CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification						DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY - BA 4**				R-1 ITEM NOMENCLATURE **Cooperative Engagement Capability 0603658N**					
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Total PE Cost	**173.321**	**105.689**	**86.144**	**41.251**	**33.839**	**32.830**	**32.707**	**Cont.**	**Cont.**
Cooperative Engagement Capability (CEC) K2039	**115.439**	**73.575**	**86.144**	**41.251**	**33.839**	**32.830**	**32.707**	**Cont.**	**Cont.**
Cooperative Engagement Capability (CEC) K2616	**57.882**	**32.114**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Cont.**
Quantity of RDT&E Articles									**22**

A. (U) Mission Description and Budget Item Justification: Cooperative Engagement Capability (CEC) significantly improves Battle Force Anti-Air Warfare (AAW) capability by coordinating all Battle Force AAW sensors into a single, real-time, composite track picture capable of fire control quality. CEC distributes sensor data from each ship and aircraft, or cooperating unit (CU), to all other CUs in the battle force through a real-time, line of sight, high data rate sensor and engagement data distribution network. CEC is highly resistant to jamming and provides accurate gridlocking between CUs. Each CU independently employs high capacity, parallel processing and advanced algorithms to combine all distributed sensor data into a fire control quality track picture which is the same for all CUs. CEC data is presented as a superset of the best AAW sensor capabilities from each CU, all of which are integrated into a single input to each CU's combat weapons system. CEC will significantly improve our Battle Force defense in depth, including both local area and ship defense capabilities against current and future AAW threats. Moreover, CEC will provide critical connectivity and integration of over-land air defense systems capable of countering emerging air threats, including land attack cruise missiles, in a complex littoral environment.

(U) CEC consists of the Data Distribution System (DDS), the Cooperative Engagement Processor (CEP), and Combat System modifications. The DDS encodes and distributes ownship sensor and engagement data, is a high capacity, jam resistant, directive system providing a precision gridlocking and high throughput of data. The CEP is a high capacity distributed processor which is able to process force levels of data in near real-time. This data is passed to the ship's combat system as high quality data for which the ship can cue its onboard sensors or use the data to engage targets without actually tracking them.

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA 4**	R-1 ITEM NOMENCLATURE **Cooperative Engagement Capability 0603658N**

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

(U) FY 2001 ACCOMPLISHMENTS:
- (U) ($ 52.759) Continued CEC hardware and software engineering efforts at Raytheon Systems Company, St. Petersburg, FL.
- (U) ($ 12.187) Continued CEC TDA engineering efforts at JHU/APL.
- (U) ($ 11.165) Continued CEC E-2C integration efforts at PMA-231.
- (U) ($ 6.285) Continued development of software baseline 2.2 (AEGIS Navy Area and Theater Wide TBMD integration) with Lockheed-Martin.
- (U) ($ 18.903) Continued field support (In-service Engineering; software support; Integrated Logistics Support Planning).
- (U) ($ 46.603) Completed AN/USG-2 T&E efforts; conduct engineering, developmental and operational testing.
- (U) ($ 19.019) Continued Navy and integration exercises and integration efforts.
- (U) ($ 6.400) Continued Program Management support.

(U) FY 2002 PLAN:
- (U) ($ 39.900) Continue CEC hardware and software engineering efforts at Raytheon Systems Company, St. Petersburg, FL.
- (U) ($ 13.046) Continue CEC TDA engineering efforts at JHU/APL.
- (U) ($ 16.648) Continue CEC E-2C integration efforts at PMA-231.
- (U) ($ 18.328) Conduct Follow-on Test and Evaluation (FOT&E-1) of integrated E-2C aircraft and CEC AN/USG-3 system.
- (U) ($ 3.983) Continue Navy and integration exercises and integration efforts.
- (U) ($ 10.247) Continue field support (In-service Engineering; software support; Integrated Logistics Support Planning).
- (U) ($ 3.537) Continue Program Management support.

(U) FY 2003 PLAN:
- (U) ($ 16.835) Continue CEC hardware and software engineering efforts at Raytheon Systems Company, St. Petersburg, FL.
- (U) ($ 12.490) Continue CEC TDA engineering efforts at JHU/APL.
- (U) ($ 13.100) Continue CEC E-2C integration efforts at PMA-231.
- (U) ($ 14.000) Conduct Follow-on Test and Evaluation (FOT&E-2) of integrated E-2C aircraft and CEC AN/USG-3 system.
- (U) ($ 10.497) Continue field support (In-service Engineering; software support; Integrated Logistics Support Planning).
- (U) ($ 18.000) Continue exploration of advance concepts to further evolve CEC.
- (U) ($ 1.222) Continue Program Management support.

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA 4**	R-1 ITEM NOMENCLATURE **Cooperative Engagement Capability 0603658N**

B. (U) Program Change Summary:

	FY 2001	FY 2002	FY 2003
FY 2002 President's Budget:	177.612	74.231	
Appropriated Value:	179.257	106.631	
Adjustments to FY2001/2002			
Appropriated Value/FY2002 President's Budget:	-5.936	-0.942	
FY 2003 President's Budget Submit:	173.321	105.689	86.144

Funding: FY 2001 adjustments are due to an increase for a Below Threshold Realignment (BTR) for the Ship Self Defense System (SSDS) Program (+2.200); and decreases for Small Business Innovative Research (SBIR) ($-3.866); ASN/RDA (-2.327); and Minor Pricing Adjustments ($-1.943). FY 2002 adjustment is a decrease for Minor Pricing Adjustments ($-.942).

Schedule: The CEC/E-2C aircraft FOT&E-1 schedule was delayed due to non-availability of test aircraft, and modification of E-2C system tracker/CEC system interface requirements. FOT&E-1 was scheduled to start in October 2001 and complete in February 2002. FOT&E-1 has been revised to start in January 2002 and complete in August 2002. The FOT&E-2 schedule, and the planned Initial Operational Cabability (IOC) of a CEC-equipped E-2C squadron in December 2003 remains unchanged.

Technical: Not Applicable.

C. (U) Other Program Funding Summary:

	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
OP,N (CEC) P-1 Item No. 43	36.057	84.874	66.736	96.033	131.327	85.813	67.822	233.971	1,010.492
SC,N (Various)	33.940		12.250	44.650	21.760	56.830	23.510	417.570	700.260
AP,N (E-2C) (BA-1/5)	18.930	40.710	36.120	44.500	23.990	23.850	29.820	431.400	690.676
P,MC					12.000	17.500			29.500
O&M,N (CEC)	14.111	14.997	15.496	19.296	18.454	19.517	20.709	Continuing	Continuing

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA 4**	R-1 ITEM NOMENCLATURE **Cooperative Engagement Capability 0603658N**

D. (U) ACQUISITION STRATEGY:

- Low Rate Initial Production (LRIP) was initiated FY 1998. Fleet deliveries will be sustained through a series of production contract awards through FY 2005.
- Acquisition strategy was revised and will continue the evolution of CEC by developing follow-on capabilities and reducing recurring costs in a full and open competitive environment. The objective is to introduce industry innovation through the competitive process and drive down the cost of sensor netting. The specific follow-on capabilities will be defined during the Navy's POM-04 development process.
- The following schedule has been developed to meet the revised strategy:
  - Competitive contract for the follow-on “spiral acquisition” development awarded in the 1st Quarter of FY 2004.
  - Follow-on developments will be conducted under the heading of “Block 2” upgrades. Incremental development of Block 2 is planned to increase operational capabilities to those outlined by DoD 2020 vision.

E. (U) SCHEDULE PROFILE: See next page.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA 4**	R-1 ITEM NOMENCLATURE **Cooperative Engagement Capability 0603658N**

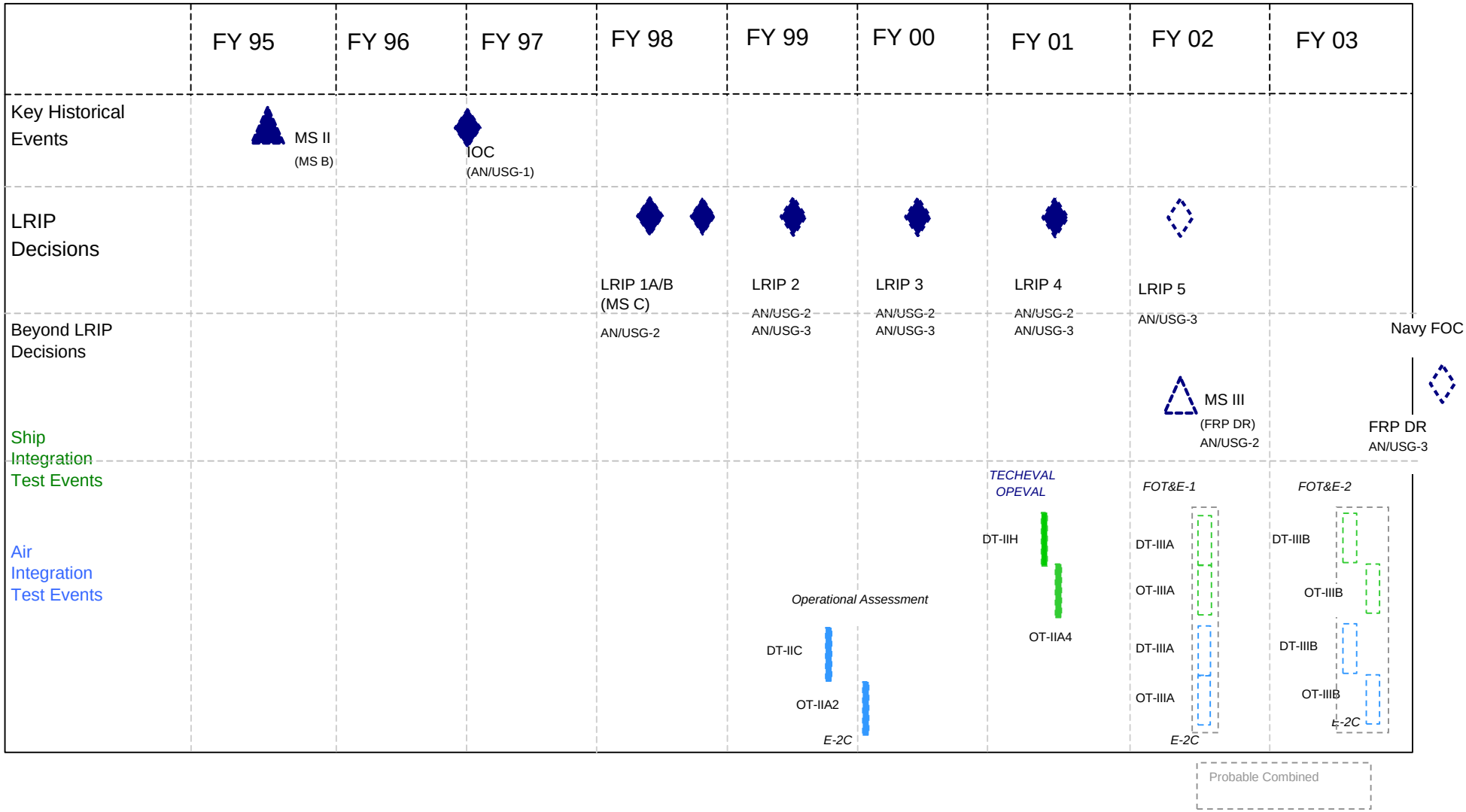

Exhibit R-3 Cost Analysis (page 1)

DATE: **February 2002**

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

PROGRAM ELEMENT: **CEC - 0603658N**

PROJECT NAME AND NUMBER: **CEC - Project K2039**

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	FY00 AND PRIOR YEARS	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
AN/USG-2/3 Development	C/CPAF	Raytheon, St. Peters., FL	526.358	52.759	Nov-00	39.900	Oct-01	16.835	Oct-02			CONT.	CONT.	TBD
AN/USG-2/3 Development/TDA	C/CPFF	JHU/APL, Laurel, MD	206.469	12.187	Nov-00	13.046	Nov-01	12.490	Nov-02			CONT.	CONT.	TBD
E-2C Aircraft Integration	C/CPAF	Northrop Grumman	147.693	11.165	Nov-00	16.648	Oct-01	13.100	Oct-02				188.606	
P-3 Aircraft Integration	C/CPAF	Lockheed-Martin	40.377										40.377	40.377
Baseline 2.2 Software Development	SS/CPAF	Lockheed-Martin	5.596	6.285	Mar-01								11.881	TBD
Space Based IR Sensors (SBIRS)	C/CPAF	Lockheed-Martin	12.843										12.843	TBD
Modeling & Simulation	PD	PMS-456	5.261										5.261	
In-Service Engineering Activity	WR	NSWC, Port Hueneme	8.491	3.402	Nov-00	1.749	Oct-01	4.462	Oct-02			CONT.	CONT.	
Land Based Test Network	PD	SPAWAR (PMW-159)	1.302										1.302	
Land Based Test Network	PD	NATC, Patuxent River	0.957										0.957	
Software Support Activity	WR	NSWC, Dahlgren, VA	35.801	9.457	Nov-00	5.105	Oct-01	3.145	Oct-02			CONT.	CONT.	
Antenna Redesign	RC	NSWC, Crane, IN	6.357										6.357	
ILS Planning	WR	NSWC, Crane, IN	35.556	1.774	Nov-00	1.194	Oct-01	1.890	Oct-02			CONT.	CONT.	
AEGIS Integration	C/CPAF	Lockheed-Martin	119.733	5.200	Dec-00								124.933	
SSDS/ACDS Integration	C/CPAF	Raytheon (Hughes), CA	36.701	3.170	Dec-00								39.871	TBD
Area Air Def. Commander (AADC)	C/CPAF	General Dynamics	10.097									0.000	10.097	
Various	Various	Miscellaneous	71.147	14.919	VARIOUS	6.182	Oct-01	19.000	Oct-02			CONT.	CONT.	
Subtotal Product Development			1,270.738	120.318		83.824		70.922				CONT.	CONT.	
Subtotal Support				.000		.000		.000		.000		.000	.000	

Remarks:

Exhibit R-3 Cost Analysis (page 2)

DATE: **February 2002**

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

PROGRAM ELEMENT: **CEC - 0603658N**

PROJECT NAME AND NUMBER: **CEC - Project K2039**

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	FY00 AND PRIOR YEARS	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
Land Based Test Network (DEP)	WR	NSWC, Dahlgren, VA	2.627	.630	Dec-00	.385	Oct-01	.400	Oct-02				4.042	
Test Support	C/CPAF	Raytheon, St. Peters., FL	3.576	2.375	Nov-00	1.667	Nov-01	1.700	Nov-02				9.318	TBD
Test Support	C/CPFF	JHU/APL, Laurel, MD	3.931	3.961	Nov-00	1.115	Nov-01	1.000	Nov-02				10.007	TBD
Test Support	WR	NAWC-AD, Pt. Mugu, CA	.521	.050	Oct-00	.390	Oct-01	.400	Oct-02				1.361	
Test Support	WR	NRL, Washington, DC	1.819	2.200	Oct-00	1.673	Oct-01	1.706	Oct-02				7.398	
Test Support	WR	NSWC, Port Hueneme, CA	11.672	4.746	Oct-00	3.752	Oct-01	1.477	Oct-02				21.647	
Test Support	PD	PMS-456	1.196	3.340	Oct-00	.073	Oct-01	.100	Oct-02				4.709	
Test Support	PD	SPAWAR (PMW-159)	.629	.627	Oct-00								1.256	
Air Operations Test Support	WR	COMNAVAIRLANT	1.626										1.626	
Air Operations Test Support	WR	NATC, Pax River	4.724										4.724	
Air Operations Test Support	PD	NAVAIRSYSCOM (PMA-207)	2.765	.500	Oct-00	2.144	Oct-01	2.101	Oct-02				7.510	
Aircraft Test Support	PD	NAVAIRSYSCOM (PMA-231)	.268	1.000	Oct-00	.558	Oct-01	.600	Oct-02				2.426	
Test Requirements	WR	AFWTF, Puerto Rico	.777	1.962	Oct-00								2.739	
Test Requirements	WR	COMOPTEVFOR	.484	1.595	Oct-00	.790	Oct-01	.800	Oct-02				3.669	
Test Data Reduction	WR	NWAS, Corona	9.173	3.074	Oct-00	2.007	Oct-01	2.000	Oct-02				16.254	
ECM Test Support (BIG CROW)	MIPR	Kirkland AFB, NM	.957	.950	Oct-00	.558	Oct-01	.500	Oct-02				2.965	
Test Support	WR	NSWC, Crane	.385	.150	Oct-00	.056	Oct-01	.050	Oct-02				.641	
Test Support	PD	PMS-400	.550	2.007	Oct-00	.558	Oct-01	.600	Oct-02				3.715	
Various	Various	Miscellaneous	42.692	17.436	VARIOUS	2.602	VARIOUS	.566	VARIOUS				63.296	
Subtotal T&E			90.372	46.603		18.328		14.000					169.303	
Remarks:														
Program Management Support	C/CPFF	EER, Alexandria, VA	10.609	2.622	Nov-00								13.231	
Various	Various	Miscellaneous	38.988	3.778	Oct-00	3.537	Oct-01	1.222	Oct-02			CONT.	CONT.	
Subtotal Management			49.597	6.400		3.537		1.222				CONT.	CONT.	
Remarks:														
Total Cost			1,410.707	173.321		105.689		86.144				CONT.	CONT.	
Remarks:														