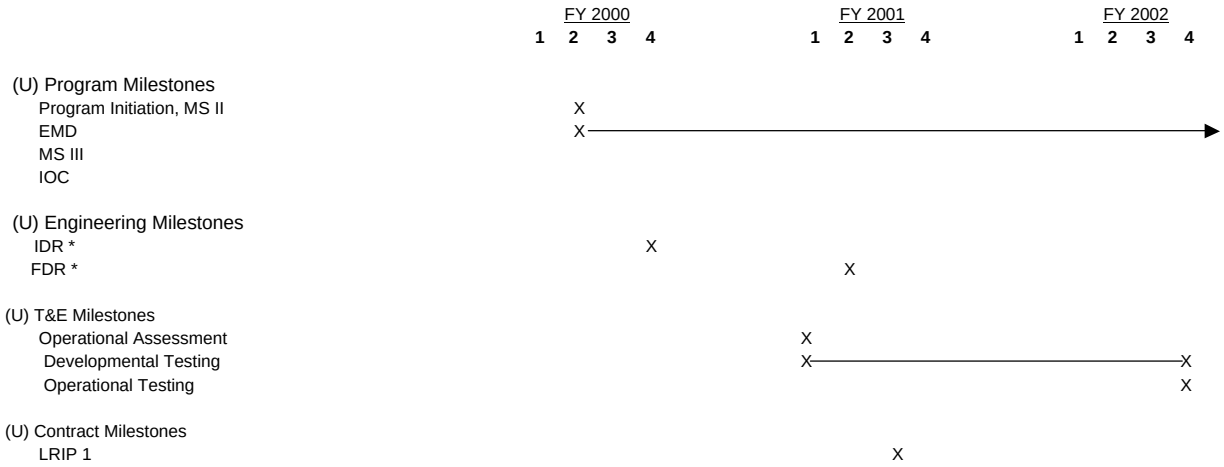
(U) C. OTHER PROGRAM FUNDING SUMMARY: Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A2768 Vertical Take-off Landing UAV

(U) D. ACQUISITION STRATEGY: VTUAV program had a combined Milestone I/Milestone II decision in 2Q FY2000. Development, fabrication and developmental test of the VTUAV system is scheduled to begin in FY 2000 and continue through FY 2001/2002. A low rate initial production decision is planned for FY 2001 with operational testing being conducted in FY 2002. A Milestone III decision is planned for 2Q FY 2003 and the Initial Operational Capability (IOC) would occur during 4Q FY 2003. Initial planning has a VTUAV system defined as: Air Vehicles (A/Vs), Ground Control Stations (GCSs), modular mission payloads, remote data terminals, and spares. Connectivity into the DOD C4I architecture would be provided by the GCS, which is to be TCS compatible. Although not currently designated as a joint program, the VTUAV program can accommodate Joint Services (Army, Navy and Marine Corps) as well as U.S Coast Guard requirements into the acquisition planning process. A key objective of the VTUAV program would be to minimize the Total Ownership Cost (TOC) of the system while providin the maximum utility to the user.

(U) E. SCHEDULE PROFILE:



* IDR and FDR was previously submitted as CDR and PRR, respectively, these are the same reviews but the titles have been changed so that contract and program terminology agrees. In addition, the term Operational Assessment, which is the correct effort, replaces the Informal OPTEVFOR Eval.

R-1 SHOPPING LIST - Item 209

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles			PROJECT NUMBER AND NAME A2768 Vertical Take-off Landing UAV						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Design/Hardware Development	C/CPIFAF	NGC-Ryan, San Diego, CA	27.081	53.598	04/01	30.999	02/02					
Award Fees	C/CPIFAF	NGC-Ryan, San Diego,CA	0.972	0.469	12/01	3.015	04/02					
Subtotal Product Development			28.053	54.067		34.014						
Remarks:												
Test & Engineering Support	WX	NAWC-AD, Pax River, MD	2.533	2.260	11/01	2.595	11/02					
Logistics -Training Development	WX	NSWC, Indian Head, MD	0.395	0.615	11/01	1.413	11/02					
Logistics - Technical Data	WX	NSWC, Crane, IN	0.300	0.300	11/01	0.300	11/02					
Logistics Technical Support	WX	NAWC-WD, Lakehurst, NJ	0.280	0.560	11/01	0.605	11/02					
Logistics Technical Support	WX	NAWC-AD, Pax River, MD	0.290	0.945	11/01	0.787	11/02					
Ship Integration Support	PD	NAVSEA, Arlington, VA	0.600	0.950	12/01	1.916	11/02					
Ship Integration Support	WX	NSWC, Indian Head, MD	0.153									
Subtotal Support			4.551	5.630		7.616						
Remarks:												

R-1 SHOPPING LIST - Item No. 209

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)											DATE: **June 2001**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles				PROJECT NUMBER AND NAME A2768 Vertical Take-off Landing UAV						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWC-AD, Pax River, MD	0.306	1.608	12/00	1.198	12/01					
Operational Test & Evaluation	MIPR	VARIOUS	0.097	0.455	03/01	1.139	03/02					
Range Testing	WX	China Lake, CA		0.390	10/00	0.390	11/00					
Subtotal T&E			0.403	2.453		2.727						
Remarks: Operational Test & Evaluation performing activities include OPTEVFOR and MCOTEA.												
Contractor Engineering Management	C/FFP	H.J. Ford, Lexington Park, MD	1.297	1.400	11/00	1.300	11/01					
Program Technical Management	WX	NAWC-AD, Pax River, MD		1.050	11/00	1.120	11/01					
Program Management	MIPR	CECOM/MITRE	0.390	0.205	11/00	0.175	11/01					
Travel	WX	NAWC-AD, Pax River, MD	0.132	0.105	11/00	0.105	11/01					
Miscellaneous	Various	Various		1.518	11/00	1.191	11/01					
Subtotal Management			1.819	4.278		3.891						
Remarks:												
Total Cost			34.826	66.428		48.248						
Remarks:												

R-1 SHOPPING LIST - Item No. 209

EXHIBIT R-2a, RDT&E Project Justification								DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0305204N Tactical Unmanned Aerial Vehicles					PROJECT NUMBER AND NAME A2910 Joint Tactical Center/System Integration Lab					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		*	*	**2.300**							
RDT&E Articles Qty (EDU)											

* The FY 02 - FY 07 budget reflects an OSD adjustment per PBD 220C which will be executed under A2910. These efforts were previously executed under PU A2478, Tactical Control System.

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

The JTC/SIL is the center of technical excellence for the DoD family of UAVs including tactical, medium altitude, high altitude endurance, and future UAVs. This joint facility provides a cost-effective test-bed for UAV technology assessment, insertion, demonstration, and transfer, as well as simulation and exercise support.

A primary product being developed by the JTC/SIL is the Multiple Unified Simulation Environment (MUSE) which is a system that provides a real-time, interoperable hardware, and operator-in-the-loop simulation environment of multiple intelligence systems that is integrated with larger force on force simulations. It creates a realistic operational environment which supports: an embedded training capability for multiple Program Managers; tools to minimize acquisition and life cycle costs and schedule impacts; a mechanism for the assessment of military utility; architecture, CONOPS, and TTP development and refinement; the ability to conduct emerging concepts experimentation, future systems exploration, systems integration, and technology insertion; applications for Joint and Service specific warfighting exercises; and C4I Optimization. Canada and the United Kingdom have established TCS FMS cases have procured MUSE software/hardware.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2002 PLAN:
   - (U) ($0.367) Laboratory sustainment
   - (U) ($1.033) MUSE/AFSERS development
   - (U) ($0.900) Maintenance, licenses, and equipment purchases

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A2910 Joint Tactical Center/System Integration Lab

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:			0.000
(U) Adjustments from the President's Budget:			2.300
(U) FY 2002 President's Budget Submit:			2.300

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2002 net increase of $2.300 million is for Joint Tactical Center/System Integration Lab (JTC/SIL).

(U) Schedule: The JTC/SIL schedule is determined by a MUSE User's Working Group which meets semi-annually to determine recommended development priorities and is approved by a Council of Colonels with representation from each Service and JFCOM with oversight by OASD C3I and USD AT&L.

(U) Technical: N/A

(U) C. OTHER PROGRAM FUNDING SUMMARY: N/A

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A2910 Joint Tactical Center/System Integration Lab

(U) D. ACQUISITION STRATEGY:
The JTC/SIL assists ISR system Program Managers with expertise in systems engineering, prototyping, training, and warfighter support.
This joint facility provides a cost-effective test-bed for UAV and ISR technology assessment, insertion, demonstration, and transfer, as well as simulation and exercise support. It creates a realistic operational environment which supports: an embedded training capability for multiple Program Managers; tools to minimize acquisition and life cycle costs and schedule impacts; a mechanism for the assessment of military utility; architecture, CONOPS, and TTP development and refinement; the ability to conduct emerging concepts experimentation, future systems exploration, systems integration, and technology insertion; applications for Joint and Service specific warfighting exercises; and C4I Optimization.

	FY 2000	FY 2001	FY 2002
	1 2 3 4	1 2 3 4	1 2 3 4
***(U) Program Milestones			
User's Working Group			X X
Council of Colonels			X X
(U) Engineering Milestones			
AVSI TCS BL I Update			X
AVSI TCS BL II Update			X
Devlopment Advanced Tactical Aerial Reconnaissance System simulation			X
P3 Flight Model			X
VTUAV Flight Model			X
Integrate JSIPS-N			X
National Space Assets Enhancements			X

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0305204N Tactical Unmanned Aerial Vehicles	PROJECT NUMBER AND NAME A2910 Joint Tactical Center/System Integration Lab

(U) E. SCHEDULE PROFILE: Continuation.

TO COMPLETE

(U) T&E Milestones N/A

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles			PROJECT NUMBER AND NAME A2910 Joint Tactical Center/System Integration Lab							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
MUSE Development	C/CPFF	Redstone Arsenal, AL				1.033	11/01					
Award Fees												
Subtotal Product Development						1.033						
Remarks:												
Development equipment purchases	C/FFP	Redstone Arsenal, AL				0.900	11/01					
Subtotal Support						0.900						
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE:		**June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles			PROJECT NUMBER AND NAME A2910 Joint Tactical Center/System Integration Lab						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E												
Remarks:												
Laboratory Sustainment	C/FFP	Redstone Arsenal, AL				0.367	11/01					
Subtotal Management						0.367						
Remarks:												
Total Cost						2.300				Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 209

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0305206N Airborne Reconnaissance Advanced Development (ARAD)					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	**16.337**	**18.779**	**26.135**	**5.735**							
H2694 Advanced Digital Sensors	**3.034**	**2.958**	**** 12.302**	**5.735**							
R2476 Framing Reconnaissance Camera	**13.303**	*** 15.821**	***** 13.833**	**0.000**							
Quantity of RDT&E Articles		**1**									

* FYs 2000 includes Congressional Adds totaling $14.0 million for Electro optical (E-O) Framing Technologies and Hyperspectral Reconnaissance executed under R2676 which have been offset for Congressional undistributed reductions. ** The FY 2001 budget reflects Congressional adds for Upgrade Story Finder ($3.0 million) and Weight Reduction Study ($4.0 million) which will be executed under H2990 and H2991 respectively. ***The FY 2001 budget reflects Congressional adds for Advanced Focal Plane Shutter ($3.0 million), Hyperspectral Modular Upgrades ($4.0 million), and Sensor Upgrade ($5.0 million) which will be executed under R2676, R2807, and R2992 respectively.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Provides funds for the development of sensor systems to improve present airborne reconnaissance capabilities. The developments are driven by evolving collection requirements and modern technology advances. The developments allow for the necessary changes required to meet an integrated, objective airborne reconnaissance architecture as defined in the Integrated Airborne Reconnaissance Strategy (IARS) and amplified in the Airborne Reconnaissance Information Technical Architecture (ARITA). The Advanced Sensors Development Program implements successful proof-of-concept efforts accomplished in the Advanced Technology Program, other Service/Agency developments, and Congressionally-funded initiatives leading to producible sensor systems for airborne platforms. Upon successful sensor prototype demonstration, technology sensor developments are turned over to the Services for procurement and platform integration. This effort focuses on developments, which support sensor system interoperability and standardization of multi-Service and multi-platform applications. The advanced sensor developments will provide the technology transition modules for operational use necessary for the overall migration of the airborne fleet (manned and unmanned) to a Joint Airborne SIGINT Architecture (JASA) (i.e., sensors, ground systems, data links, and platforms), and provide the mechanism required for timely dissemination of intelligence information to operational forces. The development and modification of the lead integration aircraft (EP-3E) for the initial JASA modules will provide a mechanism to begin development and operational assessment of the Joint SIGINT Avionics Family (JSAF) components. Coordinated and complementary airborne sensor development across the military Services and the Defense and Intelligence Agencies are being established for inclusion into the JASA. The two primary objectives for Advanced Technology funding is to evaluate the utility and maturity of technology for airborne reconnaissance applications and to reduce the risk of employing emerging technologies in system upgrades, new system acquisitions, or Advanced Concept Technology Demonstrations (ACTDs), by integrating and exercising them in developmental and operational tests. These technologies help satisfy the requirements of the objective architecture set forth in the Integrated Airborne Reconnaissance Strategy (IARS). These technology investments are also identified in the Airborne Reconnaissance Technology Program Plan (ARTPP), published in November 1994. Transition of sensors to AF TARS, and Navy TARPS-CD and SHARP programs have been successful.

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

R-1 SHOPPING LIST - Item No. 210

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0305206N Airborne Reconnaissance Advanced Development (ARAD)					PROJECT NUMBER AND NAME H2694 Advanced Digital Sensors					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**3.034**	**2.958**	**12.302** **	**5.735**							
RDT&E Articles Qty											

** The FY 2001 budget reflects Congressional adds for Upgrade Story Finder ($3.0 million) and Weight Reduction Study ($4.0 million) which will be executed under H2990 and H2991 respectively.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Provides funds for the development of sensor systems to improve present airborne reconnaissance capabilities. The developments are driven by evolving collection requirements and modern technology advances. The developments allow for the necessary changes required to meet an integrated, objective airborne reconnaissance architecture as defined in the Integrated Airborne Reconnaissance Strategy (IARS) and amplified in the Airborne Reconnaissance Information Technical Architecture (ARITA). The advanced sensor program includes technical analyses, systems engineering assessments, planning, and development for advanced airborne sensor systems. This effort focuses on developments which support sensor system interoperability and standardization of multi-Service and multi-platform applications. The EP-3E will undergo a series of block modification via an evolutionary acquisition process beginning in FY 2001. These block modifications have collectively been designated as the Joint SIGINT Avionics Family (JSAF) Modification Program (JMOD). The advanced sensor developments described herein will provide the technology transition modules necessary for the overall migration of the airborne fleet to a Joint Airborne SIGINT Architecture (JASA) (i.e., sensors, ground systems, data links, and platforms), and provide the mechanism required for timely dissemination of intelligence information to operational forces.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:
   - (U) ($. 703) Initiated joint Common Processor Core (CPC) Phase IV Development.
   - (U) ($. 858) Completed Story Finder development and Conduct Critical Design Review (CDR).
   - (U) ($ .150) Initiated Story Book CPC Phase I-III JSAF MOD 1 Software Integration Lab (SIL) Integration and Test
   - (U) ($ .306) Continued Story Finder JSAF MOD 1 SIL Integration and DevelopmentalTest (DT) and Operational Assessment (OA).
   - (U) ($ .250) Initiated Story Book CPC Phase I-III JSAF MOD 1 aircraft integration.
   - (U) ($ .266) Completed Story Finder JSAF MOD 1 aircraft integration.
   - (U) ($ .425) Completed Story Maker fusion software requirements analysis.
2. FY 2001 PLANS:
   - (U) ($. 570) Initiate Story Maker fusion software development.
   - (U) ($1.066) Complete Story FinderJSAF MOD 1 aircraft Integration.
   - (U) ($ .320) Complete Story Book CPC Phase I-III JSAF MOD 1 aircraft Integration.
   - (U) ($ .334) Conduct Story Finder DT/Operational Test (OT) on EP-3E JSAF MOD 1 aircraft.
   - (U) ($ .300) Conduct Story Book CPC Phase I-III DT/OT on EP-3E JSAF MOD1 aircraft.
   - (U) ($ .363) Continue joint Common Processor Core (CPC) Phase IV development.
   - (U) ($2.414) Complete JMOD1 prototype installation
   - (U) ($2.972) Upgrade Story Finder
   - (U) ($3.963) Weight Reduction Study.

R-1 SHOPPING LIST - Item No. 210

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305206N Airborne Reconnaissance Advanced Development (ARAD)	H2694 Advanced Digital Sensors

(U) PROGRAM ACCOMPLISHMENTS

3. FY 2002 PLANS:
   (U) ($1.306) Continue Story Maker development, integration and demonstration.
   (U) ($3.095) Complete Story Finder and continue software development, integration and demonstration.
   (U) ($ .300) Complete Story Book CPC.
   (U) ($ .200) Initiate Opal/Onyx aircraft DT/OT.
   (U) ($ .300) Conduct Story Classic Special Collections integration design.
   (U) ($ .534) Initiate JMOD 3 Precision Targeting (Imagery) engineering investigations.

R-1 SHOPPING LIST - Item No. 210

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305206N Airborne Reconnaissance Advanced Developm	H2694 Advanced Digital Sensors

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	2.970	2.861	7.749
(U) Adjustments from the President's Budget:	-0.012	9.441	-2.014
(U) FY2002 President's Budget Submit:	2.958	12.302	5.735

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net decrease of $.012 million consist of a decrease for a Congressional Recission ($.012 million). The FY 2001 net increase of $9.441 million consists of an increase for realignment of EP-3 JMOD protype installation funding ($2.6 million), a Congressional add to Upgrade Storyfinder/Landmarks ($3.0 million), a Congressional add for EP-3 Upgrade ($4.0 million), decrease for a Congressional reduction ($.132 million), and a decrease for a Congressional Recission ($.021 million), and a decrease for reprioritization of requirements within the Navy ($.006 million). The FY 2002 decrease of $2.014 million consist of a decrease for reprioritization of requirements within the Navy ($2.024 million), a decrease for economic assumptions ($.001 million), and an increase for economic assumptions ($.011 million).

(U) Schedule: FY 2002 and To Complete reflects the rebaseline of the RDT&E programs to the EP-3E JSAF Block Mod Upgrade schedule.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
APN-5 EP-3E OSIP 11-01		4.559	35.222							

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305206N Airborne Reconnaissance Advanced Development (ARAD)	H2694 Advanced Digital Sensors

(U) D. ACQUISITION STRATEGY: Leverages/complements Air Force, Naval Research Laboratory, Office of Naval Research RDT&E efforts for technology insertions into EP-3E/VPU productions programs.

(U) E. SCHEDULE PROFILE:

	FY 2000	FY 2001	FY 2002
(U) Program Milestones		2Q/01LRIP for JSAF MOD 1 (Story Book and Story Finder)	2Q/02 JSAF MOD 1 FRP (MS III) (Story Book and Story Finder)
(U) Engineering Milestones	1Q/00 JSAF MOD 1 (Story Finder/Book) CDR		
(U) T&E Milestones	4Q/00 JSAF MOD 1 SIL DT/OA	3Q/01 JSAF MOD 1 Acft DT/OT	
(U) Contract Milestones			

R-1 SHOPPING LIST - Item No. 210

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)						DATE: **May 2001**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0305206N Airborne Reconnaissance Advanced Developme			PROJECT NUMBER AND NAME H2694 Advanced Digital Sensors						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Story Finder	SS/CPFF	BTG, Vienna, VA	0.898									0.898
Story Finder	SS/CPFF	Raytheon Systems	0.772	1.400	01/01	2.100	12/01					Continuing
Story Finder	SS/CPFF	Lockheed Martin	0.106	0.237	01/01	0.995	12/01					Continuing
Fusion Software Development	SS/CPFF	GTE, Sunnyvale, CA	1.046			0.902	12/01					Continuing
OPAL/ONYX Development	SS/CPFF	Raytheon Systems		0.100	01/01							Continuing
Special Collections	SS/CPFF	Raytheon Systems				0.194	12/01					Continuing
Imagery	SS/CPFF	Raytheon Systems				0.268	12/01					Continuing
CPC Development	SS/CPFF	Raytheon Systems	1.447									Continuing
JMOD1 Prototype Installation	SS/CPFF	Raytheon Systems		2.414	01/01							Continuing
ESM System Modification	SS/CPFF	Raytheon Systems		2.868	01/01							Continuing
Lightweight Equipment & Racks Devel.	SS/CPFF	Raytheon Systems		1.801	01/01							Continuing
Subtotal Product Development			4.269	8.820		4.459						

Remarks:

R-1 SHOPPING LIST - Item No. 210

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0305206N Airborne Reconnaissance Advanced Developme			PROJECT NUMBER AND NAME H2694 Advanced Digital Sensors							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	C/CPFF	GRCI, Vienna, VA	0.800	0.471	12/00	0.450	12/01					Continuing
Systems Engineering	WX	NAWC,WD, China Lake, CA	0.303	2.277	12/00	0.300	12/01					
Systems Engineering	WX	NSWC, Dahlgren, VA		0.413	12/00	0.150	12/01					
Subtotal Support			1.103	3.161		0.900						

Remarks:

R-1 SHOPPING LIST - Item No. 210

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)						DATE: **June 2001**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0305206N Airborne Reconnaissance Advanced Developme			PROJECT NUMBER AND NAME H2694 Advanced Digital Sensors						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NAWC,AD Pax River, MD	0.050			0.050	12/01					
Story Finder	WX	NRL, MD	0.100									
Subtotal T&E			0.150	0.000		0.050						
Remarks:												
Technical Support	WX	NAWC,AD Pax River, MD	0.470	0.321	12/00	0.326	12/01					
Subtotal Management			0.470	0.321		0.326						
Remarks:												
Total Cost			5.992	12.302		5.735						
Remarks:												

R-1 SHOPPING LIST - Item No. 210

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0305206N Airborne Reconnaissance Advanced Development					PROJECT NUMBER AND NAME R2476 Framing Reconnaissance Camera					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**13.303**	*** 15.821**	***** 13.833**	**0.000**							
RDT&E Articles Qty		**1**									

* FYs 2000 includes Congressional Adds totaling $14.0 million, offset for Congressional Undistributed reductions, for Electro optical (E-O) Framing Technologies and Hyperspectral Reconnaissance executed under R2676.

***The FY 2001 budget reflects Congressional adds for Advanced Focal Plane Shutter ($3.0 million), Hyperspectral Modular Upgrades ($4.0 million), and Sensor Upgrade ($5.0 million) which will be executed under R2676, R2807, and R2992 respectively.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Provides funds for the development of sensor systems to improve present airborne reconnaissance capabilities. The developments are driven by evolving collection requirements and modern technology advances. The developments allow for the necessary changes required to meet an integrated, objective airborne reconnaissance architecture as defined in the Integrated Airborne Reconnaissance Strategy (IARS) and amplified in the Airborne Reconnaissance Information Technical Architecture (ARITA). The Advanced Sensors Development Program implements successful proof-of-concept efforts accomplished in the Advanced Technology Program, other Service/Agency developments, and Congressionally-funded initiatives leading to producible sensor systems for airborne platforms. Upon successful sensor prototype demonstration, technology sensor developments are turned over to the Services for procurement and platform integration. This effort focuses on developments, which support sensor system interoperability and standardization of multi-Service and multi-platform applications. The advanced sensor developments will provide the technology transition modules for operational use necessary for the overall migration of the airborne fleet (manned and unmanned) to a Joint Airborne SIGINT Architecture (JASA) (i.e., sensors, ground systems, data links, and platforms), and provide the mechanism required for timely dissemination of intelligence information to operational forces. The development and modification of the lead integration aircraft (EP-3E) for the initial JASA modules will provide a mechanism to begin development and operational assessment of the Joint SIGINT Avionics Family (JSAF) components. Coordinated and complementary airborne sensor development across the military Services and the Defense and Intelligence Agencies are being established for inclusion into the JASA.

There are two primary objectives for the Advanced Technology funding: (1) to evaluate the utility and maturity of technology for airborne reconnaissance applications and (2) to reduce the risk of employing emerging technologies in system upgrades, new system acquisitions, or Advanced Concept Technology Demonstrations (ACTDs), by integrating and exercising them in developmental and operational tests. These technologies help satisfy the requirements of the objective architecture set forth in the Integrated Airborne Reconnaissance Strategy (IARS). These technology investments are also identified in the Airborne Reconnaissance Technology Program Plan (ARTPP), published in November 1994. Transition of sensors to AF TARS, and Navy TARPS-CD and SHARP programs has been successful. Congress added funds in FY 2001 to (1) develop and Advanced Focal Plane Array for smaller electro-optical framing size, (2) develop and upgrade the Sensor to and 18 inch lens and integrate an existing dual banned sensor into the TARP pod, and (3) to upgrade the Airborne Reconnaissance System Hyperspectral Module.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305206N Airborne Reconnaissance Advanced Development (ARAD)	R2476 Framing Reconnaissance Camera

(U) PROGRAM ACCOMPLISHMENTS

1. FY 2000 PLANS:
   (U) ($11.049) Contracted for larger IR array for dual band camera, dual band camera incorporating larger IR array, long range camera incorporating visibleand SWIR Modules, hyperspectral module for long range camera, long range camera incorporating hyperspectral module.
   (U) ($ 1.400) Installed dual band camera and begin flight tests.
   (U) ($ 1.200) Contracted to modify Precision Strike system to accommodate Hyperspectral capability.
   (U) ($ .172) Successfully tested compression boards.
   (U) ($ .400) Began test of precision strike capable camera.
   (U) ($ 1.600) Conducted Flight test (NRL).

2. FY 2001 PLANS:
   (U) ($1.000) Complete flight test program of dual band camera.
   (U) ($ .234) Complete evaluation of dual band camera test results.
   (U) ($ .647) Perform flight demonstration of precision strike capable reconnaissance camera.
   (U) ($4.000) Develop Hyperspectral Modular upgrades.
   (U) ($4.980) Develop, integrate, and upgrade sensor.
   (U) ($2.972) Develop advanced focal plane shutter.

3. FY 2002 PLANS: Not Applicable.

R-1 SHOPPING LIST - Item No. 210

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305206N Airborne Reconnaissance Advanced Developm	R2476 Framing Reconnaissance Camera

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	15.883	1.898	0.000
(U) Adjustments from the President's Budget:	-0.062	11.935	0.000
(U) FY2002 President's Budget Submit:	15.821	13.833	0.000

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 decrease of $.062 consists of a decrease for a Congressional Recission ($.062 million). The FY 2001 net increase of $11.935 million consists of a Congressional add for the Advanced Focal Plane Shutter ($3.000 million), a Congressional add for the Hyperspectral Modular Upgrades ($4.000 million), a Congressional add for theSensor Upgrade ($5.000 million) and a decrease for a Congressional Reduction ($.065 million).

(U) Schedule: Changed to address Congreesional adds.

(U) Technical: Not Applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
PE 0305207N, DARP, Special Project Aircraft	39.738	27.443	29.335							

R-1 SHOPPING LIST - Item No. 210

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305206N Airborne Reconnaissance Advanced Development	R2476 Framing Reconnaissance Camera

(U) D. ACQUISITION STRATEGY: The program is to develop framing reconnaissance camera technology to support improved capabilities for programs such as SHARP.

(U) E. SCHEDULE PROFILE:

	FY 2000	FY 2001	FY 2002
(U) Program Milestones		4Q/01 Develop Focal Plane Shutter	
(U) Engineering Milestones			
(U) T&E Milestones	3Q/00 Begin dual band flight tests 3Q/00 Begin Precision Strike flight tests	2Q/01 Complete dual band flight tests 3Q/01 Precision Strike demonstration 3Q/01 Flight testing of cameras	
(U) Contract Milestones	3Q/00 Contracts Placed	3Q/01 Contracts Placed	

R-1 SHOPPING LIST - Item No. 210

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0305206N Airborne Reconnaissance Advanced Developm			PROJECT NUMBER AND NAME R2476 Framing Reconnaissance Camera							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
IR Array	C/CPFF	Recon Opt., Barrington, IL	1.661									Continuing
Dual Band Camera	C/CPFF	Recon Opt., Barrington, IL	2.300									Continuing
Long Range Camera	C/CPFF	Recon Opt., Barrington, IL	2.000									Continuing
Hyperspectral Module	C/CPFF	Recon Opt., Barrington, IL	1.500									Continuing
Camera for Hyperspectral	C/CPFF	Recon Opt., Barrington, IL	1.000									Continuing
Visible and SWIR Modules	C/CPFF	ITS, Honolulu, HI	3.300									Continuing
Precision Strike System	C/CPFF	Recon Opt., Barrington, IL	1.250									Continuing
Flight Tests	WR	NRL, Wash DC	0.900									Continuing
Compression board development	C/CPFF	Space Dyn. Lab. Logan, UT	3.400									Continuing
Precision Strike camera	C/CPFF	Recon Opt., Barrington, IL	1.290									Continuing
Dual Band Camera	C/CPFF	Recon Opt., Barrington, IL	4.038									Continuing
100 Megapixel Camera Test	C/CPFF	Recon Opt., Barrington, IL	4.513									Continuing
Hyperspectral Modular Upgrades	TBD	TBD		4.000								Continuing
Development Upgrade Integrate Sensor	TBD	TBD		4.980								Continuing
Develop advanced focal plane shutter.	TBD	TBD		2.972								Continuing
Subtotal Product Development			27.152	11.952		0.000						

Remarks:

R-1 SHOPPING LIST - Item No. 210

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)						DATE: **June 2001**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0305206N Airborne Reconnaissance Advanced Developm			PROJECT NUMBER AND NAME R2476 Framing Reconnaissance Camera						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Camera test support	C/CPFF	Various	0.172									Continuing
Subtotal T&E			0.172	0.000		0.000						
Remarks:												
Contractor Engineering Support	C/CPFF	Various	1.400	1.417	11/00							Continuing
Government Engineering Support	WR	NRL, Wash, DC	0.400	0.464								
Subtotal Management			1.800	1.881		0.000						
Remarks:												
Total Cost			29.124	13.833		0.000						
Remarks: This program has no support costs.												

R-1 SHOPPING LIST - Item No. 210

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification										DATE: June 2001	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0305207N Manned Reconnaissance Systems					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	**32.526**	**39.582**	**46.014**	**29.231**						**Continuing**	**Continuing**
* Z0117 Reef Point		**0.396**	**2.188**	**7.049**						**Continuing**	**Continuing**
** E2673 F/A-18E/F Tactical Reconnaissance (SHARP)	**32.526**	**39.186**	**43.826**	**22.182**						**Continuing**	**Continuing**
* Executed at a higher level of classification - no project R2, project unit changed from R0117 to Z0117.											
** Includes $2,817 executed under PE 0204136N, Project E2350 (FY1998) and R2673 (FY1999)											
*** Was executed under projects R2673, E2673, & E2808											
**** The FY 2001 budget reflects an $18.000 million Congressional add for SHARP risk reduction executed under E2808 and a $1.000 million Congressional add for a sensor upgrade project.											
Quantity of RDT&E Articles		**2**	**3**								**5**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Provides funds for the development of a dual-spectral-band reconnaissance pod camera system capable of being deployed on tactical aircraft. The camera will have simultaneous visible and infrared imaging capability and provide digital images in national standard formats. The system will be capable of collecting imagery, recording on-board, and transmitting simultaneously to a ground receiving station. Cameras operating in multiple spectral bands will be introduced as the technology evolves. The target aircraft is the F/A-18E/F. A prototype system will be flight demonstrated by June 2001. Provision will be made to accommodate transmission of Synthetic Aperture Radar (SAR) data. The system will operate semi-autonomously from the aircraft maximizing standard interfaces. Emphasis will be placed on using commercially available subsystems and components in an open architecture so that evolutionary designs in cameras, processors, transmitters, and recorders can be introduced seamlessly via competitive procurement procedures. An aggressive development schedule will be embraced driving toward an operational capability by May 2003. The purpose of the aggressive development schedule is to have an operational capability ready to replace the F-14 Tactical Air Reconnaissance Pod System (TARPS) due to retire beginning in 2003.

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

R-1 SHOPPING LIST - Item No. 209

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0305207N Manned Reconnaissance Systems					PROJECT NUMBER AND NAME E2673 F/A-18E/F Tactical Reconnaissance (SHARP)					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	* **32.526**	** **39.186**	*** **43.826**	**22.182**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Continuing**	**Continuing**
RDT&E Articles Qty		**2**	**3**								**5**

*Includes $2,817 executed under PE 0204136N, project E2350 (FY 1998) and funding executed under PE 0305207N, project R2673 (FY 1999).
**Was executed under projects R2673, E2673, & E2808 in FY 2000. The FY 2000 budget reflects a $9,000 thousand Congressional add for SHARP risk reduction (E2808).
*** The FY 2001 budget reflects an $18,000 thousand Congressional add for SHARP risk reduction, executed under E2808, and a $1.000 million Congressional add for a sensor upgrade project.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Shared Reconnaissance Pod (SHARP) provides funds for the development of a dual-spectral-band reconnaissance pod camera system capable of being deployed on tactical aircraft. The camera will have simultaneous visible and infrared imaging capability and provide digital images in national standard formats. The system will be capable of collecting imagery, recording on-board, and transmitting simultaneously to a ground receiving station. Cameras operating in multiple spectral bands will be introduced as the technology evolves. The target aircraft is the F/A-18E/F. A prototype system will be flight demonstrated by June 2001. Provision will be made to accommodate transmission of Synthetic Aperture Radar (SAR) data. The system will operate semi-autonomously from the aircraft maximizing standard interfaces. Emphasis will be placed on using commercially available subsystems and components in an open architecture so that evolutionary designs in cameras, processors, transmitters, and recorders can be introduced seamlessly via competitive procurement procedures. An aggressive development schedule will be embraced driving toward an operational capability by May 2003.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) ($.480) Coordinated Project Management development of the activities/contractors developing Rapid Prototype.
- (U) ($.099) Integrated SHARP Rapid Prototype sensor.
- (U)($1.846) Completed integration and tested the SHARP subsystems for Rapid Prototype.
- (U) ($2.575) Completed logistics plan and performed preliminary design of support equipment to ensure the Rapid Prototype can be transitioned to a fleet asset.
- (U) ($1.531) Flight tested sensors to evaluate their performance and compared to operational requirements document (ORD) requirements.
- (U)($.662) Coordinated Program Management activities during the engineering, manufacturing, and development (EMD) phase of the program.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305207N Manned Reconnaissance Systems	E2673 F/A-18 Tactical Reconnaissance

- (U)($.583) Performed system engineering to ensure design meets ORD requirements and can be transitioned to a design that is producible and supportable. Identified trades that can be considered as part of the cost as an independent variable process.

- (U) ($1.122) Performed systems engineering to develop EDM pods and designed/developed the (software/hardware) Interface to the F/A-18 aircraft. Coordinated with other subsystems (F/A-18 Electronic Warfare, Weapons, and Radar) to ensure system compatibility. Coordinated with ground station activities to ensure compatibility.

- (U) ($.500) Completed F/A-18 System Configuration Set (SCS) software for Rapid Prototype. Incorporated and tested the software upgrade for F/A-18 minimal integration for demo of Rapid Prototype.

- (U) ($3.200) Began F/A-18 SCS software. Upgraded demo tape for F/A-18 E/F aircraft. Updated Tactical Aircraft Mission Planning System (TAMPS) for new sensors/design.

- (U) ($3.348) Began Reconnaissance (RECCE) Management System (RMS) software design for EMD phase. Designed Built-In-Test (BIT) software to support Reliability and Maintainability (R&M) requirements. Upgraded integration labs/instrumentation.

- (U) ($2.208) Completed RECCE Management System (RMS) design for the Rapid Prototype.

- (U) ($16.483) Began SHARP Engineering Development Model(EDM) development. Completed pod design for EMD phase and fabricated 4 EDMs and 1 set of WRA's.

- (U) ($3.949) Completed SHARP prototype pod development. Completed prototype pod design and fabrication.

- (U) ($.600) Developed SHARP unique changes to datalink.

2. FY 2001 PLANS:

- (U) ($.800) Program Management to coordinate development activities during the EMD Phase of the Program.

- (U) ($1.100) Continue systems engineering to develop EDM pods, design/develop the (software/hardware) interface to the F/A-18 aircraft. Coordinate with other subsystems (F/A-18 EW, Weapons and Radar) to ensure system compatibility. Coordinate with ground station activities to ensure compatability.

- (U) ($5.872) Continue SHARP EDM development. Upgrade design as needed to support pod qualification. Complete pod design for EMD phase and fabricate 2 EDM pods. Integrate Weapons Replaceable Assembly (WRA)'s and begin initial aircraft integration on F/A-18 E/F aircraft.

- (U) ($11.202) Procure sensor for EMD phase.

- (U) ($.600) Continue work on F/A-18 SCS software. Begin integration and testing of the SHARP subsystems.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305207N Manned Reconnaissance Systems	E2673 F/A-18 Tactical Reconnaissance

- (U) ($5.642) Complete coding for RMS to support integration of the EMD phase. Begin BIT software development and testing and begin integration to the F/A-18E/F SCS.

- (U) ($7.820) Procure SHARP subsystem units.

- (U) ($3.716) Begin integration and testing of the SHARP EDM pod. Perform initial E3 testing, Carrier Suitability testing, and Initial Operation Testing to support Low Rate Initial Production.

- (U) ($6.674) Complete logistics plan and perform preliminary design of support equipment to ensure the Rapid Prototype can be transitioned to a fleet asset.

- (U) ($.400) Procure EMD Datalink

3. FY 2002 PLANS:

- (U) ($.330) Continue program management to coordinate development activities during the EMD Phase of the Program.

- (U) ($.280) Continue to perform systems engineering to develop EDM pods, design/develop the (software/hardware) interface to the F/A-18 aircraft. Coordinate with other subsystems (F/A-18 EW, Weapons, and Radar), to ensure system compatibility. Coordinate with ground station activities to ensure compatibility.

- (U) ($12.171) Procure five additional sensors for EMD phase and one Squadron Ground Station.

- (U) ($.450) Continue build of F/A-18 SCS software. Integration and test of the SHARP subsystems.

- (U) ($4.463) Complete coding for RMS to support integration of the EMD phase. Continue BIT software development and testing, and begin integration to the F/A-18E/F SCS.

- (U) ($4.488) Continue integration and test of the SHARP EDM pod. Continue performing initial E3 testing, Carrier Suitability testing, and Initial Operation Testing to support Low Rate Initial Production.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305207N Manned Reconnaissance Systems	E2673 F/A-18 Tactical Reconnaissance

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	39.340	25.271	22.244
(U) Adjustments from the President's Budget:	-0.154	18.555	-0.062
(U) FY 2002 President's Budget Submit:	39.186	43.826	22.182

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 decrease of $.154 million is due to a Congressional Rescission. The FY 2001 net increase of $18.555 million is due to a Congressional increase of $18.0 million for ongoing SHARP EMD efforts, a Congressional increase of $1.0 million for a sensor upgrade project, a $.310 million decrease for a Congressional Reduction, a $.039 million decrease for reprioritization of requirements within the Navy , a $.096 million decrease for a Congressional Recission. The FY 2002 net decrease of $.062 million is due to an increase of $.054 million for additional SHARP funding and a decrease of $.116 million due to economic assumptions.

(U) Schedule: FY 2000: EMD POD Contract award shifted from 2Q/00 to 3Q/00 to align with Milestone II decision which was granted March 2000.

FY2003: TECHEVAL shifted from 1Q/03 to 2Q/03 due to reduced EMD assets.
Milestone III decision shifted from 2Q/03 to 2Q/04 to due to delay in sensor award. Sensor Contract awarded February 2001.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007 To Complete		Total Cost
F/A-18E/F Fighter (Hornet) APN-1 (Ancillary Equipment)	0	0	12.922				0	0	0	12.922

(U) C. RELATED RDT&E
(U) PE0305206N (Airborne Reconnaissance Advance Development)
(U) PE0204236N (F/A-18 Squadrons)
(U) PE0305208N (JSIPS)

R-1 SHOPPING LIST - Item No. 209

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305207N Manned Reconnaissance Systems	E2673 F/A-18 Tactical Reconnaissance

(U) D. ACQUISITION STRATEGY: The SHARP program consists of three separate procurements.

1. The pod will be procured with an order on a Cost Plus Fixed-Fee (CPFF)/IDIQ contract to Raytheon, Indy.
2. The sensor is being procured competitively with a Cost Plus Fixed Fee (CPFF) contract.
3. The digital recorder will be procured competitively with a FPI or CPFF contract.

(U) E. SCHEDULE PROFILE:

	FY 2000	FY 2001	FY 2002	TO COMPLETE
(U) Program Milestones	3Q.00 MS-II		1Q/02 LRIP	
(U) Engineering Milestones	1Q/00 CDR (Prototype)	4Q/01 Prototype Complete 4Q/01 CDR (EMD)		
(U) T&E Milestones				
(U) Contract Milestones	3Q/00 EMD POD Contract	2Q/01 Sensor Award		

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0305207N Manned Reconnaissance Systems				PROJECT NUMBER AND NAME E2673 F/A-18 Tactical Reconnaissance						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Prototype POD Development	SS/FP-LOE	Raytheon, Indianapolis, IN	14.373	7.820	11/00					Continuing	Continuing	Continuing
Prototype Sensor (3 suppliers)	C/FFP	Various	2.507							Continuing	Continuing	Continuing
Prototype RMS Cards	C/Plus	Space Dyn Lab, Logan , UT	3.500							Continuing	Continuing	Continuing
Procure EMD Sensor	C/FFP	Recon Optical, Barrington, IL		11.171	02/01	10.791	11/01			Continuing	Continuing	Continuing
ILS Facilities (Ship Shore)	SS/FP-LOE	Raytheon, Indianapolis, IN		1.000	11/00					Continuing	Continuing	Continuing
Squadron Ground Station	TBD	TBD				1.380	11/01			Continuing	Continuing	Continuing
EMD POD Development	SS/FP-LOE	Raytheon, Indianapolis, IN	16.303	6.600	11/00	0.200	11/01			Continuing	Continuing	Continuing
Software Engineering Development	WR	NAWCWD, China Lake, CA	5.434	4.665	11/00	4.116	11/01			Continuing	Continuing	
Systems Engineering/RMS Dev.	WR	NRL, Washington, DC	8.509							Continuing	Continuing	
Product Development	WR	NAWCWD, China Lake, CA	5.982	3.974	11/00	1.407	11/01			Continuing	Continuing	
ILS Support	WR	NAWCWD, Lakehurst, NJ	0.992	0.877	11/00					Continuing	Continuing	
Misc. Product Development	WR	Various	1.286	1.294	11/00					Continuing	Continuing	
Misc. Hardware Proc./Upgrades	WR	NRL, Washington, DC	4.050							Continuing	Continuing	
Subtotal Product Development			62.936	37.401		17.894				Continuing	Continuing	

Remarks:

R-1 SHOPPING LIST - Item No. 209

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)						DATE: **June 2001**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0305207N Manned Reconnaissance Systems			PROJECT NUMBER AND NAME E2673 F/A-18 Tactical Reconnaissance						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Product Test & Integration	WR	NAWCAD, Pax River, MD	8.177	5.735		3.759				Continuing	Continuing	
Operational Test & Evaluation	WR	OPTEVFOR		0.017	11/00	0.083	11/00			Continuing	Continuing	
Subtotal T&E			8.177	5.752		3.842				Continuing	Continuing	
Remarks:												
Contractor Support/Travel/Misc.	Various	NAVAIR, Patuxent River, MD	0.599	0.673		0.446				Continuing	Continuing	
Subtotal Management			0.599	0.673		0.446				Continuing	Continuing	
Remarks:												
Total Cost			71.712	43.826		22.182				#VALUE!	#VALUE!	
Remarks:												

R-1 SHOPPING LIST - Item No. 209

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0305208N Distributed Common Ground Systems (DCGS)					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost		**5.530**	**4.434**	**4.467**							
A2174 CIGSS (JSIPS-N)		**5.530**	**4.434**	**4.467**							
Quantity of RDT&E Articles **Not applicable**											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Joint Service Imagery Processing System – Navy (JSIPS-N) is the Navy's portion of the Distributed Common Ground System (DCGS) which is a cooperative effort between the services, agencies, and DoD to provide systems capable of receiving, processing, exploiting, and disseminating data from airborne and national reconnaissance platforms. DCGS is further subdivided into systems which process, exploit, and disseminate Measurements Analysis and Signatures Intelligence (MASINT) data, Signals Intelligence (SIGINT) data, Multi-Intelligence Reconnaissance data, and Imagery data. Cooperative imagery processing systems are collectively identified under the general heading of Common Imagery Ground/ Surface Systems (CIGSS). JSIPS-N is the Navy CIGSS component.

JSIPS-N has the capability to receive, process, exploit, store and disseminate imagery, imagery-derived products and imagery intelligence (IMINT) reports based on multiple inputs from multiple sources. The primary mission of JSIPS-N is to assist strike planners, tactical aviators, and Marine Corps amphibious planners in the delivery of precision ordnance (including Tomahawk Cruise Missiles) on target.

JSIPS-N includes three major components, the Softcopy Exploitation Segment (SES) consisting of the Digital Imagery Workstation Suite Afloat (DIWSA) and the Precision Targeting Workstation (PTW), the National Input Segment (NIS) and the Tactical Input Segment (TIS). JSIPS-N is being installed onboard aircraft carriers (CV/CVN), amphibious assault ships (LHA/LHD), select fleet flagships (AGF/LCC) and shore sites.

Secondary missions of the system are to provide near-real-time imagery and support to fleet intelligence assets, Special Operations Forces, and to support primary exploitation and dissemination of tactical organic and theater IMINT products.

(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.

R-1 SHOPPING LIST - Item No. 212

EXHIBIT R-2a, RDT&E Project Justification										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0305208N Distributed Common Ground Systems (DCGS)					PROJECT NUMBER AND NAME A2174 CIGSS (JSIPS-N)					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		**5.530**	**4.434**	**4.467**							
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Joint Service Imagery Processing System – Navy (JSIPS-N) is the Navy's portion of the Distributed Common Ground System (DCGS) which is a cooperative effort between the services, agencies, and DoD to provide systems capable of receiving, processing, exploiting, and disseminating data from airborne and national reconnaissance platforms. DCGS is further subdivided into systems which process, exploit, and disseminate Measurements Analysis and Signatures Intelligence (MASINT) data, Signals Intelligence (SIGINT) data, Multi-Intelligence Reconnaissance data, and Imagery data. Cooperative imagery processing systems are collectively identified under the general heading of Common Imagery Ground/ Surface Systems (CIGSS). JSIPS-N is the Navy CIGSS component.

JSIPS-N has the capability to receive, process, exploit, store and disseminate imagery, imagery-derived products and imagery intelligence (IMINT) reports based on multiple inputs from multiple sources. The primary mission of JSIPS-N is to assist strike planners, tactical aviators, and Marine Corps amphibious planners in the delivery of precision ordnance (including Tomahawk Cruise Missiles) on target.

JSIPS-N includes three major components, the Softcopy Exploitation Segment (SES) consisting of the Digital Imagery Workstation Suite Afloat (DIWSA) and the Precision Targeting Workstation (PTW), the National Input Segment (NIS) and the Tactical Input Segment (TIS). JSIPS-N is being installed onboard aircraft carriers (CV/CVN), amphibious assault ships (LHA/LHD), select fleet flagships (AGF/LCC) and shore sites.

Secondary missions of the system are to provide near-real-time imagery and support to fleet intelligence assets, Special Operations Forces, and to support primary exploitation and dissemination of tactical organic and theater IMINT products.

R-1 SHOPPING LIST - Item No. 212

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305208N Distributed Common Ground Systems (DCGS)	A2174 CIGSS (JSIPS-N)

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

(U) ($4.278) Continued JSIPS-N systems engineering including Precision Targeting Workstation (PTW), Precision Guided Munitiions (PGMs), 'classified' communications architecture, JSIPS-N Concentrator Architecture (JCA), and Imagery Exploitation Software Segment (IESS).
(U) ($1.152) Continued Share Reconnaissance Pod (SHARP)-Tactical Input Segment (TIS) systems engineering and integration.
(U) ($0.100) Continued Test and Evaluation (T&E) of ongoing system upgrades and modifications.

2. FY 2001 PLANS:

(U) ($3.758) Continue JSIPS-N systems engineering including PTW, PGM, 'classified' communications, JCA, and IESS.
(U) ($0.576) Continue SHARP-TIS systems engineering and integration including the incorporation of appropriate Navy Input Segment (NAVIS) functions.
(U) ($0.100) Continue T&E of ongoing system upgrades and modifications.

3. FY 2002 PLANS:

(U) ($3.805) Continue JSIPS-N systems engineering including PTW, PGM, 'classified' communications, JCA, and IESS.
(U) ($0.562) Continue SHARP-TIS systems engineering and integration including the incorporation of appropriate NAVIS functions.
(U) ($0.100) Continue T&E of ongoing system upgrades and modifications.

R-1 SHOPPING LIST - Item No. 212

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305208N Distributed Common Ground Systems (DCGS)	A2174 CIGSS (JSIPS-N)

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	5.552	4.482	4.478
(U) Adjustments from the President's Budget:	(0.022)	(0.048)	(0.011)
(U) FY 2002 President's Budget:	5.530	4.434	4.467

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 decrease of $0.022 million reflects a Congressional recission.
The FY 2001 net decrease of $0.048 million reflects a decrease of $0.031 million for a Congressional reduction, a decrease of $0.010 million for a Congressional Recission and a decrease of $0.007 million for reprioritization of requirements within the Navy.
The FY 2002 net decrease of $0.011
million reflects a decrease of $0.020 million for reprioritization of requirements within the Navy and an increase of $0.008 million for economic assumptions.

(U) Schedule: The TIS Milestone Schedule was changed as a result of Chief of Naval Operation (CNO) direction to include Shared Reconnaissance Pod (SHARP) into the TIS portion of the baseline JSIPS-N system. The current TIS schedule reflects a Pre-Planned Product Improvement sub-system to the JSIPS-N program.

(U) Technical: Not Applicable.

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305208N Distributed Common Ground Systems (DCGS)	A2174 CIGSS (JSIPS-N)

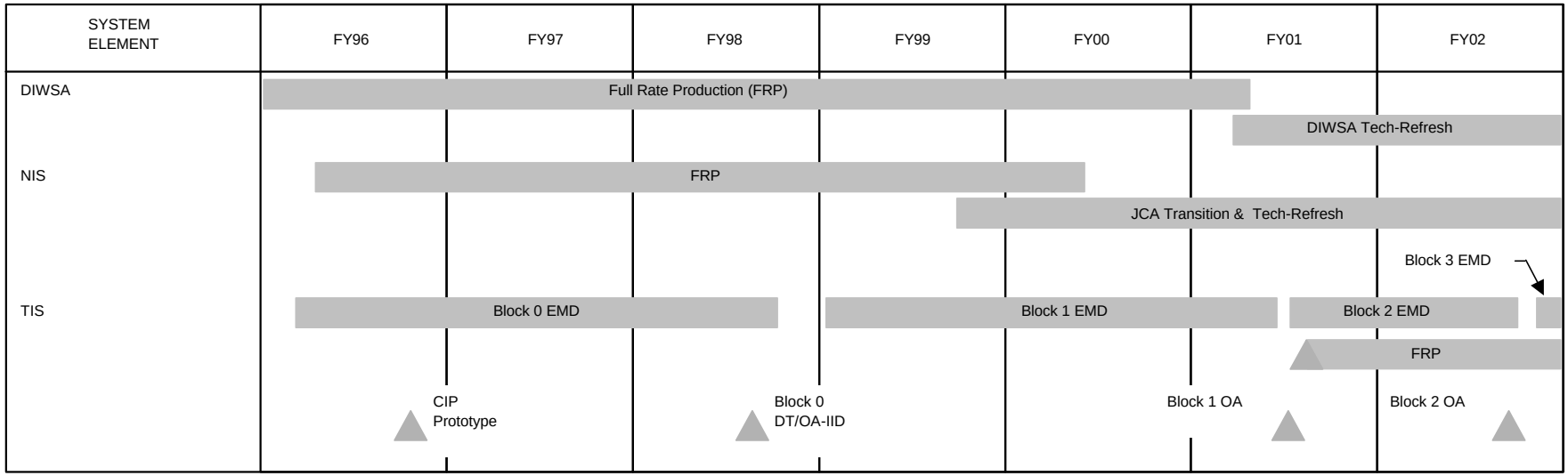
(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002
OPN, BLI 291400 Common Imagery Ground/Surface System (CIGSS)	40.266	46.207	58.446

Related RDT&E,N: Not Applicable

(U) D. ACQUISITION STRATEGY: The production system consists of three elements, the Softcopy Exploitation System (SES) consisting of the Digital Imagery Workstation Suite Afloat (DIWSA) and the Precision Targeting Workstation (PTW), the National Input Segment (NIS) and Tactical Input Segment (TIS). The DIWSA is already in full rate co-production with other programs, most notably Tomahawk's mission planning systems. The NIS is also in full rate production and supplied as Government Furnished Equipment (GFE) by the National Imagery and Mapping Agency (NIMA SDD). The TIS is acquired from the Air Force Electronic Systems Center (ESC) at Hanscom AFB. The TIS includes a Common Imagery Processor (CIP) that is supplied as GFE to the integrating contractor. The system integrator for the Navy system is the Space and Naval Warfare Systems Command.

(U) E. SCHEDULE PROFILE:



R-1 SHOPPING LIST - Item No. 212

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)							DATE: **June 2001**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0305208N Dist. Common Ground Systems (DCGS)			PROJECT NUMBER AND NAME A2174 CIGSS (JSIPS-N)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	MIPR	NAWC WD-CL, CA	0.800	0.800	02/01	0.816	02/02					
Systems Engineering	MIPR	NRL, Wash DC	0.254	0.194	05/01	0.190	05/02					
Systems Engineering	MIPR	Mitre, VA	1.500	1.000	03/01	1.000	03/02					
Systems Engineering	MIPR	NRO, Wash DC	3.491	1.158	03/01	1.189	03/02					
Systems Engineering	MIPR	OSO, Wash DC	1.750	0.800	05/01	0.800	05/02					
Systems Engineering	MIPR	Rome Labs, NY	1.080									
Systems Engineering	MIPR	Hanscom ESC, NY	1.082	0.382	03/01	0.372	03/02					
Subtotal Product Development			9.957	4.334		4.367						
Remarks:												
Subtotal Support			0.000	0.000		0.000						
Remarks:												

R-1 SHOPPING LIST - Item No. 212

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)							DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0305208N Dist. Common Ground Systems (DCGS)			PROJECT NUMBER AND NAME A2174 CIGSS (JSIPS-N)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	COMOPTEVFOR, VA	0.175	0.100	06/01	0.100	06/02					
Subtotal T&E			0.175	0.100		0.100						
Remarks:												
Subtotal Management			0.000	0.000		0.000						
Remarks:												
Total Cost			10.132	4.434		4.467						
Remarks:												

R-1 SHOPPING LIST - Item No. 212

Exhibit R-2, FY 2002 RDT&E,N Budget Item Justification DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305927N
PROGRAM ELEMENT TITLE: Navy Space Surveillance

(U) COST: (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRA
R0125 Naval Space Surveillance	712	1,425	-	-	-	-	-	-		2,13
X0125 Naval Space Surveillance	0	0	4,237							
R2809 RESIC	973	-	-	-	-	-	-	-		973
TOTAL	1,685	1,425	4,237						CONT.	CONT

* Note: Project R0125 becomes X0125 in FY02 and out.

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 United States. The fence is also the only space surveillance system which provides satellite vulnerability and space control data to the fleet. It is a multistatic continuous wave radar fence consisting of three transmitter sites, six receiver sites, and a computation/communication center. The Alternate Space Control role assigned by U.S. Commander in Chief Space (USCINCSPACE), requires that the Naval Space Command Mission System maintain functional equivalence with the USCINCSPACE Space Control Center and receive, process, and distribute data from 26 surveillance sites. The increase in funding FY00 and out supports this role and the research and development of high-powered transmitters and other system component parts for the next generation fence system to reduce risk in the implementation phase.

(U) Project R2809 is a Congressional Plus-Up in support of Remote Earth Sensing Information Center (RESIC). The Hyperspectral Integrated Tools and Techniques (HITT) initiative is the single hyperspectral project focused on integrating

the tools and techniques necessary for accurate geo-locate hyperspectral sensor data and produce timely information to support warfighter situational awareness, mission planning, and execution. The HITT project's Integration of proven commercial off-the-shelf technology will rapidly provide techniques and tools for turning this important 21st century sensor data source into usable warfighting information. The Navy's success with the HITT project should put the Navy in a position to lead all Services and Agencies conducting sensor research and development by ensuring they all have access to the tools and techniques necessary to turn the data they collect into information vital to the warfighter.

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

(U) PROGRAM CHANGE SUMMARY FOR TOTAL PE: FY2000: Congressional Plus-Up for RESIC (+$1,000K). Across-the-Board Reduction (-$4K), SBIR Assessment (-$20K), Section 8055 Congressional Proportionate Rescission (-$7K), FY2000 Adjustment for RESIC (+$4K). FY2001: Section 8086 0.7% Pro-Rata Reduction (-$10K), DON Review Adjustment (-$600K), Government-Wide Rescission (-3K).

(U) CHANGE SUMMARY EXPLANATION:

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

Exhibit R-2, FY 2002 RDT&E,N BUDGET ITEM JUSTIFICAITON DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305927N PROJECT: R0125
PROGRAM ELEMENT TITLE: Naval Space Surveillance PROJECT TITLE: Naval Space Surveillance

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R0125 Naval Space Surveillance	712	1,425	4,237							

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project supports the Naval Space Surveillance Fence, 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 United States. The fence is also the only space surveillance system which provides satellite vulnerability and space control data to the fleet. It is a multistatic continuous wave radar fence consisting of three transmitter sites, six receiver sites, and a computation/communication center. The Alternate Space Control role assigned by U.S. Commander in Chief Space (USCINCSPACE), requires that the Naval Space Command Mission System maintain functional equivalence with the USCINCSPACE Space Control Center and receive, process, and distribute data from 26 surveillance sites.

B. (U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS:
   - (U) ($440) Study system design for S-band operations.
   - (U) ($150) Verify high volume processing algorithms.
   - (U) ($122) Study improved drag processing for low orbits.

2. (U) FY 2001 PLAN:
   - (U) ($ 85) Study integrated communications for remote operations.
   - (U) ($1,340) Studies to reduce technical risks of the S-Band sensor system development and numerically intensive processing.

Exhibit R-2, FY 2002 RDT&E,N BUDGET ITEM JUSTIFICAITON DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305927N PROJECT: R0125
PROGRAM ELEMENT TITLE: Naval Space Surveillance PROJECT TITLE: Naval Space Surveillance

3. (U) FY 2002 PLAN:
- (U) ($2,573) Develop preliminary architecture and design for RF sensor, communications, and processing.
- (U) ($1,164) Perform analysis of system-level requirements for RF sensor, communications, and processing.
- (U) ($ 500) Conduct Environmental, Safety and Hazmat studies in support of frequency selection and allocation

(U) RELATED RDT&E: Not applicable.

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

	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN line #2901	7,600	2,710	4,898							

Exhibit R-2, FY 2002 RDT&E,N BUDGET ITEM JUSTIFICAITON DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305927N PROJECT: R0125
PROGRAM ELEMENT TITLE: Naval Space Surveillance PROJECT TITLE: Naval Space Surveillance

D. (U) SCHEDULE PROFILE: Not applicable.

	FY 2000	FY 2001	FY 2002	To Complete
Program Milestones		MS II Decision		
Engineering Milestones	Phase I - Sensor Alternative Option Studies	Phase II - Sensor Risk Reduction & System Design	Phase III - System Preliminary Design	Phase III - System Detail Design
T&E Milestones				
Contract Milestones		Exercise Phase II Option	Award Phase III Contract	Exercise Phase III Option

Exhibit R-3, FY 2002 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305927N PROJECT: R0125
PROGRAM ELEMENT TITLE: Naval Space Surveillance PROJECT TITLE: Naval Space Surveillance

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

Project Cost Categories	FY 2000	FY 2001	FY 2002
a. Project Management	20	57	164
b. Product Development	692	1,368	4,073
Total	712	1,425	4,237

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0308601N
PROGRAM ELEMENT TITLE: Naval Modeling and Simulation

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R2222 Naval Modeling and Simulation	10,920	13,976	7,828						CONT.	CONT.
TOTAL	10,920	13,976	7,828						CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Funds the efforts of Navy Modeling and Simulation (M&S) Management Office and the Department of the Navy Technical Support Group (TSG). Supports technical and management initiatives directed by Congress, Department of Defense (DoD) and Secretary of Navy (SECNAV) with the aim of bringing organization and focus to the development and use of M&S tools throughout Navy and DoD. It provides a central agency for the formulation and implementation of policy and guidance in M&S; represents Navy interests in Joint/other Agency. Funds efforts to define and coordinate execution of a Navy M&S program to evolve an interoperable and reusable core M&S capability consistent with the M&S technical framework prescribed by DoD. Efforts are organized around four product areas: (1) Engineering Studies and Analysis, to define the feasibility and applicability of proposed standards to Navy and to investigate service unique requirements for standards or guidance; (2) Products and Services, to develop the policy, standards, and common tools and services necessary to guide more efficient development and use of M&S across Navy; this includes development and management of the Navy Modeling and Simulation Information System (NMSIS), Navy counterpart to the DOD M&S Resource Repository, to provide a central M&S information resource to reduce stove-piped development, promote tool reuse and support informed M&S investment decisions; (3) M&S Quality Assurance Program, to establish and manage a disciplined process of model verification, validation and accreditation (VV&A) required by current directives; (4) Simulation Experiments, to test distributive simulation technology in fleet exercises, experiments, and pilot efforts which demonstrate and examine the value and limitations of proposed standards (such as High Level Architecture (HLA) and Simulation Based Acquisition (SBA) to mission and program requirements.

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0308601N
PROGRAM ELEMENT TITLE: Naval Modeling and Simulation

(U) PROGRAM CHANGE FOR TOTAL PE:

	FY 2000	FY 2001	FY 2002
FY 2001 President's Budget	12,054	9,106	8,418
Adjustments from FY 2001 President's Budget			
Execution Adjustment	-911		
Congressional Recissions	-47	-130	
SBIR Adjustment	-176		
Program Adjustment			-609
NWCF Adjustment			+9
Non Pay Inflation Adjustment			+10
Congressional Plus-up		+5,000	
FY 2002 Presbudg Submission	10,920	13,976	7,828

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0308601N PROGRAM ELEMENT TITLE: Naval Modeling and Simulation PROJECT NUMBER: R2222 PROJECT TITLE: Naval Modeling and Simulation

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

(U) FY 2000 ACCOMPLISHMENTS:

- (U) ($ 3,502) Engineering Studies and Analysis: Continued to develop and implement the Navy strategy for the transition of Navy M&S to the Office of the Secretary of Defense (OSD)-mandated M&S interoperability standard, High Level Architecture (HLA). Led Navy HLA implementation planning, reported Navy compliance to DoD, and participated in the DoD HLA transition working group. Briefed Navy flags, intra and inter service forums on the issues and technical implications of Navy M&S compliance with HLA. Performed a set of study tasks that focused on the assessment of the adequacy of the Run Time Infrastructure (RTI) of the HLA. Assessments included application areas linking disparate and pre-existing federations such as aggregated/disaggregated federation and a real time federation linked to a faster than real time federation. Continued to develop attributes for designing modeling standards of communication networks and information systems. This was done in collaboration with the Joint Staff (J6) Network Warfare Simulation (NETWARS) standards working group. Performed analysis of current operational communications infrastructure and derived a method to extract, process and archive information to support operational analysis capabilities through modeling and simulation. Initiated studies to identify building blocks functions required within Defense Information Infrastructure (DII) Common Operating Environment (COE) based Command, Control, Communication, Computers and Intelligence (C4I) systems to support simulation development. This will provide the capability to link Global Command and Control System (GCCS) operational functions with simulations. Continued to develop and implement a roadmap for migrating existing standalone training modeling capability into a more integrated, interoperable core suite of capability tailored to the Navy training requirements. Initiated and established a Modeling and Simulation degree program at the Naval Postgraduate School, Modeling, Virtual Environments and Simulation Program at the Naval Postgraduate School (MOVES) curriculum.

- (U) ($ 3,547) Products and Services: Developed and provided an initial operational implementation of the web-based Navy Modeling and Simulation Information System (NMSIS), the Naval component of the DoD M&S resource repository (part of the DoD M&S Framework). Updated and provided user assistance and support on the Naval M&S Catalog. Supported planning and technical coordination of efforts across Navy M&S Functional Areas, other Services, OSD, Joint Staff, and other agencies to develop policies and procedures for M&S standardization. Coordinated and chaired Navy's M&S Working Group and Navy Flag M&S Steering Group; participated in the Defense M&S Office's M&S working group and the DoD M&S Executive Council,

including separate forums for training, assessments & acquisition; and coordination of technical reviews of joint programs and initiatives Joint Simulation System (JSIMS), Joint Warfare Simulation System (JWARS), Joint Modeling and Simulation System (JMASS),and Network Warfare Simulation (NETWARS). Participated in select Office of the Secretary of Defense (OSD) and industry sponsored symposia. Initiated a Navy M&S Standards Steering Group and a series of Technical Interchange Meetings for the M&S community.

- (U) ($800) M&S Quality Assurance Program: Continued to implement and manage the M&S Quality Assurance development of the Verification, Validation, and Accreditation (VV&A) process and guidelines for modeling, simulation, and data. Provided technical review on M&S VV&A plans and reports and provided subject matter expertise and advice on how to meet Navy policy requirements within existing fiscal and programmatic constraints. Develop and implemented an initial version of a web-based VV&A Handbook aimed at supporting program managers across the Navy. Establish and implement a VV&A training curriculum for developers and accreditors. Provide annual VV&A assessment to the Chief of Naval Operations (CNO).
- (U) ($3,071) Simulation Experiments: Provided Navy share of Services' contribution to maintenance of the simulation protocol needed to use Joint Training Confederation simulations in Joint Task Force Exercises. Ensured simulation of Naval forces and supported Navy participation in Joint exercises; supported Ulchi Focus Lens, Synthetic Theater of War, and United Endeavor. Identified initial suite of existing M&S tools to offer near term relevance and application to the goals of the Maritime Battle Center (MBC) and the ongoing evaluation of systems and technologies in reoccurring Fleet Battle Experiments (FBE). Continued development of a Virtual Missile Range to support Fleet training needs. Continued development of the Maritime Virtual Environmental Data Specification (MARVEDS) to provide standards that represent the natural environment. This type of standard for simulation environments is critical to enabling Simulation Based Acquisition (SBA). Participated in OSD effort to develop a definition, functional description, and implementation plan for simulation-based acquisition. Provided core support in the development of a PRA (Probability of Raid Annihilation) Federation for use in surface ship combat system test and evaluation.
-

(U) FY 2001 PLAN:

- (U) ($5,280) Engineering Studies and Analysis: Conduct engineering studies and analysis aimed at determining the feasibility and applicability of proposed standards or technical approaches to Navy and at investigating service unique requirements for standards or guidance. Individual study thrusts will focus on developing or evaluating

approaches to optimize training, assessments and acquisition functional/mission objectives through more efficient development and use of M&S. Develop methodologies and standards that will result in model and data reusability and interoperability through the formulation of a technical framework. These standards will support the full range of architecture and engineering design and analysis requirements across Navy. Provide a M&S degree program through the Naval Postgraduate School, MOVES curriculum.

- (U) ($2,542) Products and Services: Continue development of common services, tools, and data bases. Develop and enhance the NMSIS, through an evolutionary process, integrating standards, standard models, standard data and connectivity to support all Naval assessments, training, acquisition and operational communities. Manage and maintain the NMSIS, as a central M&S information resource to reduce stove-piped development, promote standardization and reuse and support informed M&S investment decision making across Navy. Provide the necessary planning and coordination of M&S efforts across the Navy M&S Functional Areas, other Services, OSD, Joint Staff, and other agencies to develop policies and procedures necessary for M&S standardization within the Navy. Provide annual updates to the Naval M&S Catalog, Master Plan, and Investment Strategy.

- (U) ($790) M&S Quality Assurance Program: Continue to implement and manage the M&S Quality Assurance development of the VV&A process and guidelines for modeling, simulation, and data. Continue to review both new and legacy M&S VV&A plans and reports. Develop and maintain the Naval M&S VV&A repository. Establish and implement a VV&A training curriculum for developers and accreditors. Provide annual VV&A assessment to the CNO.

- (U) ($5,364) Simulation Experiments: Support Fleet exercises and experiments through the application of distributed simulation to a wide variety of operational, research and development, training, test and evaluation exercises. Develop and integrate appropriate models and simulations into the FBE. Develop a series of simulation projects to test and evolve the standards for models, interfaces, data, and tools necessary to enable the seamless access and use of operationally relevant M&S to support the range of Navy training, warfare assessments and acquisition requirements.

(U) FY 2002 PLAN:

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0308601N PROGRAM ELEMENT TITLE: Naval Modeling and Simulation PROJECT NUMBER: R2222 PROJECT TITLE: Naval Modeling and Simulation

- (U) ($1,313) Engineering Studies and Analysis: Conduct engineering studies and analysis aimed at determining the feasibility and applicability of proposed standards or technical approaches to Navy and at investigating service unique requirements for standards or guidance. Individual study thrusts will focus on developing or evaluating approaches to optimize training, assessments and acquisition functional/mission objectives through more efficient development and use of M&S. Develop methodologies and standards that will result in model and data reusability and interoperability through the formulation of a technical framework. These standards will support the full range of architecture and engineering design and analysis requirements across Navy. Provide a M&S degree program through the Naval Postgraduate School, MOVES curriculum.

- (U) ($2,680) Products and Services: Continue development of common services, tools, and data bases. Develop and enhance the NMSIS, through an evolutionary process, integrating standards, standard models, standard data and connectivity to support all Naval assessments, training, acquisition and operational communities. Manage and maintain the NMSIS, as a central M&S information resource to reduce stove-piped development, promote standardization and reuse and support informed M&S investment decision making across Navy. Provide the necessary planning and coordination of M&S efforts across the Navy M&S Functional Areas, other Services, OSD, Joint Staff, and other agencies to develop policies and procedures necessary for M&S standardization within the Navy. Provide annual updates to the Naval M&S Catalog, Master Plan, and Investment Strategy.

- (U) ($790) M&S Quality Assurance Program: Continue to implement and manage the M&S Quality Assurance development of the VV&A process and guidelines for modeling, simulation, and data. Continue to review both new and legacy M&S VV&A plans and reports. Develop and maintain the Naval M&S VV&A repository. Establish and implement a VV&A training curriculum for developers and accreditors. Provide annual VV&A assessment to the CNO.
- (U) ($3,045) Simulation Experiments: Support Fleet exercises and experiments through the application of distributed simulation to a wide variety of operational, research and development, training, test and evaluation exercises. Develop and integrate appropriate models and simulations into the FBE. Develop a series of simulation projects to test and evolve the standards for models, interfaces, data, and tools necessary to enable the seamless access and use of operationally relevant M&S to support the range of Navy training, warfare assessments and acquisition requirements.

B. (U) PROGRAM CHANGE SUMMARY: See total program change summary for PE.

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0308601N PROGRAM ELEMENT TITLE: Naval Modeling and Simulation PROJECT NUMBER: R2222 PROJECT TITLE: Naval Modeling and Simulation

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

(U) RELATED RDT&E: Not applicable.

D. (U) SCHEDULE PROFILE: Not applicable.

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0308601N PROGRAM ELEMENT TITLE: Naval Modeling and Simulation PROJECT NUMBER: R2222 PROJECT TITLE: Naval Modeling and Simulation

*Exhibit R-3 Cost Analysis (page 1)												DATE: September 2000
APPROPRIATION/BUDGET ACTIVITY: 7			PROGRAM ELEMENT: 0308601N									PROJECT NAME AND NUMBER: Modeling & Simulation R2222
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY-00 Cost	FY-00 Award Date	FY-01 Cost	FY-01 Award Date	FY-02 Cost	FY-02 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Navy M&S Info Sys Development	Various	Various	1768	1774	VAR	1271	TBD	1340	TBD	Cont.	Cont.	Cont.
Quality Assurance	Various	Various	1235	800	VAR	790	TBD	790	TBD	Cont.	Cont.	Cont.
Subtotal Product Development			3003	2574		2061		2130		Cont.	Cont.	Cont.
Remarks:												

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0308601N PROGRAM ELEMENT TITLE: Naval Modeling and Simulation PROJECT NUMBER: R2222 PROJECT TITLE: Naval Modeling and Simulation

M&S Services	Various	Various	1873	1773	TBD	1271	TBD	1340	TBD	Cont.	Cont.	Cont.
Subtotal Support			1873	1773		1271		1340	TBD	Cont.	Cont.	Cont.
Remarks												

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0308601N PROGRAM ELEMENT TITLE: Naval Modeling and Simulation PROJECT NUMBER: R2222 PROJECT TITLE: Naval Modeling and Simulation

Exhibit R-3 Cost Analysis (page 2)												Date: SEPTEMBER 2000
APPROPRIATION/BUDGET ACTIVITY: 7			PROGRAM ELEMENT: 0308601N									PROJECT NAME AND NUMBER: Modeling & Simulation, R2222
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY00 Cost	FY-00 Award Date	FY-01 Cost	FY-01 Award Date	FY-02 Cost	FY-02 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Simulation Experiments	Various	Various	2683	3071	TBD	5364	TBD	3045	TBD	Cont.	Cont.	Cont.
Subtotal T&E			2683	3071		5364		3045		Cont.	Cont.	Cont.
Remarks												

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0308601N PROGRAM ELEMENT TITLE: Naval Modeling and Simulation PROJECT NUMBER: R2222 PROJECT TITLE: Naval Modeling and Simulation

Engineering Studies/Analyses	Various	Various	3408	3502	TBD	5280	TBD	1313	TBD	Cont.	Cont.	Cont.
Program Management										Cont.	Cont.	Cont.
Subtotal Management			3408	3502		5280		1313		Cont.	Cont.	Cont.
Remarks:												
Total Cost			10,967	10920		13976		7828		Cont.	Cont.	Cont.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification										DATE: **June 2001**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0702207N Depot Maintenance (Non-IF)					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	**49.549**	**42.822**	**38.394**	**13.568**							
E3030 F-18 SLAP	**0.000**	**0.000**	**10.000**	**5.972**							
H2451 P-3 SLAP	**27.762**	**21.542**	**18.826**	**6.854**							
H2452 S-3 SLAP	**16.148**	**17.896**	**4.575**								
W2454 AN/ARC-210-RT-1794(C)	**5.639**	**1.684**	**0.561**	**0.742**							
W2737 Platform Follow-on Analysis		**1.700**	**4.432**								
Quantity of RDT&E Articles **Not Applicable**											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The F/A-18 Service Life Assessment Program (SLAP) is a FY 2001 new start program which will assess the structural condition of the F/A-18 fleet in order to determine what structural modifications are necessary to extend the aircraft designed service life and allow it to achieve inventory requirements. The Resource Sponsor (N880) has indicated an urgent need to assess the structural condition of the F/A-18 fleet to determine whether the structural condition supports OPNAV Tactical Aircraft inventory requirements through fiscal year (FY) 2020. It is known that F/A-18 aircraft built prior to Lot 18 are limited to 78% of their design fatigue life due to structural cracking in the section of the fuselage known as the "Center Barrel." The Center Barrel Replacement Plus (CBR+) program eliminates structural life limitations caused by cracking in the Center Barrel. The airframe structure also has the following structural limitations, both of which must be addressed to extend the designed service life of the aircraft. The F/A-18 A/B/C/D aircraft structure will also be assessed to determine the life limit on landings for all four models of types for aircraft lot 8 aircraft and above aircraft. Currently the aircraft structure is limited to 8300 landings. The goal of the SLAP program will be to identify critical structure to allow total landings to be increased to 14,500. This increase in total landings would allow the F/A-18 A/B/C/D to meet OPNAV Tactical Aircraft inventory requirements through fiscal year (FY) 2020.The Service Life Assessment Program (SLAP) on the P-3 to include all P-3 derivatives (H2451) and S-3B (H2452) began in FY 1999. These efforts are required to be conducted for these airframes to ascertain what actions must be taken to safely operate each system until the targeted end of service life. The results of the SLAP also provide justification for funding a Service Life Extension Program (SLEP) for fatigue limiting components. The AN/ARC-210-RT-1794C (W2454) will provide for the development of radio software modifications required for upgrades to the evolving standards. Under W2737 Platform Follow on Analysis, the Multi-mission Maritime Aircraft (MMA) program provides the replacement system(s) for the aging P-3/EP-3 aircraft. The MMA program received Milestone 0 approval to proceed into Concept Exploration in March 2000.

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

R-1 SHOPPING LIST - Item No. 215

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0702207N Depot Maintenance (Non-IF)					PROJECT NUMBER AND NAME E3030 F-18 SLAP					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**0.000**	**0.000**	**10.000**	**5.972**							
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The F/A-18 Service Life Assessment Program (SLAP) is a FY 2001 new start program which will assess the structural condition of the F/A-18 fleet in order to determine what structural modifications are necessary to extend the aircraft designed service life and allow it to achieve inventory requirements. The Resource Sponsor (N880) has indicated an urgent need to assess the structural condition of the F/A-18 fleet to determine whether the structural condition supports OPNAV Tactical Aircraft inventory requirements through fiscal year (FY) 2020. It is known that F/A-18 aircraft built prior to Lot 18 are limited to 78% of their design fatigue life due to structural cracking in the section of the fuselage known as the "Center Barrel." The Center Barrel Replacement Plus (CBR+) program eliminates structural life limitations caused by cracking in the Center Barrel. The airframe structure also has the following structural limitations, both of which must be addressed to extend the designed service life of the aircraft. The F/A-18 A/B/C/D aircraft structure will also be assessed to determine the life limit on landings for all four models of types for aircraft lot 8 aircraft and above aircraft. Currently the aircraft structure is limited to 8300 landings. The goal of the SLAP program will be to identify critical structure to allow total landings to be increased to 14,500. This increase in total landings would allow the F/A-18 A/B/C/D to meet OPNAV Tactical Aircraft inventory requirements through fiscal year (FY) 2020.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 PLANS:

- (U) ($7.204) Conduct analysis to determine Cat/Trap arrestment extension to 2,200 arrestments. Begin airframe testing to extend arrestment limit to 2,700.
- (U) ($2.352) Initiate Government Test and Evaluation in support of Cat/Trap arrestment analysis.
- (U) ($.444) Provide technical support for the Cat/Trap arrestment analysis.

2. FY 2002 PLANS

- (U) ($3.193) Complete analysis to determine Cat/Trap arrestment extension to 2,200 arrestments. Continue airframe testing to extend arrestment limit to 2,700. Begin airframe testing to achieve structural capability for 14,500 total arrested landings.
- (U) ($2.211) Continue Government Test and Evaluation in support of Cat/Trap arrestment analysis.
- (U) ($.568) Provide technical support for the Cat/Trap arrestment analysis.

R-1 SHOPPING LIST - Item No. 215

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0702207N Depot Maintenance (Non-IF)	E3030 F-18 SLAP

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	0.000	0.000	0.000
(U) Adjustments from the President's Budget:	0.000	10.000	5.972
(U) FY 2002 President's Budget Submit:	0.000	10.000	5.972

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2001 increase of $10.000 million consists of a reprogramming of $8.400 million from the F/A-18 Improvements Program (PE 0204136N, Project E1662) and a reprogramming of $1.600 million from the F/A-18 Follow-On Variant Program (PE 0204136N, Project E2130) due to a reprioritization of requirements within the Navy. The FY 2002 increase of $5.972 million is provided by a reprogramming of $5.972 million from the F/A-18 Improvements Program due to a reprioritization of requirements within the Navy.

(U) Schedule: Not applicable.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002
APN-5 P.E 0204136N F/A-18 Squadrons OSIP (11-99) Service Life Management Program	10.273	1.946	17.602

Related RDT&E

(U) P.E. 0204136N F/A-18 Squadrons (Project R1662: F/A-18 Improvements - High Order Language, Aft Crew Station Upgrade, ATFLIR, MIDS, JHMCS)

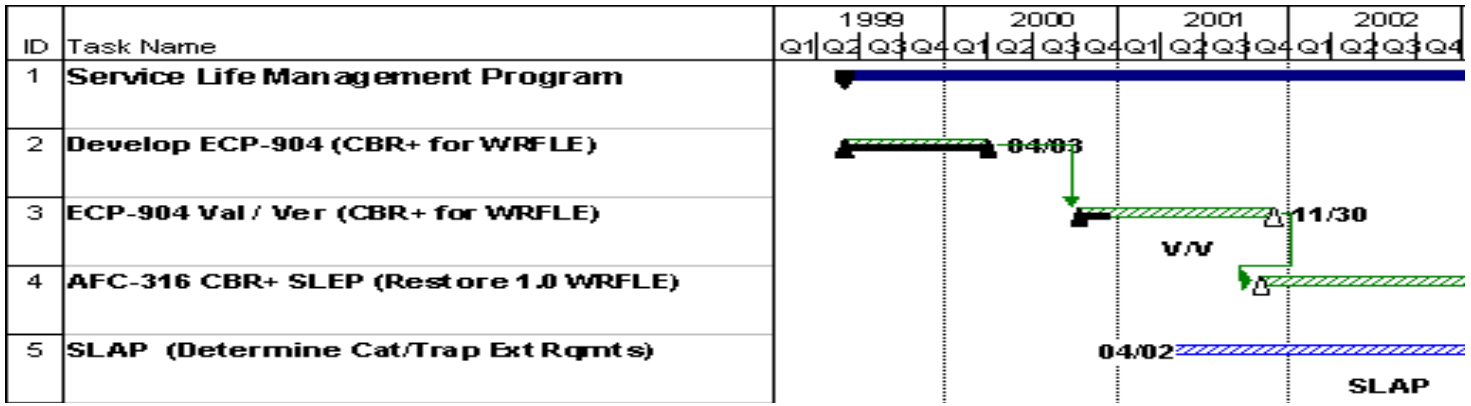
R-1 SHOPPING LIST - Item No. 215

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0702207N Depot Maintenance (Non-IF)	E3030 F-18 SLAP

(U) D. ACQUISITION STRATEGY: The SLAP program employs sole source contracts to BOEING, the aircraft prime manufacturer, and concurrent organic efforts being conducted by both NADEP North Island and NAWCAD Patuxent River. SLAP consists of structural analyses of the main landing gear, arresting hook, and catapult backup structures. These analyses will provide for the development of aircraft rework necessary to extend total aircraft landings from 8,300 to 14,700 and catapults and arrestments from 2,000 to 2,700. SLAP is a FFP sole source contract to BOEING. Engineering Change Proposals generated by the SLAP analysis w be incorporated into the Service Life Extension Program (SLEP) under OSIP (11-99), Service Life Management Program.

(U) E. SCHEDULE PROFILE:



R-1 SHOPPING LIST - Item No. 215

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0702207N Platform Follow-on Analysis			PROJECT NUMBER AND NAME E3030 F-18 SLAP							
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
SLAP Contract	SS/FFP	BOEING, St Louis	0.000	7.204	06/01	3.017	11/01					10.221
SLAP Development	WX	NAWCAD, Pax River, MD	0.000			0.165	11/01					
Subtotal Product Development			0.000	7.204		3.182		0.000				
Remarks:												
Subtotal Support			0.000	0.000		0.000		0.000				
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)											DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0702207N Platform Follow-on Analysis			PROJECT NUMBER AND NAME E3030 F-18 SLAP							
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Developmental Test and Evaluation	WX	NADEP, North Island, Ca	0.000	1.307	06/01	1.341	11/01					
Developmental Test and Evaluation	WX	NAWCAD, Pax River, MD	0.000	1.045	06/01	0.881	11/01					
Subtotal T&E			0.000	2.352		2.222		0.000				
Remarks:												
SLAP Contractor Sprt/Travel/Misc	Various	NAVAIR Pax River, MD	0.000	0.444	06/01	0.568	11/01					
Subtotal Management			0.000	0.444		0.568		0.000				
Remarks:												
Total Cost			0.000	10.000		5.972		0.000				
Remarks:												

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0702207N Depot Maintenance (Non-IF)					PROJECT NUMBER AND NAME H2451 P-3 SLAP					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**27.762**	**21.542**	**18.826**	**6.854**							
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The P-3 Service Life Assessment Program (SLAP) will perform Non-Recurring Engineering (NRE) for the P-3 Service Life Extension Program (SLEP). SLAP includes a fatigue article destructive test of a full scale P-3C, associated pre-test and post-test analyses, NRE for designing SLEP kits, and post-test disposal. SLEP is a fatigue life extension program that will extend operational service life by replacing fatigue limiting airframe components. Present fatigue life estimates (from 20,000 to 24,000 flight hours) are based on analysis alone. SLAP will identify specific components that require replacement or modification in order to extend the aircraft model's service life beyond its original fatigue life. This SLAP effort was previously budgeted under APN-5 (BLI 053800) funding within OSIP 02-99.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

(U) ($18.190) Initiated Fatigue article testing.
(U) ($ .550) Provided engineering, quality assurance, and cost schedule status reports. Prepared SLEP drawings.
(U) ($ 1.043) Continued contract support services.
(U) ($ 1.759) Conducted wind tunnel testing. Continued Naval Air Warfare Center (NAWC) field support.

2. FY 2001 PLANS:

(U) ($16.143) Continue Fatigue testing.
(U) ($ .250) Continue to provide engineering, quality assurance, and cost schedule status reports. Prepare SLEP drawings.
(U) ($ .613) Continue contract support services.
(U) ($ 1.214) Continue Naval Air Warfare Center (NAWC) field support.
(U) ($ .606) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.

R-1 SHOPPING LIST - Item No. 215

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0702207N Depot Maintenance (Non-IF)	H2451 P-3 SLAP

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

3. FY 2002 PLANS:

(U) ($5.937) Continue Fatigue testing.

(U) ($ .100) Continue to provide engineering, quality assurance, and cost/schedule status reports.

(U) ($ .212) Continue contract support services.

(U) ($ .605) Continue Naval Air Warfare Center (NAWC) field support.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0702207N Depot Maintenance (Non-IF)	H2451 P-3 SLAP

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	23.890	19.029	6.894
(U) Adjustments from the President's Budget:	-2.348	-0.203	-0.040
(U) FY 2002 President's Budget Submit:	21.542	18.826	6.854

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY2000 net decrease of $2.348 million consists of a decrease for a Small Business Innovative Research Assessment ($.419 million), a decrease to fund a reprogramming action for the Multi-mission Maritime Aircraft (MMA) program Project W2737 ($1.700 million), a decrease for reprioritization of requirements within the Navy ($1.700 million), a decrease for a Congressional Recission ($.094 million), offset by an increase for Multi-mission Maritime Aircraft (MMA program Project W2737 ($1.565 million). The FY2001 net decrease of $.203 million consists of a decrease for a Congressional Reduction ($.133 million), a decrease for a Congressional Recission ($.041 million), and a decrease for reprioritization of requirements within the Navy ($.029 million). The FY 2002 net decrease of $.040 million consists of a decrease for economic assumptions ($.011 million) and a decrease for reprioritization of requirements within the Navy ($.029 million).

(U) Schedule: Initiation of fatigue test efforts commenced in 2nd Qtr FY00, upon receipt of funding. SLEP Kit data package will be delivered 2nd Qtr FY01 to incorporate analysis of EP-3E loads. Fatigue Life Expended Rebaselining and SDRS Tracking algorithm will be completed in 3rd Qtr and 4th Qtr FY 03, when all EP-3E fatigue analysis and component testing are complete.

(U) Technical: In December 99 the Navy awarded a $13.3M modification to include EP-3E aircraft SLAP testing. To take advantage of the P-3 SLAP test, the EP-3E fatigue analysis effort began in FY00 so that test results of the two similar platforms can be correlated and subsequent fatigue rebaselining for both platforms will be accomplished in unison.

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

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0702207N Depot Maintenance (Non-IF)	PROJECT NUMBER AND NAME H2451 P-3 SLAP	

(U) D. ACQUISITION STRATEGY: SLAP was a full and open competition for a fatigue article test. The contract is a cost plus incentive fee (CPIF), therefore providing an incentive to the contractor to effectively manage program cost and schedule. Contract award was March 1999. SLAP supports the Secretary of the Navy's Maritime Patrol Aircraft Ten Year Plan.

(U) E. SCHEDULE PROFILE:

	FY 2000	FY 2001	FY 2002
(U) Program Milestones			
(U) Engineering Milestones	2Q/00 Conduct Fatigue Test Critical Design Review 2Q/00	2Q/01 SLEP Data Package	EP-3E Comp. Test 4Q/02
(U) T&E Milestones			
(U) Contract Milestones			

R-1 SHOPPING LIST - Item No. 215

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-??**			PROGRAM ELEMENT 0702207N Depot Maintenance (Non-IF)			PROJECT NUMBER AND NAME H2451 P-3 SLAP						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	C/CPIF	LMAS, GA	45.113	16.393	12/00	6.037	12/01					74.690
Field Activity Support	WX	NAWCAD, Pax River, MD	2.869	1.214	12/00	0.605	12/01					
Subtotal Product Development			47.982	17.607		6.642						
Remarks:												
Subtotal Support			0.000	0.000		0.000						
Remarks:												

R-1 SHOPPING LIST - Item No. 215

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)						DATE: **June 2001**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-??**			PROGRAM ELEMENT 0702207N Depot Maintenance (Non-IF)			PROJECT NUMBER AND NAME H2451 P-3 SLAP						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E			0.000	0.000		0.000						
Remarks:												
Program Management Support	C/CPIF	Various	1.322	0.613	12/00	0.212	12/01					
SBIR Assessment				0.606								
Subtotal Management			1.322	1.219		0.212						
Remarks:												
Total Cost			49.304	18.826		6.854						
Remarks:												

R-1 SHOPPING LIST - Item No. 215

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME **0702207N Depot Maintenance (Non-IF)**					PROJECT NUMBER AND NAME H 2452 S-3 SLAP					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**16.148**	**17.896**	**4.575**								
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The S-3 Service Life Assessment Program (SLAP) (H2452) will determine the present S-3B fatigue life for 112 aircraft which were all procured from 1972-1976. The purpose is to validate the critical structures kit to ensure the aircraft meets its service life goal of FY 2015 and to determine the magnitude of the SLEP necessary to extend service life beyond FY 2015. The SLAP will certify an increase of the aircraft fatigue life from 13,000 flight hours to approximately 17,500 flight hours and from 3,000 to 4,300 catapults/arrested landings. This SLAP effort was previously budgeted under APN-5 (BLI 054100) funding within OSIP 12-95.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

(U) ($17.361) Continued SLAP/FSFT.

(U) ($ .535) Continued field activity support for SLAP/FSFT efforts.

2. FY 2001 PLANS:

(U) ($ 4.139) Complete SLAP/FSFT effort.

(U) ($ .285) Continue final field activity support for SLAP/FSFT.

(U) ($ .151) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.

3. FY 2002 PLANS: Not Applicable.

R-1 SHOPPING LIST - Item No. 215

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	702207N Depot Maintenance (Non-IF)	H2452 S-3 SLAP

(U) B. PROGRAM CHANGE SUMMARY:

	FY 2000	FY 2001	FY 2002
(U) FY 2001 President's Budget:	14.151	4.624	
(U) Adjustments from the President's Budget:	3.745	-0.049	
(U) FY 2002 President's Budget Submit:	17.896	4.575	

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net increase of $3.745 million consists of an increase for Full Scale Fatigue Test ($4.883 million) offset by a decrease for a Small Business Innovative Research Assessment ($.333 million), a decrease for reprioritization of requirements within the Navy ($.750 million), and a decrease of for a Congressional Recission ($.055 million). The FY 2001 net decrease of $.049 million consists of a decrease for a Congressional Reduction ($.032 million), a decrease for a Congressional Recission ($.010 million), and a decrease for reprioritization of requirements within the Navy ($.007 million).

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

APPN	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate
APN S-3 (OSIP 12-95)	8.793	12.306	9.740

R-1 SHOPPING LIST - Item No. 215

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-7	0702207N Depot Maintenance (Non-IF)	H2452 S-3 SLAP	

(U) D. ACQUISITION STRATEGY: The S-3 Service Life Assessment Program is a sole source procurement to the Original Equipment Manufacturer, Lockheed Martin of Marietta, GA. A CPIF contract was awarded October 1998.

(U) E. SCHEDULE PROFILE:

	FY 2000	FY 2001	TO COMPLETE
(U) Program Milestones			
(U) Engineering Milestones	Test Fixture Design and Assembly 1Q/00-3Q/00		
(U) T&E Milestones	Full Scale Test 4Q/00	Full Scale Test 1Q/01-4Q/01	
(U) Contract Milestones			

R-1 SHOPPING LIST - Item No. 215

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **June 2001**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0702207N Depot Maintenance (Non-IF)			PROJECT NUMBER AND NAME H2452 S-3 SLAP						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
FULL SCALE FATIGUE TEST	SS/CPIF	LMAS/Marietta, GA	30.746	4.290	12/00							35.036
Subtotal Product Development			30.746	4.290		0.000						35.036
Remarks:												
Subtotal Support			0.000	0.000		0.000						
Remarks:												

R-1 SHOPPING LIST - Item No.215

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)						DATE: **June 2001**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 702207N Depot Maintenance (Non-IF)			PROJECT NUMBER AND NAME H2452 S-3 SLAP						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E			0.000	0.000		0.000						
Remarks:												
Government Engineering Support	WX	NAWC AD	3.221	0.134	12/00							
Travel	WX		0.077									
SBIR Assessment				0.151								
Subtotal Management			3.298	0.285		0.000						
Total Cost			34.044	4.575		0.000						
Remarks:												

R-1 SHOPPING LIST - Item No. 215

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0702207N, Depot Maintenance (Non-IF)					PROJECT NUMBER AND NAME W2454, AN-ARC-210 RT-1794(C)					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**5.639**	**1.684**	**0.561**	**0.742**							
RDT&E Articles Qty											

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

Project W2454, AN/ARC-210 RT-1794(C): This project provides for the development of radio software modifications required for upgrades to the evolving standards. Annual engineering change proposals to accomplish implementation of additional advanced waveforms, have been planned to maintain interoperability/connectivity with other services, FAA and ICAO (commercial air traffic data links). Implementation of these waveforms is essential and will be accomplished in the Fleet by organizational units via the Memory Loader Verifier System (MLVS). These changes are the responsibility of the radio program for funding, management, and execution.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) ($1.684) Developed upgrades and initiated Engineering Change Orders (ECO) to meet requirements for upgrades to MIL STD 188-220, variable message formatting, communications security and commercial air traffic management data link interoperability (VDL Mode 3).

2. FY 2001 PLANS:

- (U) ($ .561) Develop upgrades and initiate Engineering Change Orders (ECO) to meet requirements for improved satellite communications data rates. Upgrade radio hardware to support increased processing and memory requirements allowing for incorporation of waveform upgrades via software. Updated waveforms will include Demand Assigned Multiple Access Satellite Communications (DAMA SATCOM) and digital battlefield interoperability and commercial air traffic management data links.

3. FY 2002 PLANS:

- (U) ($ .742) Complete software and hardware integration lab testing of radio operational software and hardware for acceptance of Demand Assigned Multiple Access Satellite Communications (DAMA SATCOM) and Air Traffic Management data links.

R-1 SHOPPING LIST - Item No. 215

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0702207N, Depot Maintenance (Non-IF)	W2454, AN-ARC-210 RT-1794(C)

(U) B. PROGRAM CHANGE SUMMARY: (Show total funding, schedule, and technical changes for the program element that have occurred since the last President's submission.

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	1.723	0.567	0.752
(U) Adjustments from the President's Budget:	-0.039	-0.006	-0.010
(U) FY 2002 President's Budget Submit:	1.684	0.561	0.742

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net decrease of $.039 million consists of a $.032 million decrease for a Small Business Innovative Research (SBIR) assessment and a $.007 million decrease for a Congressional recission.
The FY 2001 net decrease of $.006 million consists of $.005 million decrease for congressional recission and a $.001 million decrease for reprioritization of requirements within the Navy.
The FY 2002 net decrease of $.010 million consists of $.005 million decrease for economic assumptions and a $.005 million decrease for reprioritization of requirements within the Navy.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002
46, Common Avionics, APN	79.511	70.448	65.147

(U) D. ACQUISITION STRATEGY: Sole source to Rockwell Collins, Inc. for the production and enhancement of the AN/ARC-210(V) Electronic Radio Protection radios.

(U) E. SCHEDULE PROFILE: Not Applicable.

R-1 SHOPPING LIST - Item No. 215

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0702207N Platform Follow-on Analysis					PROJECT NUMBER AND NAME W2737 Platform Follow-on Analysis					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		**1.700**	**4.432**								
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Multi-mission Maritime Aircraft (MMA) program provides the replacement system(s) for the aging P-3/EP-3 aircraft. The MMA program is intended to meet the Broad Area Maritime and Littoral Armed Intelligence, Surveillance and Reconaissance Mission Need Statement (MNS) which was validated by the Joint Requirements Oversight Council on 29 FEB 00. The MMA program received Milestone 0 approval to proceed into Concept Exploration (CE) on 22 MAR 2000. New start notification was provided to Congress and concept exploration activities began in June, 2000. These activities include an Analysis of Alternatives (AoA) and industry concept exploration studies. A Below Threshold Reprogramming was utilized to support FY2000 activities. FY2001 funding enables continuation and completion of the AoA and industry concept exploration studies.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

(U) ($ .493) Boeing studied the 737 derivative design concept for the airframe.
(U) ($ .224) Raytheon studied the P-3 remanufacture design concept for the airframe.
(U) ($ .493) Lockheed- Martin studied the P-3 remanufacture design concept for the airframe.
(U) ($ .490) Northrup-Grumman studied the Hybrid Manned/Unmanned system for the airframe.

2. FY 2001 PLANS:

(U) ($ .496) Complete the MMA AoA.
(U) ($ 2.099) Initiate industry Concept Exploration studies for the MMA mission system.
(U) ($ 1.529) Provide engineering support for the MS I acquisition documentation, the AoA, and the industry Concept Exploration studies.
(U) ($ .308) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.

3. FY 2002 PLANS: Not Applicable

R-1 SHOPPING LIST - Item No. 215

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0702207N Platform Follow-on Analysis	W2737 Platform Follow-on Analysis

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	0.000	9.946	4.804
(U) Adjustments from the President's Budget:	1.700	-5.514	-4.804
(U) FY 2002 President's Budget Submit:	1.700	4.432	0.000

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net increase of $1.700 million consist of an increase for MMA Analysis of Alternatives and Concept Exploration efforts ($1.700 million), per the new start letters submitted to Congress. The FY 2001 net decrease of $5.514 million consists of a decrease for reprioritization of requirements within the Navy ($5.422 million), a decrease for a Congressional Reduction ($.070 million), and a decrease for a Congressional Recission ($.022 million). The FY 2002 net decrease of $4.804 consists of a decrease for reprioritization of requirements within the Navy ($.004 million), and reductions are due to cancellation of AOA funding for CSA ($4.800 million).

(U) Schedule: ALL CSA milestones were deleted. The FY 2000 reprogramming for MMA allowed the program milestones in PB01 to be accelerated into FY 2000 vice FY 2001.

(U) Technical: Not Applicable.

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

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0702207N Platform Follow-on Analysis	W2737 Platform Follow-on Analysis

(U) D. ACQUISITION STRATEGY: MMA Milestone 0 was approved 22 March 2000 and the resulting Acquisition Decision Memorandum directed MMA to begin the CE phase consisting of an AoA and indus concept studies. These activities have begun and are scheduled to complete in late FY2001 at which time a MS I decision is scheduled, leading to a two-year program definition and risk reduction effort. MS II is scheduled for early FY2004. The MMA program is designed to meet the JROC validated MNS, "Broad Area Maritime and Littoral Armed Intelligence, Surveillance and Reconnaissance". The IOC of NLT 2015 is envisioned. The four FY2000 studies contracts will be competed in FY2001. Five mission system Concept Exploration studies will also be competed.

(U) E. SCHEDULE PROFILE:

	FY 2000	FY 2001	FY 2002	TO COMPLETE
(U) Program Milestones	Approved 2Q/00 MS 0 - Concept Exploration Engineering Ops Analysis & Concept Evaluation			
(U) Engineering Milestones				
(U) T&E Milestones				
(U) Contract Milestones	AoA Contract Award 3Q/00	Concept Exploration Contract Award 2Q/01		

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0702207N Platform Follow-on Analysis			PROJECT NUMBER AND NAME W2737 Platform Follow-on Analysis							
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
AOA	SS/FFP	CNA,VA		0.496	01/01							0.496
Derivative Concept Study	C/FFP	BOEING Seal Beach, CA	0.493									0.493
HYBRID Study	C/FFP	Northrup Grumman Bethpage,NY	0.490									0.490
Remanufacture Concept Study	C/FFP	Ratheon Greenville, TX	0.223									0.223
Remanufacture Concept Study	C/FFP	LOCKHEED Marietta, GA	0.493									0.493
Mission System Studies	C/FFP	TBD		0.481	05/01							0.481
Mission System Studies	C/FFP	TBD		0.481	05/01							0.481
Mission System Studies	C/FFP	TBD		0.481	05/01							0.481
Mission System Studies	C/FFP	TBD		0.481	05/01							0.481
Mission System Studies	C/FFP	TBD		0.483	05/01							0.483
SBIR Assessment				0.308								
Subtotal Product Development			1.699	3.211		0.000		0.000				
Remarks:												
Technical Support	C/FFP	RBC, VA		0.300	12/01							0.300
Subtotal Support			0.000	0.300		0.000		0.000				0.300
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)											DATE: **June 2001**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0702207N Platform Follow-on Analysis			PROJECT NUMBER AND NAME W2737 Platform Follow-on Analysis							
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation												
Operational Test & Evaluation												
Tooling												
GFE												
Subtotal T&E			0.000	0.000		0.000		0.000				
Remarks:												
Contractor Engineering Support	WX	NAWCAD, PAX River, MD	0.001	0.921	12/01							
Government Engineering Support												
Program Management Support												
Travel												
Labor (Research Personnel												
Overhead												
Subtotal Management			0.001	0.921		0.000		0.000				
Remarks:												
Total Cost			1.700	4.432		0.000		0.000				
Remarks:												

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0708011N
PROGRAM ELEMENT TITLE: Industrial Preparedness

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R1050 Manufacturing Technology	57,374	68,987	70,605						CONT.	CONT.
R2674 Manufacturing Technology	12,100	0	0	0	0	0			CONT.	CONT.
Total	69,474	68,987	70,605						CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Manufacturing Technology (MANTECH) Program is intended to improve the productivity and responsiveness of the U.S. defense industrial base by funding the development of manufacturing technologies. The MANTECH 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, metal working and welding technology. The MANTECH 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.

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0708011N
PROGRAM ELEMENT TITLE: Industrial Preparedness

(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 CHANGE FOR TOTAL PE:

	FY 2000	FY 2001	FY 2002
(U) FY 2001 President's Budget:	71,209	59,626	60,611
(U) Appropriated Value:	71,604	-	-
(U) Adjustments from FY 2001 PRESBUDG:	-	-	-
(U) Execution Adjustment	40	-	-
(U) Inflation Adjustment	-	-	120
(U) Small Business Innovation Research	-1,496	-	-
(U) Congressional Increase		10,000	
(U) Revised Economic Assumption	-279	-639	-
(U) Program Increase	-	-	9,925
(U) NWCF Rate Adjustments	-	-	-51
(U) FY 2002 PRESBUDG Budget Submission:	69,474	68,987	70,605

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0708011N
PROGRAM ELEMENT TITLE: Industrial Preparedness

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R1050 Manufacturing Technology	57,374	68,987	70,605						CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Manufacturing Technology (MANTECH) Program is intended to improve the productivity and responsiveness of the U.S. defense industrial base by funding the development of manufacturing technologies. The MANTECH 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, metal working and welding technology. The MANTECH 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 MANTECH 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.

2. (U) FY 2000 ACCOMPLISHMENTS:

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

- (U) The Navy MANTECH program executes a significant amount of its projects through the Centers of Excellence. The technical efforts performed are reflected throughout the following taxonomy:

  -- (U) $12,000 - Composites Processing and Fabrication - Completed work on the Composites Affordability Initiative; continued the Composites Topside Structures; Enhanced Production Techniques for Low Observable Structures and Materials; Teaching Factory; Rapid Response; Z-Direction Reinforcement for Composite Laminates; Ceramic Matrix Composites; and Resin Transfer Molding.

  -- (U) $8,000 – Electronics Processing and Fabrication - Continued AEGIS Electronic Demonstration, Flexible Manufacturing of Microwave Power Module Manufacturing, Learning Center and Demonstration Factory, and the Power Electronic Building Blocks Manufacturing plan. Continued electro-optics efforts in Sapphire Domes, Manufacturing Automation of Monolithic Ring Gyros; and initiate efforts for Fiber Optic Velocity Sensors, Remote Source Lighting Technology and Radio Frequency Photonics for Multi-Function Phased Array Antennas, and Affordable Array Technology Tooling.

  -- (U) $19,600 - Metals Processing and Fabrication - Completed the Centrifugally Cast Titanium/Chromium Bronze Components, Continued the following metalworking projects: Neodymium Ribbon Development, Optimized Atomization of Magnesium Powder, Titanium Alloy Hearth Melting Processing Technology, Optimized High Strength Lightweight Alloy Welding, and Thin Wall Superalloy Structural Castings. Completed Powder Metallurgy and Materials. Continued the following joining projects: Weld Residual Stress and Distortion, Titanium Welding, Adhesive Bonding Integrity, Knowledge Based Ultrasonic Testing of Welds, and continue rapid response actions. Continued the following materials processing initiatives: Laser Processing of Nickel Aluminum Bronze, Non-Contact High Speed Gear Inspection, Repair/Refurbishment of Fatigue/Wear Limited Navy Structures, Advanced Manufacturing Processes for the Advanced Amphibious Assault Vehicle, and

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

Manufacturing of High Performance of Transmission Housing. Continued a joint effort with the Air Force in Metals Affordability. Continued work on the Propulsor Affordability Initiative; Advanced Manufacturing processing for Advanced Amphibious Assault Vehicle Tracks (AAAV) and Roadwheels; and the Enhanced Applique Armor Kit Product Improvement.

-- (U) $6,900 - Advanced Manufacturing Enterprise - Continued leveraging the Best Manufacturing Practices and Acquisition Reform Initiatives. Continued documenting environmental manufacturing and business practices. Continued efforts in shipbuilding and simulation based design. Continue efforts in Shipboard Sensors; Effective Aluminum Catamaran Structures; Chromium Primer for Aluminum Substrates; and the Environmental Resource Information Center. Continued ongoing and initiate new research efforts in support of the National Shipbuilding Research Program Advanced Shipbuilding Enterprise. Continued Pathways for Continuous Improvement Program. Continue Supply Chain Integration program in support of shipbuilding commerce. Continued to work with the Navy, commercial and international shipyards on identifying best business practices.

-- (U) $10,874 - Other - Continued projects in the repair technology arena that support the depots and shipyards such as Supercritical CO2 Parts Cleaning, Ball Valve Repair Process Improvement, Shearography System Development, and Reverse and Re-Engineering Technical Data Generation System. Completed the Ammonium Dinitramide and Composite Propellants projects in support of energetic materials. Supported shipbuilding initiatives as they related to manufacturing processes. Continued engineering technical support with the Systems Commands Program Offices and Program Executive Offices to provide Technical Assistants for each project supported by the MANTECH Executive Steering Committee. Initiated manufacturing projects to support a shipbuilding affordability initiative with DD 21 as the first customer. Initiated industrial base and affordability studies to determine manufacturing gaps for future work.

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

3. U) FY 2001 PLAN:

- The Navy MANTECH program executes a significant amount of its projects through the Centers of Excellence. The technical efforts performed are reflected throughout the following taxonomy:

  -- (U) $6,750 - Composites Processing and Fabrication – Initiate a rotorcraft composites affordability initiative. Continue work on the Composites Topside Structures; Enhanced Production Techniques for Low Observable Structures and Materials; Teaching Factory; Rapid Response; Z-Direction Reinforcement for Composite Laminates; Ceramic Matrix Composites; and Resin Transfer Molding. Continue Korex Phase III.

  -- (U) $11,200 - Electronics Processing and Fabrication - Continue AEGIS Electronic Demonstration, Flexible Manufacturing of Microwave Power Module Manufacturing, Learning Center and Demonstration Factory, and the Power Electronic Building Blocks Manufacturing plan. Continue electro-optics efforts in Sapphire Domes, Manufacturing Automation of Monolithic Ring Gyros; and initiate efforts for Fiber Optic Velocity Sensors, Remote Source Lighting Technology, Conformal Acoustic Velocity Sensor Accelerometer Manufacturing, Radio Frequency Photonics for Multi-Function Phased Array Antennas, and Affordable Array Technology Tooling.

  -- (U) $25,400 - Metals Processing and Fabrication - Continue the following metalworking projects: Centrifugally Cast Titanium/Chromium Bronze Components, Neodymium Ribbon Development, Optimized Atomization of Magnesium Powder, Titanium Alloy Hearth Melting Processing Technology, Optimized High Strength Lightweight Alloy Welding, and Thin Wall Superalloy Structural Castings. Complete Powder Metallurgy and Materials Initiative. Continue the following joining projects: Weld Residual Stress and Distortion, Titanium Welding, Adhesive Bonding Integrity, Knowledge Based Ultrasonic Testing of Welds, and continue

rapid response actions. Continue the following materials processing initiatives: Laser Processing of Nickel Aluminum Bronze, Non-Contact High Speed Gear Inspection, Repair/Refurbishment of Fatigue/Wear Limited Navy Structures, Advanced Manufacturing Processes for the Advanced Amphibious Assault Vehicle, and Manufacturing of High Performance of Transmission Housing. Continue a joint effort with the Air Force in Metals Affordability. Continue work on the Propulsor Affordability Initiative.

-- (U) $7,000 - Advanced Manufacturing Enterprise - Continue leveraging the Best Manufacturing Practices and Acquisition Reform Initiatives. Continue documenting environmental manufacturing and business practices. Continue efforts in shipbuilding and simulation based design. Continue efforts in Shipboard Sensors; Effective Aluminum Catamaran Structures; Chromium Primer for Aluminum Substrates; and the Environmental Resource Information Center. Continue ongoing and initiate new research efforts in support of the National Shipbuilding Research ProgramAdvanced Shipbuilding Enterprise. Continue work on the Pathways for Continuous Improvement Program, and Supply Chain Integration.

-- (U) $9,793- Other - Continue projects in the repair technology arena that support the depots and shipyards such as Supercritical CO2 Parts Cleaning, Ball Valve Repair Process Improvement, Shearography System Development, and Reverse and Re-Engineering Technical Data Generation System. Continue the Ammonium Dinitramide and Composite Propellants projects in support of energetic materials. Continue Phase III of the F414 Engine Demonstration Device with General Electric. Continue technical assistant work at the Systems Command’s Program Offices and Program Executive Offices. Continued the Shipbuilding Initiative by starting three new projects.

-- (U) $7,400 – Initiated the Surface Strike Affordability Initiative and the Joint Service Microelectrical – mechanical Sensors Affordability initiatives.

-- (U) $1,444 - Portion of extramural program reserved for Small Business Innovation Research Assessments in accordance with 15 U.S.C. 638.

4. U) FY 2002 PLAN:

- The Navy MANTECH program executes a significant amount of its projects through the Centers of Excellence. The technical efforts performed are reflected throughout the following taxonomy:

-- (U) $9,500 - Composites Processing and Fabrication - Continue work on the Rotorcraft Affordability Initiative. Continue work on the Composites Topside Structures; Enhanced Production Techniques for Low Observable Structures and Materials; Teaching Factory; Rapid Response; Z-Direction Reinforcement for Composite Laminates; Ceramic Matrix Composites; and Resin Transfer Molding. Continue Korex Phase III.

-- (U) $8,000 - Electronics Processing and Fabrication - Continue AEGIS Electronic Demonstration, Flexible Manufacturing of Microwave Power Module Manufacturing, Learning Center and Demonstration Factory, and the Power Electronic Building Blocks Manufacturing plan. Continue electro-optics efforts in Sapphire Domes, Manufacturing Automation of Monolithic Ring Gyros; Fiber Optic Velocity Sensors, Remote Source Lighting Technology, Accelerometer Manufacturing, Radio Frequency Photonics for Multi-Function Phased Array Antennas, and Affordable Array Technology Tooling.

-- (U) $19,500 - Metals Processing and Fabrication - Continue the following metalworking projects: Centrifugally Cast Titanium/Chromium Bronze Components, Neodymium Ribbon Development, Optimized Atomization of Magnesium Powder, Titanium Alloy Hearth Melting Processing Technology, Optimized High Strength

Lightweight Alloy Welding, and Thin Wall Superalloy Structural Castings. Complete Powder Metallurgy and Materials Initiative. Continue the following joining projects: Weld Residual Stress and Distortion, Titanium Welding, Adhesive Bonding Integrity, Knowledge Based Ultrasonic Testing of Welds, and continue rapid response actions. Continue the following materials processing initiatives: Laser Processing of Nickel Aluminum Bronze, Non-Contact High Speed Gear Inspection, Repair/Refurbishment of Fatigue/Wear Limited Navy Structures, Advanced Manufacturing Processes for the Advanced Amphibious Assault Vehicle, and Manufacturing of High Performance of Transmission Housing. Continue a joint effort with the Air Force in Metals Affordability. Continue work on the Propulsor Affordability Initiative.

-- (U) $8,000 - Advanced Manufacturing Enterprise - Continue leveraging the Best Manufacturing Practices and Acquisition Reform Initiatives. Continue documenting environmental manufacturing and business practices. Continue efforts in shipbuilding and simulation based design. Continue efforts in Shipboard Sensors; Effective Aluminum Catamaran Structures; Chromium Primer for Aluminum Substrates; and the Environmental Resource Information Center. Continue ongoing and initiate new research efforts in support of the National Shipbuilding Research Program Advanced Shipbuilding Enterprise. Continue work on the Pathways for Continuous Improvement Program, and Supply Chain Integration.

-- (U) $9,971 - Other – Continue projects in the repair technology arena that support the depots and shipyards such as Supercritical CO2 Parts Cleaning, Ball Valve Repair Process Improvement, Shearography System Development, and Reverse and Re-Engineering Technical Data Generation System. Continue the Ammonium Dinitramide and Composite Propellants projects in support of energetic materials. Continue Phase III of the F414 Engine Demonstration Device with General Electric. Continue technical assistant work at the Systems Command’s Program Offices and Program Executive Offices.

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

-- (U) $15,634 – Continue the multi-center of excellence executed Surface Strike Affordability Initiative and the Joint Service Microelectrical–mechanical Sensors (MEMS) Affordability initiatives.

B. (U) PROGRAM CHANGE SUMMARY: See total program change summary for PE

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

(U) RELATED RDT&E:
(U) PE 0708011F (Industrial Preparedness)
(U) PE 0708045A (End Item Industrial Preparedness Activities)
(U) PE 0708011S (Industrial Preparedness)

D. (U) SCHEDULE PROFILE: Not applicable.

FY 2002 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

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

Project Cost Categories	FY 2000	FY 2001	FY 2002
a. Process Development	65,527	63,761	65,205
b. Program Management Support	3,947	5,226	5,400
Total	69,474*	68,987	70,605

* Includes Congressional Plus Up $12,149 Project R2674 in FY 2000.

FY 2002 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

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 1999 & Prior	FY 2000 Budget	FY 2001 Budget	FY 2002 Budget	To Complete	Total Program
Product Development										
GLCC	C/BAA	1995	CONT.	CONT.	114,761	13,400	TBD	TBD	CONT.	CONT.
CTC	SS/CPFF	1988	CONT.	CONT.	196,495	13,750	13,200	12,000	CONT.	CONT.
EWI	C/BAA	1996	CONT.	CONT.	14,100	4,250	4,000	3,000	CONT.	CONT.
ACI	C/BAA	1995	CONT.	CONT.	21,500	6,500	6,700	7,500	CONT.	CONT.
UNO	C/BAA	1998	CONT.	CONT.	9,875	4,150	4,500	3,500	CONT.	CONT.
PSU	C/CPFF	1997	CONT.	CONT.	13,850	7,650	6,500	4,300	CONT.	CONT.
PTI	C/CPFF	1997	CONT.	CONT.	14,500	5,100	4,800	4,500	CONT.	CONT.
ARL/PSU	C/CA	1999	17,000	25,000	5,000	5,000	3,500	2,500	CONT.	CONT.
NSWC-CD	WX	1998	UNK	UNK	1,000	1,000	1,200	1,200	CONT.	CONT.
NSWC-IN	WX	1996	UNK	UNK	2,000	2,000	2,000	2,000	CONT.	CONT.
TBD	CA	2000	UNK	UNK	UNK	0	8,000	8,000	CONT.	CONT.
NAVAIR	PD	1996	CONT	CONT.	UNK	1,000	1,000	1,000	CONT.	CONT.
SCRA/ERIM	CA/BAA	TBD	UNK	UNK	0	0	4,000	2,000	CONT.	CONT.
TBD					0	0	5,100	16,007	CONT.	CONT.
Miscellaneous	WX/RC/WR	Various	Various	Various	13,973	5,634	4,639	3,000	CONT.	CONT.

FY 2002 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

Support and Management: Not applicable.

Test and Evaluation: Not applicable.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

	Total FY 1999 & Prior	FY 2000 Budget	FY 2001 Budget	FY 2002 Budget	To Complete	Total Program
Subtotal Product Development	407,054	69,434	69,139	70,507	CONT.	CONT.
Subtotal Support and Management	0	0	0	0	0	0
Subtotal Test and Evaluation	0	0	0	0	0	0
Total Project	407,054	69,434	69,139	70,507	CONT.	CONT.

* Includes Congressional Plus Up $12,149 Project R2674 in FY 2000.

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **June 2001**			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7**					R-1 ITEM NOMENCLATURE NAT'L SHIPBLDG RES PROG ADVANCED SHIPBLDG ENTERPRISE/0708730N					
COST ($ in Millions	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Total PE Cost	**20.512**	**9.280**	**20.065**							
NSRP ASE/S2466/S2811	**20.512**	**9.280**	**20.065**							
Quantity of RDT&E Articles	**N/A**	**N/A**	**N/A**							

A. Mission Description and Budget Item Justification

The mission of the National Shipbuilding Research Program Advanced Shipbuilding Enterprise (NSRP ASE) is to manage and focus national research funding on technologies that will enhance U.S. commercial shipbuilding competitiveness and reduce the cost of naval ships. NSRP ASE combines DARPA's MARITECH and the Navy's National Shipbuilding Research Program (NSRP).

Industry has developed a landmark long range Strategic Investment Plan which will guide NSRP ASE investments. This Strategic Investment Plan provides a framework to guide collaborative research and development among all segments of the U.S. ship construction and repair industry, educational and research institutions, and Government. The objective is to assist the industry in achieving significant reduction in the cost and time required for both commercial and Navy ship construction, conversion, and repair. The recommended investment portfolio includes major initiatives that tie the strategic vision to proposed industry research through collaborative R&D. The major initiatives include: Shipyard Production Process Technologies, Business Process Technologies, Product Design and Material Technologies, Systems Technologies, Facilities and Tooling. Additionally, several critical success factors were found to cut across all of the major initiatives. These "Crosscut Initiatives" include Education and Training, Technology Transfer, Organizational Change, Environmental Protection and Human Resources.

The collaboration of major shipyards that lead the program are: Electric Boat Corporation, Bath Iron Works, Newport News Shipbuilding, Atlantic Marine, Litton Ingalls Shipbuilding, Friede/Goldman/Halter Marine, Litton Avondale, NASSCO, Todd Pacific, Cascade General and Bender Shipbuilding.

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7**	R-1 ITEM NOMENCLATURE NAT'L SHIPBLDG RES PROG ADVANCED SHIPBLDG ENTERPRISE/0708730N

FY 2000 ACCOMPLISHMENTS: (20,512K)
- (U) (10,715K) Continued technology development projects in the six major initiative areas selected from Research Announcement One (13 projects).
- (U) (8,202K) Commenced technology development projects in the six major initiative areas selected from Research Announcement Two.
- (U) (796K) Continued utilization of industry-led major initiative teams to perform the execution and annual review of the Strategic Investment Plan, including technology transfer among the Navy, the shipbuilding industry, academia, equipment and material suppliers and the R&D community.
- (U) (550K) Operated multi-agency support office to facilitate technology transfer between Government and industry.
- (U) (249K) Completed close out of DARPA MARITECH and NSRP projects that transferred to NSRP ASE.

FY 2001 PLAN: (9,280K)
- (U) (4,700K) Continue technology development projects in the six major initiative areas selected from Research Announcement One (13 projects).
- (U) (3,737K) Continue technology development projects in the six major initiative areas selected from Research Announcement Two.
- (U) (300K) Continue utilization of industry-led major initiative teams to perform the execution and annual review of the Strategic Investment Plan, including technology transfer among the Navy, the shipbuilding industry, academia, equipment and material suppliers and the R&D community.
- (U) (125K) Initiate transition of projects to shipbuilding programs.
- (U) (150K) Operate multi-agency support office to facilitate technology transfer between Government and industry.
- (U) (25K) Complete close out of DARPA MARITECH and NSRP projects that transferred to NSRP ASE.
- (U) (243K) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

FY 2002 PLAN: (20,065K)
- (U) (9,100K) Complete all remaining technology development projects in the six major initiative areas selected from Research Announcement One (13 projects).
- (U) (10,165K) Continue technology development projects in the six major initiative areas selected from Research Announcement Two.
- (U) (400K) Continue utilization of industry-led major initiative teams to perform the execution and annual review of the Strategic Investment Plan, including technology transfer among the Navy, the shipbuilding industry, academia, equipment and material suppliers and the R&D community.
- (U) (250K) Continue transition of projects to shipbuilding programs.
- (U) (150K) Operate multi-agency support office to facilitate technology transfer between Government and industry.

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **June 2001**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7**	R-1 ITEM NOMENCLATURE NAT'L SHIPBLDG RES PROG ADVANCED SHIPBLDG ENTERPRISE/0708730N

B. Program Change Summary:

	FY 2000	FY 2001	FY 2002
FY 2001 President's Budget:	19.681	9.366	15.166
Appropriated Value:	21.431	9.366	
Adjustment to FY 2000/2001 Appropriated Value	-0.919	-0.086	4.899
FY 2001 President's Budget:			
FY 2002 PRES Budget Submit:	20.512	9.280	20.065

Funding: FY00: -$919K deceases due to congressional undistributed reduction
FY01: -$86K congressional undistributed reduction
FY02: +$4,899K increase due to program adjustments

Technical: Not applicable.

C. Other Program Funding Summary (Related RDT&E): DARPA P.E. 0603746E (MARITECH) - NSRP ASE follows the original DARPA MARITECH program. Work remaining under the original DARPA program has transitioned to the NSRP ASE program

D. Acquisition Strategy: R&D projects have been solicited and awarded by an industry collaboration represented by the Executive Control Board (ECB) of the Natio Shipbuilding Research Program (NSRP). The Navy has entered into an agreement with the industry collaboration using "other transaction" authority pursuan 10 U.S.C. 2371.

E. Schedule Profile:

	FY 00	FY 01	FY 02
Engineering Milestones: N/A			
T&E Milestones: N/A			
Contract Milestones:			
Other Program Events:	2Q Award 2nd Set-Tech. Develop. Projects 3Q Annual Update of Strategic Invest. Plan	3Q Annual Update of Strategic Invest. Plan	3Q Annual Update of Strategic Invest. Plan

Exhibit R-3 Cost Analysis (page 1) | DATE: **June 2001**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N** | PROGRAM ELEMENT: **NSRP ASE - PE 0708730N** | PROJECT NAME AND NUMBER: NSRP ASE/S2466/S2811

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Technology Development	SS OT*	ECB NSRP**	14.953	19.453	VARIOUS	9.000	VARIOUS	19.835	VARIOUS	9.800	73.041	73.041
Subtotal Product Development			14.953	19.453		9.000		19.835		9.800	73.041	73.041

Remarks:
* Other Transactions IAW 10 USC 2371

Gov't Support Serv/Other Agencies	MIPR/WR	MARAD	2.398	0.050	1Q00	0.050	1Q01	0.050	1Q01	0.050	2.598	2.598
Support Services Revolving Accts	MIPR/WR	VARIOUS	0.292	0.254	1Q00	0.100	1Q01	0.050	1Q01	0.050	0.746	0.746
Subtotal Support			2.690	0.304		0.150		0.100		0.100	3.344	3.344

Remarks:

Exhibit R-3 Cost Analysis (page 2) | DATE: **June 2001**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N** | PROGRAM ELEMENT: **NSRP ASE - PE 0708730N** | PROJECT NAME AND NUM: NSRP ASE/S2466/S2811

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
Contract Support Services												
Technology Development	Reqn*	TRW/Schafer Corp.	0.410	0.400	3Q00	0.000		0.000		0.000	0.810	0.810
Technology Development	SS	PSU/APL	0.075	0.100	1Q00	0.100	1Q01	0.100	1Q01	0.100	0.475	0.475
PM Support	RC	NASSCO	0.000	0.070	3Q00	0.000		0.000		0.000	0.070	0.070
NSNET	RC	University of Michigan	0.250	0.150	3Q00	0.000		0.000		0.000	0.400	0.400
Travel			0.014	0.035	VARIOUS	0.030	VARIOUS	0.030	VARIOUS	0.030	0.139	0.139
Subtotal Management			0.749	0.755		0.130		0.130		0.130	1.894	1.894
Remarks: * Procure under GSA Schedule												
Total Cost			18.392	20.512		9.280		20.065		10.030	78.279	78.279
Remarks:												