

UNCLASSIFIED

FY 2001 RDT&E, N BUDGET ITEM JUSTIFICATION

Exhibit R-2, RDT&E, N BUDGET ITEM JUSTIFICATION

DATE: February 2000

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

COST (\$ in Thousands)	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
X0725 Communication Automation	1,730	2,618	3,347	2,896	1,962	2,013	2,066	CONT	CONT
X1083 Shore to Ship Communications System	12,433	8,065	8,105	6,839	7,045	7,652	7,419	CONT	CONT
X0795 Support of MEECN	695	688	560	524	698	741	759	CONT	CONT
Total P.E. Cost	14,858	11,371	12,012	10,259	9,705	10,406	10,244	CONT	CONT

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

The Communications Automation Program (NAVMACS II/SMS) develops joint/combined individual and organizational message handling to US Naval ships, USMC Vans, and selected MSC and USCG platforms. NAVMACS II/SMS develops fleet interface to DMS and legacy ashore messaging systems. The Shore to Ship Communications System develops communications systems elements which provide positive command and control of deployed ballistic missile submarines (SSBNs). Minimum Essential Emergency Communications Network (MEECN) is the Tri-Service transmission system which ensures delivery of Emergency Action Messages (EAM) to our strategic platforms. 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.

(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: **FY99:** Reflects Congressional reductions associated with Inflation Savings (- \$73K). Transfer for SBIR/STTR (-\$364K), LOCO-GPSI Reprogramming (- \$138K) and Miscellaneous Department Adjustments (- \$679K). **FY00:** Reflects Congressional Adjustment (- \$61K) and reprogramming for Low-Data Rate DWTS (EPLRS) (+ \$1,485K). \$223k portion of extramural program is reserved for Small Business Innovation Research assessment in accordance with 15 USC 638. **FY01:** Reflects an increase to Continued Evaluation Program (CEP) (+ \$400K), MEECN (- \$98K), IT-21/NWI reduction (- \$540K), Low-Data Rate DWTS (EPLRS) (+ \$ 2000K), and Miscellaneous Department Adjustments (- \$103K).

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

UNCLASSIFIED

UNCLASSIFIED

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DATE: February 2000

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PROGRAM ELEMENT: 0204163N

PROGRAM ELEMENT TITLE: Fleet Communications

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

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

R-1 Shopping List - Item No 162-2 of 162-14

UNCLASSIFIED

Exhibit R-2, RDT&E,N Budget Item Justification

UNCLASSIFIED

FY 2001 RDT&E, N PROJECT JUSTIFICATION Exhibit R-2a, RDT&E,N Project Justification

Date: Feb 2000

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

Cost (\$ in Thousands)	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
X0725 Communications Automation	1,730	2,618	3,347	2,896	1,962	2,013	2,066	CONT	CONT

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) is the network centric Single Messaging Solution (SMS) for the processing, storage, distribution and forwarding of DMS organizational and individual messages to the user's desktop throughout the IT-21 LAN/WAN.

PROGRAM ACCOMPLISHMENTS AND PLANS:

- FY 1999 PLAN:

(\$1,730) NAVMACS II/SMS: Continue DMS Tactical Afloat research and development efforts. Provide test and evaluation of DMS components and protocols in SMS/IT-21 network centric environment. Integrate Defense Messaging System (DMS) components and protocols with Simple mail transfer protocol (SMTP) and other legacy protocols. Conduct intersystem integration and testing for shipboard SMS. Begin Fleet automated message information system (FAMIS) interface testing of Smart-push/Warrior-pull with Protocol – Multicast (P-MUL) broadcast. Continued accommodation to C3 technology including migration to WIN NT DII/COE compliant environment.

- FY 2000 PLAN:

(\$1,141) Continue Tactical DMS/SMS afloat migration efforts. Continue accommodation of emergent technology including Navy Wide Internet (NWI). Conclude FAMIS interface testing of Smart-push/Warrior-pull and P-MUL broadcast. Conduct integration and evaluation of messaging High Assurance Guard (HAG). Conduct fleet developmental testing of SMS.

(\$1,477) Support Digital Wideband (DWTS) Range Extension development through Enhanced position-location recording system (EPLRS) interface. Conduct concept exploration and risk reduction. Perform test and evaluation, Systems Engineering and Evaluation, preliminary installation design and Integrated Logistics System development.

- FY 2001 PLAN:

(\$1,359) Continue accommodation of emergent technology including DoD Public Key Infrastructure (PKI). Conduct evaluation and test of band-Width (BW) Migration Tools and Techniques for Low and Medium assurance messaging.

(\$1,988) Begin Risk Reduction RDT&E for Low-Data DWTS (EPLRS). Conduct DT-I and MS-II DWTS LDR (EPLRS).

R-1 Shopping List - Item No 162-3 of 162-14

UNCLASSIFIED

Exhibit R-2a, RDT&E,N Budget Project Justification

UNCLASSIFIED

FY 2001 RDT&E, N PROJECT JUSTIFICATION
Exhibit R-2a, RDT&E,N Project Justification

Date: Feb 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N

PROJECT NUMBER: X0725

PROGRAM ELEMENT TITLE: Fleet Communications

PROJECT TITLE: COMMUNICATION
AUTOMATION

PROGRAM CHANGE SUMMARY: FY 99: Reflects Congressional Adjustments associated with Inflation Savings (- \$8K). Transfer of SBIR/STTR (- \$25K), LOCO-GPSI Reprogramming (- \$16K), and Miscellaneous Department Adjustments (- \$19K). **FY00:** Reflects reprogramming for Low-Data Rate DWTS (EPLRS) (+ \$ 1,485K), and Congressional Adjustment (- \$14K). **FY01:** IT-21/NWI reduction (- \$ 500K), increase for Low-Data Rate DWTS (EPLRS) (+ \$2,000K), and Miscellaneous Department Adjustments (- \$37K).

B. (U) OTHER PROGRAM FUNDING SUMMARY:

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>To Complete</u>	<u>Total Cost</u>
OPN Line 3050 – Ship Comm Auto - NAVMACS	11,156	15,129	12,533	3,547	14,383	12,531	22,612	CONT	CONT
OPN Line 3010 – 52DN Ship TAC Comms- DWTS	11,977	10,322	3,858	2,837	8,860	2,227	2,093	CONT	CONT
O&MN 4A6M – NAVMACS	600	1,476	1,150	1,158	1,933	1,462	1,503	CONT	CONT
O&MN 4B7N – ILS 0		0	624	567	642	586	58		

C. Acquisition Strategy: N/A

D. Schedule Profile: N/A

UNCLASSIFIED

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FY 2001 RDT&E, N PROJECT COST ANALYSIS

Exhibit R-3, RDT&E,N Project Cost Analysis

Date: Feb 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N

PROJECT NUMBER: X0725

Exhibit R-3 Cost Analysis (page 1)									Date: February 1999			
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 FY98 and PYs Cost	FY99 Cost	FY99 Award Date	FY00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
240 Engineering Development	WX	SSC, San Diego	708	485	12/98	1376	12/99	1838	12/00	CONT	CONT	CONT
240 Engineering Development	CPFF	Lockheed Martin	0	0		100		150	12/00	CONT	CONT	CONT
240 Engineering Development	Various	Various Labs	0	82	12/98	0	12/99	180		CONT	CONT	CONT
240 Engineering Development	WX	SSC Charleston	0	928	12/98	540	12/99	505	12/00	CONT	CONT	CONT
240 Engineering Development	CPFF	SEMCOR	0	145	12/98	125	12/99	100	12/00	CONT	CONT	CONT
Subtotal Product Development			708	1,640		2141		2773				
Remarks:												
Subtotal Support												
Remarks												

R-1 Shopping List - Item No 162-5 of 162-14

UNCLASSIFIED

Exhibit R-3, RDT&E,N Project Cost Analysis

UNCLASSIFIED

FY 2001 RDT&E, N PROJECT COST ANALYSIS
 Exhibit R-3, RDT&E,N Project Cost Analysis

Date: Feb 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N

PROJECT NUMBER: X0725

Cost Categories	Contract Method & Type	Performing Activity & Location	FY 98 and Prior	FY99 Cost	FY99 Award Date	FY00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
400 System T&E	Various	Various	0	0	Var	150	Var	150	Var	CONT	CONT	CONT
400 System T&E	WX	SSC, San Diego				37		50		CO NT	CONT	CONT
Subtotal T&E				0		187		200				
Remarks												
210 Project Management	WX	SSC, San Diego	0	90	12/99	290	12/99	374	12/99	CONT	CONT	CONT
Subtotal Management			0	90		290		374				
Remarks												
Total Cost			708	1730		2618		3347				
Remarks												

R-1 Shopping List - Item No 162-6 of 162-14

UNCLASSIFIED

Exhibit R-3, RDT&E,N Project Cost Analysis

UNCLASSIFIED

FY 2001 RDT&E, N PROJECT JUSTIFICATION

Exhibit R-2a, RDT&E,N Project Justification

Date: Feb 2000

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

Cost (\$ in Thousands)	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
X1083 Shore to Ship Communications System	12,433	8,065	8,105	6,839	7,045	7,652	7,419	CONT.	CONT.

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

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

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

FY 1999 ACCOMPLISHMENT:

- (\$257) Continued high voltage and antenna component development and test.
- (\$5,248) Commenced development of ELF and Signal Processing integration into SLVR and completed KOV-17 integration into SLVR.
- (\$898) Finalized SCSS 99.0/Phase I design and continue integration.
- (\$3,634) Continued SCAP and conducted Continued Evaluation (CEP).
- (\$2,396) Installed and tested SSPAR Engineering and Manufacture Development Model at NCTAMSLANT Det. La Moure, N.D.

R-1 Shopping List - Item No 162-7 of 162-14

UNCLASSIFIED

Exhibit R-2a, RDT&E,N Project Justification (X1083)

UNCLASSIFIED

FY 2001 RDT&E, N PROJECT JUSTIFICATION

Exhibit R-2a, RDT&E,N Project Justification

Date: Feb 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N

PROJECT NUMBER: X1083

PROGRAM ELEMENT TITLE: Fleet Communications
PROJECT TITLE: Shore to Ship
Communication System

FY 2000 PLAN:

- (\$357) Continue high voltage and antenna component development and test. Initiate feasibility study to explore use of low cost composite exit bushings to replace aging high cost ceramic exit bushings.
- (\$2,056) Continue development of the ELF and Signal Processing integration into SLVR..
- (\$1,878) Complete SCSS Phase I design, continue integration and begin implementation.
- (\$3,774) Continue SCAP, conduct Continued Evaluation (CEP) and strategic connectivity threats, and perform 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.
- (\$1,776) Continue development of the ELF and Signal Processing integration into SLVR.
- (\$1,752) Complete SCSS Phase I integration and implementation.
- (\$4,254) Continue SCAP, conduct continuing evaluations (CEP) and strategic connectivity threats, and perform analysis.

R-1 Shopping List - Item No 162-8 of 162-14

UNCLASSIFIED

Exhibit R-2a, RDT&E,N Project Justification (X1083)

UNCLASSIFIED

FY 2001 RDT&E, N PROJECT JUSTIFICATION

Exhibit R-2a, RDT&E,N Project Justification

Date: Feb 2000

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

(U) PROGRAM CHANGE SUMMARY: **FY 99:** Reflects Congressional reductions associated with Inflation Savings - \$62K. Transfer for SBIR/STTR (- \$322K), LOCO-GPSI Reprogramming (- \$115K) and Miscellaneous Department Adjustments (- \$660K). **FY00:** Reflects Congressional Adjustment (- \$43K). **FY01:** Reflects an increase to Continued Evaluation Program (CEP) (+ \$400K), and Miscellaneous Department Adjustments (- \$58K).

B. (U) OTHER PROGRAM FUNDING SUMMARY

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	To Complete	Total Cost
*OPN Line 3107 Shore LF	13,922	36,158	31,433	19,250	4,390	14,059	19,325	CONT	CONT
OPN Line 3147 Submarine LF/VLF VME Receiver (formerly Advanced VLF Receiver)	16,114	0						CONT	CONT
O&MN 4A6M	17,878	20,853	18,733	18,841	22,057	27,015	32,275	CONT	CONT

***This program consolidates 3147 - Advanced VLF Receiver beginning in FY00.**

R-1 Shopping List - Item No 162-9 of 162-14

UNCLASSIFIED

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UNCLASSIFIED

FY 2001 RDT&E, N PROJECT JUSTIFICATION

Exhibit R-2a, RDT&E,N Project Justification

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BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N

PROJECT NUMBER: X1083

PROGRAM ELEMENT TITLE: Fleet Communications

PROJECT TITLE: Shore to Ship
Communication System

C. (U) ACQUISITION STRATEGY:

FY 1999

FY 2000

FY 2001

Program Milestones

T&E Milestones

3Q SLVR OT-III
(SLVR/TRIDENT FOT&E)

3 / 4Q DT/OT IVB
SLVR on SSN

3 / 4 Q SLVR DT/OT IVA
(REM into SLVR on TRIDENT)

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

UNCLASSIFIED

UNCLASSIFIED

FY 2001 RDT&E, N PROJECT COST ANALYSIS

Exhibit R-3, RDT&E,N Project Cost Analysis

Date: Feb 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N

PROJECT NUMBER: X1083

Cost Categories	Contract Method & Type	Performing Activity & Location	FY98 and Prior	FY99 Cost	FY99 Award Date	FY00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
400 System T&E	Various	Various	400	225	11/98	625	11/99	297	11/00	CONT	CONT	
Subtotal T&E			400	225		625		297				
Remarks												
210 Program Management	Various	Various	2,241	556	11/98	488	11/99	440	11/00	CONT	CONT	
Subtotal Management			2,241	556		488		440				
Remarks												
Total Cost			63,387	12,433		8,065		8,105				
Remarks												

R-1 Shopping List - Item No 162-12 of 162-14

UNCLASSIFIED

Exhibit R-3, RDT&E,N Project Cost Analysis

UNCLASSIFIED

FY 2001 RDT&E, N PROJECT JUSTIFICATION

Exhibit R-2a, RDT&E,N Project Justification

Date: Feb 2000

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

Cost (\$ in Thousands)	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
X0795 MEECN	695	688	560	524	698	741	759	CONT	CONT

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION

Support of Minimum Essential Emergency Communications Network (MEECN). MEECN is the Tri-Service communication system which ensures delivery of Emergency Action Messages (EAMs) to our strategic platforms. Because of substantial downsizing in the number of MEECN assets, such as the CINC Airborne Command Post (ABNCP) fleet, it is necessary to improve the range, timeliness and reliability of MEECN communications to maintain connectivity to the platforms. This project identifies, researches, and develops improvements to the MEECN primarily in the Very Low Frequency and Low Frequency (VLF/LF) ranges of MEECN. The 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.

FY 1999 ACCOMPLISHMENTS:

- (\$264) Continued Turbo Code application to MEECN Modes.
- (\$215) Initiated development of improved MEECN Mode.
- (\$161) Initiated study to integrate NONAP and Signal Separator AJ algorithms.
- (\$40) Investigated HIDAR/Block II compatibility.
- (\$15) Continued crypto replacement coordination.

R-1 Shopping List - Item No 162-13 of 162-14

UNCLASSIFIED

Exhibit R-2a, RDT&E,N Project Justification (X0795)

UNCLASSIFIED
FY 2001 RDT&E, N PROJECT JUSTIFICATION

Exhibit R-2a, RDT&E,N Project Justification

Date: Feb 2000

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

FY 2000 PLAN:

- (\$302) Complete Turbo Code application to MEECN Modes.
- (\$204) Continue development of improved MEECN Mode.
- (\$167) Complete study to integrate NONAP and Signal Separator AJ algorithms.
- (\$15) Continue crypto replacement coordination.

FY 2001 PLAN:

- (\$220) Complete improved MEECN Mode standards.
- (\$308) Incorporate Mode standard software in MEECN Test Bed for performance evaluation.
- (\$32) Investigate applicability of commercial programmable crypto devices to the MEECN.

(U) PROGRAM CHANGE SUMMARY: **FY 99:** Reflects Congressional Adjustments associated with Inflation Savings (- \$3K). Transfer of SBIR/STTR (- \$17K), LOCO-GPSI Reprogramming (- \$7K). **FY00:** Congressional Adjustment (- \$4K). **FY01:** IT-21/NWI reduction (- \$40K), MEECN (- \$98K) and Miscellaneous Department Adjustments (- \$8K).

B. (U) OTHER PROGRAM FUNDING SUMMARY

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	To <u>Complete</u>	Total <u>Cost</u>
O&MN 4A6M	495	715	554	553	732	765	782	CONT	CONT

C. (U) ACQUISITION STRATEGY: Not applicable.

D. (U) SCHEDULE PROFILE: Not applicable.

R-1 Shopping List - Item No 162-14 of 162-14

UNCLASSIFIED

Exhibit R-2a, RDT&E,N Project Justification (X0795)