

# UNCLASSIFIED

FY 2001 RDT&E,N BUDGET ITEM JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N  
PROGRAM ELEMENT TITLE: Tactical Command System  
(U) COST: (Dollars in Thousands)

PROJECT NUMBER	FY 1999 ACTUAL	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	COST TO COMPLETE	TOTAL PROGRAM	
E2213	Mission Planning	12,423	11,107	17,592	11,369	11,867	12,401	12,644	CONT.	CONT.
X0486	GCCS-M Tactical/Mobile (formerly JMCIS Tactical/Mobile)	1,921	1,389	1,529	1,612	1,790	1,881	1,802	CONT.	CONT.
X0709	GCCS-M Maritime Apps (formerly JMCIS Afloat)	10,065	6,678	6,764	6,803	8,680	11,851	11,729	CONT.	CONT.
X2009	JMCIS OED	1,866	5,106	3,669	2,575	2,457	2,669	2,817	CONT.	CONT.
X0521	GCCS-I Intelligence Apps (formerly Shipboard Tactical Intelligence Processing (STIP))	6,383	6,700	6,555	6,525	7,591	6,955	7,570	CONT.	CONT.
X2305	GCCS-M Common Apps (formerly Navy Common Operating Environment (COE))	12,145	13,376	11,960	13,716	14,028	16,522	15,868	CONT.	CONT.
X2306	Naval Simulation System	1,679	0	5,240	5,335	5,438	5,535	5,635	CONT.	CONT.
X2307	Shipboard LAN/WAN	411	0	4,508	4,858	5,011	5,089	5,210	CONT.	CONT.
TOTALS		46,893	44,356	57,817	52,793	56,862	62,903	63,275	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Tactical Command System (TCS) upgrades the Navy's Command Control, Computer and Intelligence (C<sup>3</sup>I) systems and processes C<sup>3</sup>I information for all warfare mission areas including planning, direction and reconstruction of missions for peacetime, wartime and times of crises. A major component of the TCS is the Global Command and Control System - Maritime (GCCS-M). GCCS-M is the Navy's fielded Command and Control system, a key component of the *Copernicus ... Forward* C4I strategy, and is the Navy's tactical implementation of the Global Command and Control System (GCCS). GCCS-M has aggressively pursued an evolutionary acquisition strategy in rapidly developing and fielding new C4I capabilities for GCCS-M Afloat, GCCS-M Ashore, GCCS-M Tactical /Mobile and GCCS-M OED users. GCCS-M current phase includes migration to the Defense

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Exhibit R-2, Budget Item Justification

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BUDGET ACTIVITY: 5            PROGRAM ELEMENT:            0604231N  
PROGRAM ELEMENT TITLE:      Tactical Command System

Information Infrastructure (DII), incorporation of Fleet requirements for merging tactical and non-tactical networks, and application of mature Web and Personal Computer (PC) technologies to provide required information/capabilities. This phase will provide, in the short term, deployment of a PC/COTS based Naval implementation of GCCS-M which will provide the warfighter with a cost-effective, user-friendly, comprehensive C4I solution and, in the long-term, a continuous, integrated command and Control link from sensor to shooter, including full-range real-time or near-real-time information to weapon systems for decision makers. Projects x2041, x2215, and x2216 transferred to GCCS-M beginning in FY99.

(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.

## B. (U) PROGRAM CHANGE SUMMARY:

### (U) Funding:

- **FY 1999:** Congressional reduction for Inflation Savings (-\$ 230K). Transfer for SBIR/STTR (-\$ 1,189K) and Miscellaneous Department Adjustments (-\$ 1,555K).
- **FY 2000:** OSIS Database Functionality (+\$ 3,000K), Congressional Reduction (-\$ 243K). \$640K Portion of extramural program is reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.
- **FY 2001:** GCCS-M Common (-\$ 5,400K), MUOS (+\$ 1,100K), OSIS Evol Dev (+\$ 500K), Navy Simulation System (+\$ 5,300K), Shipboard LAN (+\$ 4,024K), JMPS Dev Effort (+\$ 3,589K), and Miscellaneous Department Adjustments (-\$ 667K).

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Exhibit R-2, Budget Item Justification

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FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5      PROGRAM ELEMENT: 0604231N      Project Number: E2213  
PROGRAM ELEMENT TITLE: Tactical Command System      Project Title: Mission Planning

**(U) COST: (Dollars in Thousands)**

<u>Project Number &amp; Title</u>	<u>FY 1999 Budget</u>	<u>FY 2000 Estimate</u>	<u>FY 2001 Estimate</u>	<u>FY 2002 Estimate</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>	<u>FY 2005 Estimate</u>	<u>To Complete</u>	<u>Total Program</u>
E2213 Mission Planning	12,423	11,107	17,592	11,369	11,867	12,401	12,644	CONT.	CONT.
<b>TOTAL</b>	<b>12,423</b>	<b>11,107</b>	<b>17,592</b>	<b>11,369</b>	<b>11,867</b>	<b>12,401</b>	<b>12,644</b>	<b>CONT.</b>	<b>CONT.</b>

Quantity of RDT&E Articles

( U ) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Naval Mission Planning System (NavMPS), comprised of Tactical Automated Mission Planning System (TAMPS) and its follow-on system, Joint Mission Planning System (JMPS), Naval-Portable Flight Planning System (N-PFPS) and Tactical Strike Coordination Manager (TSCM), provides the Naval standard unit level aircraft mission planning. TAMPS loads data for the following aviation platforms and subsystems: F/A-18, F-14, E-2C, V-22, C-2, KC-130, AH-1, SH-60, MH-53, HH-60, UH-1, VH-1, P-3C, High-speed Anti-Radiation Missile (HARM), Joint Stand-Off Weapon (JSOW), Joint Direct Attack Munitions (JDAM), Stand-off Land Attack Missile (SLAM), Joint Tactical Information and Distribution System (JTIDS), Global Positioning System (GPS), ARC-210, and Forward Area Minefield Planner (FAMP). TAMPS loads the F/A-18 Data Storage Unit (DSU) with route of flight data and avionics initialization files. The Data Storage Unit (DSU) in turn provides this TAMPS information to the F/A-18 flight software. Without the TAMPS load of "independent overlays" for the aircraft software and bulk files for missile software, weapons such as SLAM, JSOW and JDAM will be unusable. TAMPS currently is the primary means of loading JTIDS data for the F-14D/E-2C. Future systems such as Tactical Aircraft Moving Map Capability (TAMMAC) are planning to use TAMPS for mission planning and data loads. In keeping with the Assistant Secretary of Defense (C3I) direction, TAMPS has been identified as a migration system. Various platform specific aircraft mission planning systems (e.g., Tactical EA-6B Mission Support System (TEAMS), Map Operator and Maintenance Station (MOMS), Common Helicopter Aviation Mission Planning System (CHAMPS), MOMS/AV-8B Maintenance Data System, Tactical Electronic Reconnaissance Processing Evaluation System (TERPES) are planned to neck down into TAMPS. NavMPS is interoperable with and uses the Global Command and Control System -- Maritime (GCCS-M) for data feeds. N-PFPS is an integrated suite of PC based mission planning tools using a common Windows 95 graphical user interface. It displays standard digital maps and produces user-customizable keyboard cards, combat mission folders, and data transfer to compatible digital transfer devices. N-PFPS software uses an implementation of the client server data model to provide a shared view of the mission route to software components. The N-PFPS Route Server synchronizes the different N-PFPS components so that changes made to the route by one N-PFPS application are passed to all other components. This allows the operator to perform multiple operations on the same routes without reentering data. TSCM is a joint Force Level planning tool that enables planners to develop integrated strike packages consisting of USN, USMC and USAF tactical and support aircraft, Tomahawk Land Attack Missiles (TLAM) and UAVs afloat or ashore. This computer based man in the loop planning decision support capability allows the strike lead to rapidly analyze strike requirements, evaluate multiple strike options to meet these requirements, develop concept strike plans and prepare strike plan briefings/reports. The Joint Mission Planning System (JMPS) is a co-development with the Air Force and USSOCOM to provide the next generation Mission Planning System. It will be DII COE compliant and be based on COTS PC hardware and open system software standards. Its architecture will be component based and built upon a DII COE base. JMPS will provide the warfighter with Mission Planning functionality that ranges from basic to combat to force level planning in a collaborative, scalable manner.

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Exhibit R-2a, Project Justification

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FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT:

0604231N

Project Number: E2213

PROGRAM ELEMENT TITLE:

Tactical Command System

Project Title: Mission Planning

## (U) PROGRAM ACCOMPLISHMENTS AND PLANS:

### 1. (U) FY 1999 Accomplishments:

- (U) (\$12,423) TAMPS version 6.2 deployed. Year 2000 compliant software was fielded as TAMPS version 6.2K. Started development of TAMPS version 6.2.1. Added new functionality to TSCM and Continued development testing and conducted an operational assessment. Development and deployment of N-PFPS Continued with the release of version 3.1. The JMPS Phase II development of a DII COE compliant architecture began with Program Decision Meeting approval and follow on Contract award. The conduct of JMPS System Engineering requirements definition concluded.

### 2. (U) FY 2000 Plan:

- (U) (\$11,107) Complete development, integration and deployment of TAMPS version 6.2.1. Continued JMPS development effort. Complete development and deployment of N-PFPS version 3.2.

### 3. (U) FY 2001 Plan:

- (U) (\$17,592). Continued JMPS development effort.

## (U) B. PROGRAM CHANGE SUMMARY

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
(U) FY 2000 President's Budget:	13,222	11,169	14,173
(U) Appropriated Value:	13,637	11,169	
(U) Adjustments from President's Budget:	-799	-62	+3,419
(U) FY 2001 President's Budget Submit:	12,423	11,107	17,592

## CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1999 net decrease of \$799 thousand reflects a decrease of \$346 thousand for a SBIR assessment, a decrease of \$62 thousand for inflation savings, a decrease of \$2 thousand for below threshold reprogramming, and a decrease of \$389 thousand for reprioritization of requirements within the Navy. The FY 2000 decrease reflects a \$62 thousand reduction for an Across-the-Board Congressional rescission. FY 2001 net increase of \$3,419 thousand reflects an increase of \$3,589 thousand for additional JMPS developmental efforts, a decrease of \$4 thousand for the Navy Strategic Sourcing Planning (SSP) initiative, a decrease of \$120 thousand for revised economic assumptions, and a decrease of \$46 thousand for reprioritization of requirements within the Navy.

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FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT:

0604231N

Project Number: E2213

PROGRAM ELEMENT TITLE:

Tactical Command System

Project Title: Mission Planning

(U) Schedule: Not Applicable

(U) Technical: Not Applicable

## (U) C. OTHER PROGRAM FUNDING SUMMARY

<u>Appn</u>	<u>FY 1999</u> <u>Estimate</u>	<u>FY 2000</u> <u>Estimate</u>	<u>FY 2001</u> <u>Estimate</u>	<u>FY 2002</u> <u>Estimate</u>	<u>FY 2003</u> <u>Estimate</u>	<u>FY 2004</u> <u>Estimate</u>	<u>FY 2005</u> <u>Estimate</u>	<u>To</u> <u>Complete</u>
OPN	23,240	20,653	11,980	17,436	10,738	11,604	12,366	CONT.
Air Force (total)	4,000	16,700	16,900	17,100	17,300	17,700	18,100	

### Related RDT&E

(U) P.E. 0204229N (TOMAHAWK)

(U) P.E. 0604215N (Standards Development)

(U) C. ACQUISITION STRATEGY: The JMPS Acquisition strategy will evolve as the program matures but initially will cover the Engineering and Manufacturing Development (EMD) effort. The strategy entails a two phased evolutionary approach to acquire the initial JMPS development effort. The combined USAF/USN Phase I of this effort obtained various technical studies, segment architect concept, design to cost estimate, and an architecture development statement of work. Phase I was added to the program to determine reduced cost strategies through software reuse from both USN TAMPS and USAF AFMSS programs. Additionally, this phase provided a risk reduction plan for the most effective migration of existing mission planning systems. Phase I was awarded to two Contractors. In Phase II, one Contractor was selected to develop the JMPS architecture framework and version 1 mission planning components, as well as to be the JMPS system integrator. Version 2 will be the combat mission planner. Version 3 will provide for force strike level planning.

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Exhibit R-2a, Project Justification

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DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

Project Number: E2213

PROGRAM ELEMENT TITLE: Tactical Command System

Project Title: Mission Planning

## (U) D. SCHEDULE PROFILE

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>To Complete</u>
(U) Program Milestones				
Version 6.2	1Q/99 Release			
Version 6.2K	1Q/99 Release			
Version 6.2.1		4Q/00 Release		
JMPS	3Q/99 JMPS PDM			1Q/02 JMPS IOC
NPFPS	4Q/99 3.1 Release	4Q/00 3.2 Release		
TSCM		3Q/00 2.4 Release		
(U) Engineering Milestones				
(U) T&E Milestones	1Q/99 6.2K DT 4Q/99 6.2 OPEVAL	2Q/00 6.2.1 OPEVAL	3Q/01 JMPS OPEVAL	
(U) Contract Milestones	3Q/99 JMPS Phase II Contract Award			

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# UNCLASSIFIED

Exhibit R-2a, Project Justification

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FY 2001 RDT&E,N PROJECT COST ANALYSIS

DATE: FEB 2000

BUDGET ACTIVITY: 5

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

Project Number: E2213  
 Project Title: Mission Planning

<u>Cost Categories:</u>	<u>Contract</u>	<u>Performing</u>	<u>Total</u>	<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>		<u>Cost to</u>	<u>Total</u>	<u>Target</u>
	<u>Method</u>	<u>Activity &amp;</u>	<u>Prior Yrs</u>	<u>FY 1999</u>	<u>Award</u>	<u>FY 2000</u>	<u>Award</u>	<u>FY 2001</u>	<u>Award</u>			
	<u>&amp; Type</u>	<u>Location</u>	<u>Cost</u>	<u>Cost</u>	<u>Date</u>	<u>Cost</u>	<u>Date</u>	<u>Cost</u>	<u>Date</u>			<u>Contract</u>
Software Development	C/CPIF	Logicon, CA		2,600	10/98	8,900	11/99	8,850	10/00	CONT.	CONT.	
Software Development	WX	NAWC Pt. Mugu		6,398	10/98			7,131	10/00	CONT.	CONT.	
Misc.	WX	Various		2,086	10/98	2,019	11/99	1,431	10/00	CONT.	CONT.	
<b>Subtotal Product Development</b>			<b>0</b>	<b>11,084</b>		<b>10,919</b>		<b>17,412</b>		<b>CONT.</b>	<b>CONT.</b>	
Remarks												
Misc	WX	Various		400	10/98	0		0		CONT.	CONT.	
<b>Subtotal Support</b>			<b>0</b>	<b>400</b>		<b>0</b>		<b>0</b>		<b>CONT.</b>	<b>CONT.</b>	
Remarks												
<b>Subtotal Test &amp; Evaluation</b>			<b>0</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	<b>0</b>	
Remarks												
Misc.	WX	Various		939	10/98	188	11/99	180	10/00	CONT.	CONT.	
	WX	Various										
<b>Subtotal Management</b>			<b>0</b>	<b>939</b>		<b>188</b>		<b>180</b>		<b>CONT.</b>	<b>CONT.</b>	
Remarks												
<b>Total Cost</b>			<b>0</b>	<b>12,423</b>		<b>11,107</b>		<b>17,592</b>		<b>CONT.</b>	<b>CONT.</b>	

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Exhibit R-3, Project Cost Analysis

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FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5      PROGRAM ELEMENT: 0604231N      Project Number: X0486  
PROGRAM ELEMENT TITLE: Tactical Command System      Project Title: GCCS-M Tac/Mobile

(U) COST: (Dollars in Thousands)

PROJECT NUMBER TITLE	FY 1999 ACTUAL	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	COST TO COMPLETE	TOTAL PROGRAM
GCCS-M Tactical/Mobile (GCCS-M Tac/Mobile) (formerly JMCIS Tactical/Mobile) X0486	1,921	1,389	1,529	1,612	1,790	1,881	1,802	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Global Command and Control System-Maritime (GCCS-M) Tactical/Mobile program provides evolutionary systems and equipment upgrades to support Maritime Sector Commanders with the capability to plan, direct and Control the tactical operations of Joint and Naval Expeditionary Forces and other assigned units within their respective area of responsibility. These operations include littoral, open ocean, and over land all-sensor surveillance, anti-surface warfare, over-the-horizon targeting, counter-drug operations, power projection, antisubmarine warfare, mining, search and rescue, and special operations.

The missions are supported by the Tactical Support Centers (TSCs) and the Mobile Operations Control Centers (MOCCs). Services provided include analysis and correlation of diverse sensor information; data management support; command decision aids; rapid data communication; mission planning and evaluation and dissemination of surveillance data and threat alerts to operational users ashore and afloat. All Tactical/Mobile systems are based on the GCCS-M architecture which is Defense Information Infrastructure (DII) Common Operating Environment (COE) compliant.

TSCs provide C4I capability, air-ground, satellite and point-to-point communications systems; sensor analysis capabilities; avionics and weapons system interfaces and facilities equipment. MOCC is a scalable and mobile version of the TSC for operations from airfields that do not have TSC support. This program assures that existing TSCs and MOCCs are modernized to fulfill their operational requirements. TSC/MOCC will Continued to support P-3C/S-3B aircraft updates to sensors and weapons systems, such as the Anti-Surface Warfare Improvement Program (AIP). GCCS-M Tac/Mobile funding for Command and Control (C<sup>2</sup>) efforts transferred to the GCCS-M Maritime Applications and GCCS-M Common Applications Programs beginning FY 99.

GCCS-M Tac/Mobile R&D efforts are developed in agreement with and in mutual support of OPNAV N62 and N88. These efforts are required to provide support for the N88 platforms as related to the non-C2 aspects of the program. Between FY97 and FY99, this program was known as the Joint Maritime Command Information System Tactical/Mobile program. Prior to FY97, this program was part of the Navy Command and Control System Ashore program.

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Exhibit R-2a, Project Justification

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DATE: FEB 2000

BUDGET ACTIVITY: 5      PROGRAM ELEMENT: 0604231N      Project Number: X0486  
(U) PROGRAM ACCOMPLISHMENTS AND PLANS:      PROGRAM ELEMENT TITLE: Tactical Command System      Project Title: GCCS-M Tac/Mobile

1. (U) FY 1999 ACCOMPLISHMENTS:

- (U) (\$776) Continued development in support of P-3C (AIP) and P-3C Counter Drug Upgrade (CDU) improvements in sensors and communication systems such as the P-3 Communications Improvement Program (CIP).
- (U) (\$773) Supported P-3C AIP and pre-planned product improvements in open system architecture and sensor integration. Provided improved Tactical Data Insertion for increased sensor effectiveness and automated post-flight analysis for rapid information dissemination via the SIPRNET.
- (U) (\$212) Developed interface for emerging aircraft data transport devices, including the P-3 Replacement Data Storage System (RDSS).
- (U) (\$160) Continued development of communications interfaces with required security features to take advantage of higher capacity connectivity to SIPRNET and available WAN/WEB technology for insertion into fixed and mobile TSC variants.

2. (U) FY 2000 PLAN:

- (U) (\$450) Port additional functions to NT. Develop interface for emerging aircraft data transport devices, including development of new NT hardware drivers, redesign of a Human Machine Interface (HMI) for Windows, and a re-host of device applications on NT.
- (U) (\$300) Develop capability to receive and process information from new sensors such as Synthetic Aperture Radar (SAR) high resolution Inverse Synthetic Aperture Radar (ISAR) and advanced Electro-Optical (EO) devices. Investigate processing inverse and quadrature data from APS 137 B(V)5 radar.
- (U) (\$318) Develop expanded interfaces for new weapons and sensors. Continued to develop interfaces for emerging aircraft data transport devices.
- (U) (\$121) Migrate Fast Time Analyzer System (FTAS) toward increased interoperability and commonality with the GCCS-M architecture. Investigate COTS signal processing products to replace proprietary hardware and software and provide growth capability to process information from new sensors, improved and advanced Extended Echo Ranging (EER).

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FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5      PROGRAM ELEMENT: 0604231N      Project Number: X0486  
PROGRAM ELEMENT TITLE: Tactical Command System      Project Title: GCCS-M Tac/Mobile

- (U) (\$200) Integrate modernized RF communications systems, including UHF, SHF, and EHF SATCOM units into Tactical Mobile Units. Develop multi-Tactical Data Link (TADIL) interfaces to provide two-way TADIL support for the Tac/Mobile units.

3. (U) FY 2001 PLAN:

- (U) (\$230) Port additional functions to NT. Continued development of interfaces for emerging aircraft data transport devices.
- (U) (\$299) Integrate processing of sensor information from new sensors such as SAR and high resolution ISAR.
- (U) (\$322) Continue development of expanded interfaces for new weapons and non-acoustic sensors.
- (U) (\$129) Integrate capability for Data compression and exchange of acoustic CONT.act information into TSC and MOCC C2 systems from FTAS systems.
- (U) (\$190) Continue development of capability to process information from new sensors.
- (U) (\$206) Integrate improved FTAS into TSC and MOCC systems.
- (U) (\$153) Develop interfaces and incorporate emerging joint and coalition SATCOM and line of sight radios, cryptographic units and antenna technology. Ensure interoperability in a land, sea air and mobile environment.

(U) PROGRAM CHANGE SUMMARY: Not Applicable

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

	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	COST TO	TOTAL
	ACTUAL	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	COMPLETE	PROGRAM
(U) OMN	8,286	9,538	10,385	11,669	12,183	12,441	12,735	CONT.	CONT.

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

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Exhibit R-2a, Project Justification

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FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT:

0604231N

Project Number: X0486

~~PROGRAM ELEMENT TITLE:~~

Tactical Command System

Project Title: GCCS-M Tac/Mobile

C. (U) ACQUISITION STRATEGY:

	FY 1999				FY 2000				FY 2001			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Program Milestones										▲		
										MS IIIA		
Engineering Milestones								▲				
								GCCS-M 4.1 Drop				
T&E Milestones		▲		▲						▲		
		SQT 1		SQT 2						DT/OT IIIA		
<u>Contract</u> Milestones												

B. SCHEDULE PROFILE: See paragraph C.

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Exhibit R-2a, Project Justification

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FY 2001 RDT&E,N PROJECT COST ANALYSIS

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

Project Number: X0486

PROGRAM ELEMENT TITLE: Tactical Command System

Project Title: GCCS-M Tac/Mobile

Cost Categories	Contract Method & Type	Performing Activity & Location	Total 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
Software Development	Various	Various	28,868	1,108	Var.	767	Var.	831	Var.	CONT.	CONT.	
Subtotal Product Development	Various	Various	28,868	1,108	Var.	767	Var.	831	Var.	CONT.	CONT.	
Remarks:												
System Engineering	Various	Various	18,068	313	Var.	423	Var.	456	Var.	CONT.	CONT.	
Subtotal Support	Various	Various	18,068	313	Var.	423	Var.	456	Var.	CONT.	CONT.	
Remarks:												

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# UNCLASSIFIED

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FY 2001 RDT&E,N PROJECT COST ANALYSIS

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT:

0604231N

Project Number: X0486

PROGRAM ELEMENT TITLE:

Tactical Command System

Project Title: GCCS-M Tac/Mobile

Cost Categories	Contract Method & Type	Performing Activity & Location	Total 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
Operational Test & Evaluation	Various	Various	2,891	100	Var.	0		0		CONT.	CONT.	
Subtotal T&E	Various	Various	2,891	100	Var.	0		0		CONT.	CONT.	
Remarks												
Project Management	Various	Various	9,204	400	Var.	199	Var.	242	Var.	CONT.	CONT.	
Subtotal Management	Various	Various	9,204	400	Var.	199	Var.	242	Var.	CONT.	CONT.	
Remarks												
Total Cost	Various	Various	59,031	1,921	Var.	1,389	Var.	1,529	Var.	CONT.	CONT.	
Remarks												

(U) COST (Dollars in thousands)

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# UNCLASSIFIED

Exhibit R-3, Project Cost Analysis

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5      PROGRAM ELEMENT: 0604231N      PROJECT NUMBER: X0709  
PROGRAM ELEMENT TITLE: Tactical Command System      PROJECT TITLE: GCCS-M Maritime Apps

PROJECT NUMBER & TITLE	FY 1999 ACTUAL	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	COST TO COMPLETE	TOTAL PROGRAM
X0709 GCCS-M Maritime Apps (formerly JMCIS Afloat)	10,065	6,678	6,764	6,803	8,680	11,851	11,729	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The GCCS-M system is the component of GCCS used in the afloat, ashore and tactical /mobile maritime environments. The GCCS-M Maritime Apps project Contains a combination of efforts, portions of which were previously addressed in the JMCIS Afloat, JMCIS Ashore, JMCIS Tactical/Mobile and GCCS projects beginning in FY 99. GCCS-M meets the requirements of the tactical commander for a near real-time, fused common tactical picture with integrated intelligence services and databases. GCCS-M supports the Command, Control, Communication, Computers and Intelligence (C4I) mission requirements of the Chief of Naval Operations (CNO), Fleet Commanders in Chief (CINC), Numbered Fleet Commanders (NFC), Officer in Tactical Command/Composite Warfare Commander (OTC/CWC), Type Commanders (TYCOM), Commander Submarine Operations Authority (COMSUBOPAUTH), Commander Task Force (CTF), Commander Amphibious Task Force(CATF), Commander Landing Force (CLF), Ship's Commanding Officer/Tactical Action Officer (CO/TAO), and Joint Task Force(JTF) Commanders, as well as other functional commanders such as the Command and Control Warfare Commander (C2WC). It also integrates both joint and service-unique command and Control projects in order to support joint task force and Navy afloat requirements. Efforts include design, integration, and test of Tactical Decision Aids (TDAs), Navy Status of Forces (NSOF), and integration of GCCS-M baselines with weapons systems and Combat Direction Systems. These efforts will provide the battle group/force commanders with the information needed to enhance their warfighting capabilities. GCCS-M is also initiating a transition to Commercial Off The Shelf (COTS) hardware and software as part of the current GCCS-M initiative to capitalize on the latest Web/PC industry/commercial technology. Beginning in FY 99, this line is renamed GCCS-M Maritime Applications and incorporates portions of previously separate JMCIS Afloat (604231N X0709) and JMCIS Ashore (604321N X2041). GCCS-M is a key system currently being used to support real world operations afloat, ashore, and with tactical/mobile commanders.

R-1 Shopping List-Item No. 89-14 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT:

0604231N

PROJECT NUMBER: X0709

PROGRAM ELEMENT TITLE:

Tactical Command System

PROJECT TITLE: GCCS-M Maritime Apps

1. (U) FY 1999 ACCOMPLISHMENTS:

- (U) (\$776) Continued to develop, integrate and test FY 1998 software segment enhancements. Continued to integrate and test Fleet software releases to meet Increment III ORD requirements. Continued to incorporate Fleet requirements for merging tactical and non-tactical networks and application of Web and PC technologies.
- (U) (\$900) Continued development of Tactical Decision Aids (TDAs) and COTS tactical analysis tools for incorporation into GENSER and SCI Software for analyst workstations, Electronic Warfare Command Stations (EWCS), and supporting the Command and Control Warfare Center (C2WC).
- (U) (\$2,390) Continued development/implementation and began integration/testing of segment applications software in a GCCS/DII compliant open system architecture to include Continued transition to COTS PC technology, working toward a COP including interfaces for the (Joint Server Implementation Processing System, Navy (JSIPS-N), Joint Broadcast System/Global Broadcast System (JBS/GBS), two-way LINK 16, and Imagery Product Library/Imagery Product Archive (IPL/IPA).
- (U) (\$504) Continued development of Domain Network Server (DNS), which will allow GCCS-M Afloat connection to the Joint Warfare Intelligence Command System (JWICS), SIPRNET and other information, networks.
- (U) (\$445) Integrated and tested the upgraded Joint Forward Air Component Commander/Contingency Tactical Air Planning System (JFACC/CTAPS) hardware and software interfaces (using the Common Database Server (CDBS) with the Rapid Application of Air Power (RAAP) and Target Nomination modules) with GCCS-M Afloat including 3-D visualization capability in support of situation awareness, mission/strike planning, terrain analysis and C2 support.
- (U) (\$660) Continued integration and testing of Internet security capability in GCCS-M Afloat. Investigated and evaluated COTS multi-level secure (MLS) software packages for possible inclusion in the JMCIS Afloat architecture.
- (U) (\$700) Continued to develop the architecture to support world wide data base access to all fleet users to fully support the GCCS/DII Common Operating Environment (COE) and the Copernicus Architecture to operate with USMC, USCG and other Joint Command, Control, Intelligence and Imagery systems interface with GCCS-M Afloat.

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# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT:

0604231N

PROJECT NUMBER: X0709

PROGRAM ELEMENT TITLE:

Tactical Command System

PROJECT TITLE: GCCS-M Maritime Apps

- (U) (\$552) Procured development hardware and COTS software to support hardware evaluation and software development.
  - (U) (\$633) Continued to develop approaches to integrate GCCS-M Afloat LANs, WANs and transition JMCIS Afloat legacy application segments to GCCS-M Afloat.
  - (U) (\$400) Initiated development and implementation of collaborative planning capability in GCCS-M Afloat.
  - (U) (\$503) Implemented technology upgrade to TAC-X computer including porting and integration of application/segment software.
  - (U) (\$623) Initiated system development integration, test planning, testing, documentation and training for GCCS-M 4.X software. Continued DII compliance implementation. Continued development to replace client workstations with NT's.
  - (U) (\$574) Incorporated decision aids, data elements, and message formats and reports to support Non-Combatant Evacuation Operations (NEO). Incorporated current FLTCINC, TYCOM and numbered Fleet Commander Logistics planning and support tools in support of Fleet operations (Personnel, fuel, ammunition, supplies, medical, etc).
  - (U) (\$225) Completed development, testing and fielding of Shore Targeting functionality (near real-time weapons targeting data to submarines) to JMCIS Ashore.
  - (U) (\$180) Continued to integrate and make interoperable JMCIS Ashore ASW capability with Joint ASW functionality.
2. (U) FY 2000 PLAN:
- (U) (\$500) Develop new functionality and enhance existing functionality to meet the high priority requirements specified by the Fleet CINCs at the Copernicus Requirements Working Group (CRWG) '99. Includes building the ability to merge and display all source Tactical Intelligence Broadcast System (TIBS) and Tactical Receive Equipment & Related Applications (TRAP) data with Tactical Digital Information Link (TADIL) tracks, desktop classified video teleconferencing, and distant learning tools.

R-1 Shopping List-Item No. 89-16 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT:

0604231N

PROJECT NUMBER: X0709

PROGRAM ELEMENT TITLE:

Tactical Command System

PROJECT TITLE: GCCS-M Maritime Apps

- (U) (\$718) Continue to develop employment scheduling and decision support tools to maximize use of native NT environment. Extend functionality of scheduling tools to support creation of scenario-based calculations for fuel burn rates, deployment transit planning, unit best fit analysis, five year planning, review of maritime aviation readiness, and calculation of combined/joint exercise training readiness. Develop an integrated data display and dissemination tool to provide multiple echelons (ISICs, TYCOMs, and CINCs) a singular view of force scheduling data.
- (U) (\$550) Continue to provide interfaces to process raw readiness data input from lower echelons and incorporate into validated readiness data repositories at fleet command centers. Enhance readiness data processing by integrating Navy readiness systems. Integrate Navy readiness data with joint Global Status Of Resources and Training (GSORTS) databases and applications to facilitate joint operation preparation. Continued developing Force Planning tools to support Navy Mission Essential Task List (NMETL and Navy/Joint Universal Task List (MUTL/JUTL). Provide an integrated product that enables users to develop scheduling data based upon input on force readiness.
- (U) (\$150) Port existing Water Space Management (WSM) application to PC and provide capability to advance WSM display to time periods specified by the operator. Provide capability to incorporate three-dimensional WSM deconfliction processing.
- (U) (\$150) Develop Anti Air Warfare Human Computer Interface (AAW HCI) & Situational Awareness (SA) tactical decision aids to support USN AAW missions in a joint/coalition environment. Interface/Utilize TADIL capabilities to provide AAW SA to non-CDS equipped units that are not equipped with intelligence repositories.
- (U) (\$500) Provide an integrated solution for providing all services that support the generation of pre-flight mission objective briefs, interface with in-flight aircraft to transmit and receive imagery and Link data, and fuse completed mission data to provide post-mission analysis and review. The aircraft support suite will maximize use of COTS PC tools to interface with legacy databases and provide easy-to-use processing tools for brief generation. Mission status board applications will interface directly with remote mission event databases to enable online electronic editing during mission. Imagery and data transfer tools will be built using commercial protocols to enable TSCs to interoperate with NATO and Joint platforms. Pre and Post-Flight analysis tools will integrate with web technologies to permit remote queries from disadvantaged sites.
- (U) (\$323) Enhance the C2WC decision aid & tools to take advantage of new/emerging sensors (organic & national). Develop and implement C2WC capabilities to exploit national and theater EW/OOB databases (MIDB, EPL, etc.). Investigate providing C2WC capabilities to selected surface combatants.

R-1 Shopping List-Item No. 89-17 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT:

0604231N

PROJECT NUMBER: X0709

PROGRAM ELEMENT TITLE:

Tactical Command System

PROJECT TITLE: GCCS-M Maritime Apps

- (U) (\$150) Enhance pre-flight capabilities to enable analysis of environmental data, threat and force data, sensors, and target motion data to be performed on the joint intelligence database (MIDB). Enhance current implementation to support improvement of joint sensor data based on post-mission analysis.
- (U) (\$150) Develop architecture to integrate COTS Enterprise Management tools in GCCS-M Maritime Applications to support remote system diagnostics, LAN inventory, and remote software distribution and installation. Implementation will support low-bandwidth users and poorly connected sites.
- (U) (\$200) Develop a Network-based broadcast FLTCAST product that provides web-based "info-cast" subscription capabilities for the fleet to access GCCS-M data using commercial web technology. Framework would provide plug-in capabilities so that external programs could interface with GCCS-M and re-use the existing framework to distribute data, documentation, and training.
- (U) (\$250) Design parsers that interface with the DII COE messaging products to populate tactical databases for GCCS-M Maritime Applications. Provide plug-in parsers that maximize integration between the track database and relational analysis databases, and are interoperable with the USMTF message format certification and DMS.
- (U) (\$300) Provides operational test planning to prepare for Operational Evaluation (OPEVAL) / Operational Test (OT).
- (U) (\$1,700) Provides Development Test phases in lab and operational sites for GCCS-M segments. Also provides any certification, compliancy (DII COE), and functional testing for each segment. Acceptance and development testing includes joint certifications, compliancy with the DII COE and security policies, and functional testing for each segment. Funding will also be used to support the Test used by program.
- (U) (\$150) Continue integration of GCCS Joint SW in shore and shipboard environments, including incorporation of Navy specific functionality. Fielding of the Maritime variant would be interoperable with the joint GCCS system on the same network enabling seamless exchange of tactical data between platforms.
- (U) (\$490) Develop a common GCCS-M infrastructure to support the network-centric warfare concept. Design would maximize processing power of current server applications while enabling clients powered with minimal COTS tools to access data in a traditional 3-tier architecture. Focus will include portable capability to support disembarked operations for Expeditionary Warfare.

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# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT:

0604231N

PROJECT NUMBER: X0709

PROGRAM ELEMENT TITLE:

Tactical Command System

PROJECT TITLE: GCCS-M Maritime Apps

- (U) (\$297) Combat Systems Integration: Develop and Implement integration with GCCS-M and Aegis/non-Aegis combat systems to achieve intra and inter ship interoperability with the common operational picture, including systems such as a ATWCS, TTWCS, and AADC.
  - (U) (\$100) Provide engineering and integration testing to the IT-21 Integration Test Facility to ensure that GCCS-M Maritime applications operate effectively in the IT-21 ARM LAND and System environment.
3. (U) FY 2001 PLAN:
- (U) (\$1,039) Develop new functionality and enhance existing functionality to meet the high priority requirements specified by the Fleet CINCs and validated by CNO at the CRWG'00. This includes developing an IP multicast capability to enable regional command centers to "push" data to remote fleet users based on pre-selected criteria on an event-by event basis. Systems will be designed to meet timeline for Joint C2 security certification.
  - (U) (\$125) Support operational test planning and execution to prepare for OPEVAL and MS IIIA.
  - (U) (\$650) Provide thin-client front end to the existing scheduling tools to enable disadvantaged users at Immediate Superior in Command (ISICs) and Type Commanders (TYCOMs) to exploit the same scenario-based calculation capabilities Contained at fleet command centers. Users will be able to perform remote updates via internet web technology and database replication features, eliminating the requirement for message based data transfer.
  - (U) (\$180) Develop capability to process Non-Combatant Operation data and to incorporate into the common tactical picture for mission planning during amphibious operations.
  - (U) (\$493) Develop a web interface to the Joint status of forces database (GSORTS) so that all maritime users can provide inputs to the national status of forces data, as well as the lower echelon readiness systems in either a fleet command center with GCCS software or at Navy specific site fielding GCCS-M.
  - (U) (\$555) Port all remaining UNIX -based TSC applications to a PC environment, using extensions designed for commercial desktop applications to interface with GCCS-M tactical data sources. Provide components for pre-flight sensor analysis that can be imbedded into other desktop utilities for scheduling and post-mission replay. Utilities will interface with the DII COE on NT for mission display, and will be incorporated into the FLTCAST effort for web-based subscription capabilities.

R-1 Shopping List-Item No. 89-19 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X0709

PROGRAM ELEMENT TITLE: Tactical Command System

PROJECT TITLE: GCCS-M Maritime Apps

- (U) (\$190) Migrate TSC applications to the current version of the Modernized Intelligence Database (MIDB). Migration to the Defense Intelligence Agency (DIA) database will enable TSCs to integrate with the Joint community for ATO generation, order of battle maintenance and targeting support.
- (U) (\$250) Integrate FLTCAST with Global Broadcast System, enabling FLTCAST to take advantage of Asynchronous data transmission and delivery. Design FLTCAST to incorporate non-IP based protocols to support low-bandwidth customers.
- (U) (\$554) Provide integrated products that support both legacy AUTODIN or text-based data transfer as well as move modern IP - based data transmission messages for data transfer for automated message handling. Leverage DMS effort into a Maritime implementation for organizational email and data transfer for population of tactical databases.
- (U) (\$973) Continue acceptance, development, and operational test phases in labs and operational sites. Acceptance and development testing includes joint certifications, compliancy with the DII COE and security policies, and functional testing for each segment. Funding will also be used to support the ongoing Test IPTs and TPWG processes.
- (U) (\$270) Continue integration of GCCS (Joint) software in shore and shipboard environments, including incorporation of Navy-specific applications into the Joint software and network environment. Ensure that all applications are also built to the common segmentation guideline, so that they can also be loaded on the same physical machine.
- (U) (\$445) Combat Systems Integration: Continue interface development between GCCS-M and Aegis/non-Aegis combat systems. Initiate a DII COE Level 7 integration between ATWCS, TTWCS, AADC, and GCCS-M to enable combat systems to be installed on a common platform.
- (U) (\$130) Migrate NAVSSI interface to a DII COE Level 7 segment, enabling navigational data to be displayed on the common tactical picture.
- (U) (\$720) Design a hybrid UNIX and PC server architecture to consolidate multiple low-end servers into a high availability enterprise server to increase reliability, maintainability and availability and to lower maintenance costs. Refine on the three tier architecture to enable smaller-scale database and application servers to be swapped into architecture without disturbing client application code.

R-1 Shopping List-Item No. 89-20 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X0709

PROGRAM ELEMENT TITLE: Tactical Command System

PROJECT TITLE: GCCS-M Maritime Apps

- (U) (\$190) Continue enhancements to Water Space Management (WSM) including area management.

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

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

R-1 Shopping List-Item No. 89-21 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT:

0604231N

PROJECT NUMBER: X0709

PROGRAM ELEMENT TITLE:

Tactical Command System

PROJECT TITLE: GCCS-M Maritime Apps

C. (U) ACQUISITION STRATEGY:

	FY 1999				FY 2000				FY 2001			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Program Milestones										▲		
										MS IIIA		
Engineering Milestones								▲				
								GCCS-M 4.1 Drop				
T&E Milestones		▲					▲				▲	
		SQT 1					SQT 2			DT/OT IIIA		
Contract Milestones												

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

R-1 Shopping List-Item No. 89-22 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT COST ANALYSIS

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X0709

PROGRAM ELEMENT TITLE: Tactical Command System

PROJECT TITLE: GCCS-M Maritime Apps

Cost Categories	Contract Method & Type	Performing Activity & Location	Total 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
Software Development	Various	Various	18,122	7,384	Var.	4,373	Var.	5,261	Var.	CONT.	CONT.	
Subtotal Product Development	Various	Various	18,122	7,384	Var.	4,373	Var.	5,261	Var.	CONT.	CONT.	
Remarks:												
System Engineering	Various	Various	6,514	1,956	Var.	1,630	Var.	1,003	Var.	CONT.	CONT.	
Subtotal Support	Various	Various	6,514	1,956	Var.	1,630	Var.	1,003	Var.	CONT.	CONT.	
Remarks												

R-1 Shopping List-Item No. 89-23 of 89-61

# UNCLASSIFIED

Exhibit R-3, Project Cost Analysis

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT COST ANALYSIS

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT:

0604231N

PROJECT NUMBER: X0709

PROGRAM ELEMENT TITLE:

Tactical Command System

PROJECT TITLE: GCCS-M Maritime Apps

Cost Categories	Contract Method & Type	Performing Activity & Location	Total 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
Operational Test & Evaluation	PD	OPTEVFOR	1,015	75	10/98	0		0		CONT.	CONT.	
Subtotal T&E	PD	OPTEVFOR	1,015	75	10/98	0	10/99	0	10/00	CONT.	CONT.	
Remarks												
Program Management	Various	Various	6,015	650	Var.	675	Var.	500	Var.	CONT.	CONT.	
Subtotal Management	Various	Various	6,015	650	Var.	675	Var.	500	Var.	CONT.	CONT.	
Remarks												
Total Cost	Various	Various	31,666	10,065	Var.	6,678	Var.	6,764	Var.	CONT.	CONT.	

R-1 Shopping List-Item No. 89-24 of 89-61

# UNCLASSIFIED

Exhibit R-3, Project Cost Analysis

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X2009

PROGRAM ELEMENT TITLE: Tactical Command System

PROJECT TITLE: JMCIS OED

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1999 ACTUAL	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	COST TO COMPLETE	TOTAL PROGRAM
X2009 JMCIS OBU Evolutionary Development	1,866	5,106	3,669	2,575	2,457	2,669	2,817	CONT.	CONT.

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

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

R-1 Shopping List-Item No. 89-25 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT:

0604231N

PROJECT NUMBER: X2009

PROGRAM ELEMENT TITLE:

Tactical Command System

PROJECT TITLE: JMCIS OED

## (U) PROGRAM ACCOMPLISHMENTS AND PLANS:

### 1. (U) FY 1999 ACCOMPLISHMENTS:

- (U) (\$285) Implemented, accredited and deployed MLS changes needed to support email-based and DMS record message traffic.
- (U) (\$422) Developed and deployed wide area imagery, site, and characteristics databases using an object-oriented MLS commercial database package.
- (U) (\$749) Automated real time Indications and Warning/Situation Assessment capability that detects and automatically alerts users concerning movement patterns, complex threat conditions and other pre-defined spatial and data detection events.
- (U) (\$121) Upgraded system capabilities to provide tailored MLS support.
- (U) (\$289) Incorporated current state of art data correlation and data fusion software and hardware technology.

### 2. (U) FY 2000 PLAN:

- (U) (\$285) Implement, accredit and deploy MLS changes needed to support email-based and DMS record message traffic.
- (U) (\$464) Develop and deploy wide area imagery, site, and characteristics databases using an object-oriented MLS commercial database package.
- (U) (\$780) Automate real time Indications and Warning/Situation Assessment capability to detect and auto alert users concerning movement patterns, complex threat conditions and other pre-defined spatial and data detection events.
- (U) (\$146) Upgrade system capabilities for providing tailored MLS support.
- (U) (\$431) Incorporate current state of art data correlation and data fusion software and hardware technology.

R-1 Shopping List-Item No. 89-26 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X2009

PROGRAM ELEMENT TITLE: Tactical Command System

PROJECT TITLE: JMCIS OED

- (U) (\$3,000) Develop the Concept, Technically Feasibility and Prototype for the Integration of the CONT.iguous Connection Model (CCM) Information Analysis, Storage and Retrieval System into the OED MLS System. Perform the Integration, Provide Test and Certification of the enhanced OED MLS Knowledge Capable (OED MLS/KD) System.
3. (U) FY 2001 PLAN:
- (U) (\$1,570) Port MLS Capability to SUN based DII-COE 4.5X.
  - (U) (\$285) Implement, accredit and deploy MLS changes needed to support email-based and DMS record message traffic.
  - (U) (\$439) Update message encoders, decoders and correlation algorithms as required to meet formatted MSG standards and changes in sensor data feeds.
  - (U) (\$726) Automate real time Indications and Warning/Situation Assessment capability to detect and auto alert users concerning movement patterns, complex threat conditions and other pre-defined spatial and data detection events.
  - (U) (\$313) Upgrade system interface capabilities as required for current releases for record communications systems, (e.g., CSP, NEWSDEALER) with in an accreditable MLS baseline.
  - (U) (\$336) Implement improved tactical decision aids, and system alerting capabilities.

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

	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	COST TO	TOTAL
	ACTUAL	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	COMPLETE	PROGRAM
OMN 1C1C/4B7N	1,147	1,204	1,088	1,277	1,629	1,259	1,291	CONT.	CONT.

(U) RELATED RDT&E: Not applicable.

R-1 Shopping List-Item No. 89-27 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT:

0604231N

PROJECT NUMBER: X2009

PROGRAM ELEMENT TITLE:

Tactical Command System

PROJECT TITLE: JMCIS OED

C. (U) ACQUISITION STRATEGY:

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Program Milestones			▲									
			PDM									

Engineering Milestones

T&E Milestones

Contract Milestones

Note: Dates reflect proposed APB Milestones.

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

R-1 Shopping List-Item No. 89-28 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT COST ANALYSIS

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X2009

PROGRAM ELEMENT TITLE: Tactical Command System

PROJECT TITLE: JMCIS OED

Cost Categories	Contract Method & Type	Performing Activity & Location	Total 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
Software/Product Development	Radius	NAVSUP	26,652	1,432	Var.	4,290	Var.	2,924	Var.	CONT.	CONT.	
Software/Product Development	Various	Various	3,990	100	Var.	411	Var.	215	Var.	CONT.	CONT.	
Subtotal Product Development	Various	Various	30,642	1,532	Var.	4,701	Var.	3,139	Var.	CONT.	CONT.	
Remarks:												
System Engineering	WX	Various	7,750	229	Var.	300	Var.	425	Var.	CONT.	CONT.	
Subtotal Support	Various	Various	7,750	229	Var.	300	Var.	425	Var.	CONT.	CONT.	
Remarks:												

R-1 Shopping List-Item No. 89-29 of 89-61

# UNCLASSIFIED

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT COST ANALYSIS

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT:

0604231N

PROJECT NUMBER: X2009

PROGRAM ELEMENT TITLE:

Tactical Command System

PROJECT TITLE: JMCIS OED

Cost Categories	Contract Method & Type	Performing Activity & Location	Total 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
Operational Test & Evaluation	PD	OPTEVFOR	570	30	Var.	30	Var.	30	Var.	CONT.	CONT.	
Subtotal T&E	PD	OPTEVFOR	570	30	Var.	30	Var.	30	Var.	CONT.	CONT.	
Remarks												
Project Management	Various	Various	1,795	75	Var.	75	Var.	75	Var.	CONT.	CONT.	
Subtotal Management	Various	Various	1,795	75	Var.	75	Var.	75	Var.	CONT.	CONT.	
Remarks												
Total Cost	Various	Various	40,757	1,866	Var.	5,106	Var.	3,669	Var.	CONT.	CONT.	
Remarks												

R-1 Shopping List-Item No. 89-30 of 89-61

# UNCLASSIFIED

Exhibit R-3, Project Cost Analysis

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT:

0604231N

Project Number: X0521

PROGRAM ELEMENT TITLE:

Tactical Command System

Project Title: GCCS-M Intel Apps

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1999 ACTUAL	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	COST TO COMPLETE	TOTAL PROGRAM
X0521 GCCS-M Intelligence Apps (formerly Shipboard Tactical Intelligence Processing (STIP))	6,383	6,700	6,555	6,525	7,591	6,955	7,570	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: GCCS-M Intelligence Applications (formerly Shipboard Tactical Intelligence Processing (STIP)) are an integrated set of DII-COE compliant segments designed to support tactical intelligence processing and reside on the Intelligence Shared Data Server (ISDS). The ISDS is the central database server for GCCS-M Afloat, the Command and Control Warfare Commander (C2WC) and tactical mission planning systems. Development of GCCS-M Intelligence applications for this data distribution includes dynamic updates of Naval Intelligence Database (NID) and military integration with digital map and imagery systems. STIP began interface development with the Joint Services Imagery Processing - Navy (JSIPS) in FY 1990. The current GCCS-M Intel Apps effort includes providing intelligence data distribution to multiple shipboard warfighters via an analog video distribution system. Further, the GCCS-M Intel Apps effort will integrate Radiant Mercury (RM) into the GCCS-M Afloat architecture to meet downgrading and releasability requirements. This effort is also continuing the transition to Commercial Off The Shelf (COTS) hardware and software as part of the current GCCS-M initiative to capitalize on the latest Web/PC industry/commercial technology. The GCCS-M Intel Apps effort is part of the Tactical Intelligence and Related Activities (TIARA) program, managed by the Secretary of Defense through the Assistant Secretary of Defense for C4I.

R-1 Shopping List-Item No. 89-31 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT:

0604231N

PROJECT NUMBER: X0521

PROGRAM ELEMENT TITLE:

Tactical Command System

PROJECT TITLE: GCCS-M Intel Apps

## 1. (U) FY 1999 ACCOMPLISHMENTS:

- (U) (\$1,091) Continued developing, integrating and testing MIDB 3 (v 2.0, 3.0, 4.0 etc.) based ISDS General Services (GENSER) and Special Compartmented Information (SCI) and associated intel applications in accordance with GCCS Integrated Imagery and Intelligence (GCCS-I<sup>3</sup>) evolutionary directions and in conjunction with Cryptologic/C2W and other Warfare Commander developments.
- (U) (\$1,072) Continued developing, integrating and testing advanced digital imagery server(s) and Navy-Marine Team unique client applications to keep pace with evolving National Imagery and Mapping Agency (NIMA), Defense Airborne Reconnaissance Office (DARO) and National Reconnaissance Office (NRO) imagery architectures.
- (U) (\$110) Continued to develop enhancements to the GENSER-SCI LAN and GCCS-M -"RelX" data exchange capabilities based on Modernized Integrated Database (MIDB) "filter" approach, and emerging MLS technologies for both alphanumeric data and imagery.
- (U) (\$266) Continued development and integration of multi-media data capture, storage and display technologies into the Integrated Video System (IVS) including 3-D visualization capability in support of situation awareness, mission/strike planning, STRED improvements, Unmanned Aerial Vehicle (UAV) data integration, terrain analysis and intelligence support.
- (U) (\$788) Continued evolving intel and intel-related data base support for GCCS-M and MAGTFC4I/Expeditionary Warfare applications as required outside MIDB capability.
- (U) (\$676) Continued object-oriented database exploratory development.
- (U) (\$445) Continued investigating and developing USAF, Army and other Joint intel/imagery system interfaces.
- (U) (\$409) Developed and test enhancements to unit level GCCS-M Afloat intel capabilities including access to imagery recognition and associated support data; e.g., C&P.
- (U) (\$261) Initiated convergence and testing of OBU/OED intel capability with GCCS-M development; provide OED-unique intel tools afloat.

R-1 Shopping List-Item No. 89-32 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT:

0604231N

PROJECT NUMBER: X0521

PROGRAM ELEMENT TITLE:

Tactical Command System

PROJECT TITLE: GCCS-M Intel Apps

- (U) (\$515) Integrated Radiant Mercury (RM) capability into GCCS-M to meet the high priority Fleet requirement of C4 data downgrading and releasability for coalition interoperability. RM is a certified, accreditable, automated method to downgrade highly sensitive data over security levels.
  - (U) (\$400) Implemented the Modernized Integrated Database (MIDB) replication in GCCS-M to meet the validated Fleet requirements to generate and maintain a consistent intelligence picture among general purpose C2 systems, mission planning systems, and combat direction systems while reducing numbers of databases which have to be maintained.
  - (U) (\$350) Continued development to transfer digital video data/information among workstations on the same platform and among workstations on multiple platforms.
2. (U) FY 2000 PLAN:
- (U) (\$350) Migrate Intelligence Correlation Tools (e.g. Gale Lite, NRTI/Binocular) into GCCS-M, conforming to DII COE in order to meet validated fleet requirements.
  - (U) (\$240) Migrate JDISS stand-alone intelligence system tools into a GCCS-M application, creating an integrated afloat intelligence architecture.
  - (U) (\$478) Continue integration of Radiant Mercury (RM) capability into GCCS-M to meet the high priority Fleet requirement of C4 data downgrading and releasability for coalition interoperability. RM is a certified, accreditable, automated method to downgrade highly sensitive data over security levels.
  - (U) (\$788) Continue evolving Navy-USMC Team unique intelligence and intelligence-related database support for GCCS-M and MAGTFC4I/Expeditionary Warfare applications as required outside MIDB capability.
  - (U) (\$1,012) Continue development, integration and testing of advanced digital imagery server and Navy-Marine Team unique client applications to keep pace with evolving NIMA, DARO and NRO imagery architectures.
  - (U) (\$1,185) Continue developing, integrating and testing MIDB (v 2.0, 3.0, 4.0 etc.) based ISDS (GENSER and SCI) and associated intelligence applications in accordance with GCCS-I3 evolutionary directions and in conjunction with Cryptologic/C2W and other Warfare Commander developments.

R-1 Shopping List-Item No. 89-33 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT:

0604231N

PROJECT NUMBER: X0521

PROGRAM ELEMENT TITLE:

Tactical Command System

PROJECT TITLE: GCCS-M Intel Apps

- (U) (\$500) Continue implementation of the MIDB replication in GCCS-M to meet the validated Fleet requirements to generate and maintain a consistent intelligence picture among general purpose C2 systems, mission planning systems, and combat direction systems while reducing numbers of databases which have to be maintained.
  - (U) (\$300) Migrate development of Intelligence and Imagery segments to meet fleet IT21 requirements (PC/NT) and DII COE.
  - (U) (\$400) Implement new fleet validated GCCS-I<sup>3</sup> Intelligence Functional Working Group and Copernicus Requirements Working Group (CRWG) requirements. Develop an automated mechanism to register and catalogue software submissions for all GCCS-I<sup>3</sup> development, integration and test software builds.
  - (U) (\$526) Develop Navy Portion for imagery access and manipulation components of the Joint Targeting Toolbox (JTT), a proposed uniform set of targeting applications validated by all Services.
  - (U) (\$409) Continue development and test enhancements to unit level GCCS-M Afloat intelligence capabilities including access to imagery and associated support data; e.g., C&P.
  - (U) (\$262) Continue testing of OBU/OED intelligence capability with GCCS-M development; provide OED-unique intelligence tools afloat.
  - (U) (\$250) Develop and test GCCS-M Intel database applications (MIDB interfaces) with Joint Targeting Toolbox.
3. (U) FY 2001 PLAN:
- (U) (\$500) Continue integration of Radiant Mercury (RM) capability into GCCS-M to meet the high priority Fleet requirement of C4 data downgrading and releasability for coalition interoperability. RM is a certified, accreditable, automated method to downgrade highly sensitive data over security levels.
  - (U) (\$650) Continue evolving Navy-USMC Team unique intelligence and intelligence-related database support for GCCS-M and MAGTFC4I/Expeditionary Warfare applications as required outside MIDB capability.
  - (U) (\$1,000) Continue developing, integrating and testing advanced digital imagery server and Navy-Marine Team unique client applications to keep pace with evolving NIMA, DARO and NRO imagery architectures.

R-1 Shopping List-Item No. 89-34 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT:

0604231N

PROJECT NUMBER: X0521

PROGRAM ELEMENT TITLE:

Tactical Command System

PROJECT TITLE: GCCS-M Intel Apps

- (U) (\$1,146) Continue developing, integrating and testing MIDB (v 2.0, 3.0, 4.0 etc.) based ISDS (GENSER and SCI) and associated intelligence applications in accordance with GCCS-M Intel Apps and GCCS-I3 evolutionary directions and in conjunction with Cryptologic/C2W and other Warfare Commander developments.
- (U) (\$500) Complete development of the Modernized Integrated Database (MIDB) replication in GCCS-M to satisfy validated Fleet requirements to generate and maintain a consistent intelligence picture among general purpose C2 systems, mission planning systems, and combat direction systems while reducing numbers of databases to be maintained.
- (U) (\$325) Continue migration development of Intelligence and Imagery segments to meet fleet IT21 requirements (PC/NT) and DII COE.
- (U) (\$678) Continue development of fleet validated GCCS-I<sup>3</sup> Configuration Control Board (CCB), Intelligence Functional Working Group (IFWG) and Copernicus Requirements Working Group (CRWG) requirements. Develop an automated mechanism to register and catalogue software submissions for all GCCS-I<sup>3</sup> development, integration and test software builds.
- (U) (\$500) Continue development of the Navy portion for imagery access and manipulation components of the Joint Targeting Toolbox, a uniform set of targeting applications validated by all Services.
- (U) (\$600) Continue development and test enhancements to unit level GCCS-M Afloat intelligence capabilities including access to imagery, associated support data, and ELINT correlation factors.
- (U) (\$200) Continue testing of OBU/OED intelligence capability with GCCS-M development; provide OED-unique intelligence tools afloat.
- (U) (\$206) Continue to develop and test GCCS-M Intel database applications (MIDB interfaces) with Joint Targeting Toolbox.
- (U) (\$250) Develop and test the GCCS-M integration of Common Operating Picture (COP) and MIDB.

B. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands) N/A

(U) RELATED RDT&E:PE 0604231N (Tactical Command Systems) GCCS-M Afloat

R-1 Shopping List-Item No. 89-35 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT:

0604231N

PROJECT NUMBER: X0521

PROGRAM ELEMENT TITLE:

Tactical Command System

PROJECT TITLE: GCCS-M Intel Apps

C. (U) ACQUISITION STRATEGY:

	FY 1999				FY 2000				FY 2001			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Program Milestones										▲		
										MS IIIA		
Engineering Milestones								▲				
								GCCS-M 4.1 Drop				
T&E Milestones		▲		▲					▲			
		SQT 1		SQT 2					DT/OT IIIA			
Contract Milestones												

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

R-1 Shopping List-Item No. 89-36 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT COST ANALYSIS

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X0521

PROGRAM ELEMENT TITLE: Tactical Command System

PROJECT TITLE: GCCS-M Intel Apps

Cost Categories	Contract Method & Type	Performing Activity & Location	Total 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
Software/Product Development	Various	Various	4,745	4,039	12/98	3,759	12/99	3,700	12/00	CONT.	CONT.	
Subtotal Product Development	Various	Various	4,745	4,039	12/98	3,759	12/99	3,700	12/00	CONT.	CONT.	
Remarks:												
System Engineering	Various	Various	9,810	2,219	12/98	2,886	12/99	2,797	12/00	CONT.	CONT.	
Subtotal Support	Various	Various	9,810	2,219	12/98	2,886	12/99	2,797	12/00	CONT.	CONT.	
Remarks:												

R-1 Shopping List-Item No. 89-37 of 89-61

# UNCLASSIFIED

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT COST ANALYSIS

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X0521

PROGRAM ELEMENT TITLE: Tactical Command System

PROJECT TITLE: GCCS-M Intel Apps

Cost Categories	Contract Method & Type	Performing Activity & Location	Total 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
Operational Test & Evaluation	PD	OPTEVFOR	1,981	75	12/98	0		0		CONT.	CONT.	
Subtotal T&E	PD	OPTEVFOR	1,981	75	12/98	0		0		CONT.	CONT.	
Remarks												
Project Management	CPFF	Various	569	15	Var.	19	Var.	20	Var.	CONT.	CONT.	
Travel	WR	HQ	1,340	35	Var.	36	Var.	38	Var.	CONT.	CONT.	
Subtotal Management	Various	Various	1,909	50	Var.	55	Var.	58	Var.	CONT.	CONT.	
Remarks												
Total Cost	Various	Various	18,445	6,383	Var.	6,700	Var.	6,555	Var.	CONT.	CONT.	
Remarks												

R-1 Shopping List-Item No. 89-38 of 89-61

# UNCLASSIFIED

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROGRAM: X2305

PROGRAM ELEMENT TITLE: Tactical Command System

PROGRAM TITLE: GCCS-M Common Apps

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1999 ACTUAL	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY2005 ESTIMATE	COST TO COMPLETE	TOTAL PROGRAM
X2305 GCCS-M Common Apps (formerly Navy COE)	12,145	13,376	11,960	13,716	14,028	16,522	15,868	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Design, develop, update, integrate, test, configuration manage, support and evolve the Navy utilization and system implementation of the Defense Information Infrastructure Common Operating Environment (DII COE), based on the Joint Defense Information Infrastructure (DII) COE, for all Naval C4I Systems. The GCCS-M Common Apps program Contains the fundamental building blocks and common applications for all of our fielded Global Command and Control System (Maritime) C4I systems in Navy, Marine Corps, and Coast Guard. It is the Navy's tactical implementation of the Global Command and Control System (GCCS) and the Global Combat Support System (GCSS) which provides the warfighter: (1) timely access to battlefield information, and (2) state-of-the-art information processing capability to support the command and Control of maritime forces through a combination of communications, intelligence and combat system interfaces.

The Navy COE program is a core function of the GCCS-M Common Apps in that it serves as the system integration point for command and Control systems in the Naval services. The program has the responsibility of working with developers throughout the Navy to incorporate the requirements of their users so that they might quickly and efficiently integrate and transform present stovepipe capabilities into an interoperable C4I architecture. As the number of legacy systems migrating to the DII COE Continued to grow, resources for rapidly folding them into the service extensions must keep pace as the complexity and size of the COE grows. As a product of evolutionary acquisition, the Navy COE will Continued to evolve with the DII COE, new technology, and Commercial Off-the-shelf products.

Beginning in FY 99, this line is renamed GCCS-M Common Applications and incorporates previously separate Joint Interoperability (604231N X2215), C4I for Joint Littoral Warfare (JLW) (604231N X2216), GCCS Joint (0303150N X2304), and portions of JMCIS Afloat (604231N X0709), portions of JMCIS Ashore (604231N X2041) and portions of JMCIS Tactical/Mobile (0604231N X0486) which were common across GCCS-M variants). Under these functions, GCCS-M Common Apps expands to include all C4I applications required to fully support Navy joint interoperability in the littoral environment, and includes all common functions such as track database management, message processing, display implementation, correlation and system architecture migration in order to ensure a coherent and consistent implementation of C4I architectures in the Fleet.

R-1 Shopping List-Item No. 89-39 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

BUDGET ACTIVITY: 5  
PROGRAM ELEMENT: 0604231N  
PROGRAM ELEMENT TITLE: Tactical Command System

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000  
PROGRAM: X2305  
PROGRAM TITLE: GCCS-M Common Apps

## (U) PROGRAM ACCOMPLISHMENTS AND PLANS:

### 1. (U) FY 1999 ACCOMPLISHMENTS:

- (U) (\$189) Continued development of program documents and data.
- (U) (\$1,285) Integrated and transformed Naval core services to be interoperable extensions of the DII COE. Developed tools for integration. Developed updates to keep pace with new technology and commercial-off-the-shelf products. Obtained and managed COTS licenses. Upgraded Application Programmer Interfaces to improve the JMCIS systems integration process. Distributed COE software and provided engineering support for developers to the COE.
- (U) (\$340) Continued compliance and functional level testing and Naval COE component certification testing. Conducted development test and evaluation and certification of evolutionary COE products.
- (U) (\$345) Supported development and unit testing of segments for GCCS-M 4.X.
- (U) (\$400) Continued to integrate/analyze JMCIS Ashore sites in conjunction with COTS hardware upgrades, and state-of-the art displays, video distribution systems and briefing aids (including multimedia, 3-D visualization and very high resolution images).
- (U) (\$483) Continued to incorporate state-of-the-art technologies such as distributed databases and WEB technology.
- (U) (\$180) Continued interfacing/integrating with readiness data from other Navy sources.
- (U) (\$300) Continued development of object oriented/design solution into JMCIS Ashore to improve system performance.
- (U) (\$270) Continued development of database modules to support WAN access by JMCIS Ashore remote users, i.e., distributed databases and data standardization.
- (U) (\$225) Updated JMCIS Ashore software and databases to accommodate Navy unique and Joint message format changes.

R-1 Shopping List-Item No. 89-40 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X2305

PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: GCCS-M Common Apps

- (U) (\$520) Maintained architectural compatibility with DoD mandated standards (i.e., Defense Information Infrastructure (DII)).
- (U) (\$282) Continued implementation of appropriate security features and documentation. Continued security engineering efforts, Certification Test and Evaluation (CT&E), Security Test and Evaluation (ST&E), documents (e.g., Computer Security Accreditation Plan (CSAP), operating procedures, safeguards and site accreditation.
- (U) (\$85) Continued development and implementation of Human Computer Interface Standards for software development and data retrieval.
- (U) (\$405) Conducted developmental testing and beta testing on JMCIS Ashore software.
- (U) (\$475) Continued extension of full JMCIS Ashore access and functionality into PC domain consistent with FLTCINC and TYCOM requirements.
- (U) (\$225) Port JMCIS Ashore software to run on current GCCS (Joint) and Navy TAC and PC computer platforms.
- (U) (\$400) Continued Cooperative Development of NACCIS with SACLANT, implemented NATO message parsing and editing features, expand JMCIS Ashore database to reflect NATO/Allied units, and Continued to support Joint, Allied (NATO and other) and Foreign (FMS) users to ensure interoperability among users.
- (U) (\$189) Incorporated decision aids, data elements, and message formats and reports to support Navy blockage enforcement, choke point, port evacuation Navy Control of Shipping (NCS) operations, and other Navy missions associated with Operations other than War.
- (U) (\$158) Maintained compatibility with Defense Messaging System (DMS)/Automated Message Handling System software requirements.
- (U) (\$253) Revised JMCIS architecture to be compatible with DoD requirements in DII. Produced requirements engineering data and documentation.
- (U) (\$620) Ported Navy JMCIS applications to Joint standard hardware platforms and updated for compliance with DII requirements. Updated algorithms, data and display formats for Joint interoperability.
- (U) (\$250) Implemented plan for migration of data to common data link.

R-1 Shopping List-Item No. 89-41 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X2305

PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: GCCS-M Common Apps

- (U) (\$259) Procured Joint standard hardware for developers and testers of common services.
- (U) (\$100) Developed and implemented processes to support development and integration of Joint warfare applications.
- (U) (\$200) Provided training and technical services for developers of common services and mission applications.
- (U) (\$225) Planned and conducted integration and development testing of common services.
- (U) (\$99) Developed program documentation and data.
- (U) (\$200) Developed improvements to two-way data exchange capabilities to ensure system interoperability.
- (U) (\$250) Developed approach to exchange digital video data/information among Joint forces.
- (U) (\$385) Performed system requirements analysis and systems design.
- (U) (\$145) Developed program documentation and data.
- (U) (\$237) Transitioned to latest technologies to achieve a field deployable JLW capability.
- (U) (\$450) Developed new Application Program Interfaces (APIs) to support new JLW mission capabilities.
- (U) (\$500) Updated JMCIS C4I systems architecture and updated/integrated JMCIS software segments to provide Tactical Data Link (TADIL) improvement, improved navigational and environmental data for Tactical Decision Aids and Theater Ballistic Missile Defense.
- (U) (\$300) Procured components of the DII Software Development Environment for use by JMCIS/DII developers.
- (U) (\$311) Developed/integrated JLW Application Software Segments supporting mine warfare and countermeasures, and amphibious assault.
- (U) (\$205) Completed initial phase of JLW/JMCIS Systems Integration.

R-1 Shopping List-Item No. 89-42 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X2305

PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: GCCS-M Common Apps

- (U) (\$250) Conducted JLW Developmental Testing.
- (U) (\$150) Completed an JLW initial OA.
- 2. (U) FY 2000 PLAN:
  - (U) (\$450) Begin implementation of Real-time capabilities into DII COE in order to support migration of high performance systems to GCCS-M architecture.
  - (U) (\$100) Continue development of program documents and data.
  - (U) (\$400) Evolve the USN C4I messaging architecture to incorporate emerging DII-COE based messaging components (e.g. CMP, DMS, etc.).
  - (U) (\$750) Define and establish the PC/NT Common Operating Environment, Initiate the migration of Unix based segments and applications to the NT COE.
  - (U) (\$475) Define and develop the system architecture and products to evolve USN C4I systems from a FOTC/OTCIXS/BGBDM based network towards one that takes advantage of TCP/IP, LANs, and WANs (JMCOMS/ADNS, and SIPRNET).
  - (U) (\$200) Implement INFOSEC products into the C4I software architecture.
  - (U) (\$260) Investigate DII COE compliant multi-source and multi-sensor correlation and fusion software segment development to Navy, Joint, and coalition Common Operational Pictures (COPs).
  - (U) (\$200) Develop and implement integrated shipboard architectures which utilize common set of National Imagery and Mapping Agency (NIMA) product services / servers.
  - (U) (\$350) Develop and implement core capabilities associated with strategic and tactical C4I management of Tactical Ballistic Mission Defense (TBMD) data and tools for decision-making and COP fusion of (TBMD) data.
  - (U) (\$350) Integrate GCCS-Joint segments into GCCS-M.

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# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X2305

PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: GCCS-M Common Apps

- (U) (\$175) Develop and implement Mil-std-2525A and supplemental symbology to support COP fusion and display.
- (U) (\$350) Develop and implement interoperable architectures for integration of PLI data in the COP.
- (U) (\$350) Integrate GCCS (Joint) segments into GCCS-M.
- (U) (\$2,378) Implement DISA provided DII COE for Navy Customers, for each DII COE build, including rollup of operating system/kernal, application of patches/fixes, development and application of maritime extensions of SW fixes, and implementation of Navy-unique ECP's in DII COE.
- (U) (\$500) Develop the 3-tier architecture (Data Servers, application servers, display & presentation) to support the transition of the USN C4I from the current client/server model. This will streamline the data maintenance function to data centers, and improve timeliness and accuracy of data to the warfighter.
- (U) (\$200) Enhance Moving Target Indicator (MTI) autotrack generation capabilities for JSTARS data.
- (U) (\$1,250) Complete 2-way TADIL J and incorporate Multi-TADIL correlation.
- (U) (\$200) Incorporate Theater Battle Management Core System (TBMCS) aboard USN Flagships (LCC, AGF, CV/CVN) and develop the required interfaces, procedures to interoperate with GCCS-M.
- (U) (\$100) Develop/Enhance Interface support for Mission Planning Systems.
- (U) (\$250) Incorporate USMC MAGTF C4I based systems aboard USN amphibious and command ships (LCC, AGF, etc.). Develop Conops/procedures and interfaces to support joint amphibious warfare for embarked/disembarked USMC elements.
- (U) (\$250) Develop/Enhance/Incorporate tools and functionality that supports joint and coalition C4I warfare. Develop Conops/procedures/tests/exercises that implement coalition interoperability.
- (U) (\$250) Develop interfaces/Conops/procedures to take advantage of the LAN/WAN commonizations provided by JMCOMS/ADNS and perform land and sea based testing of the integrated C4I architecture.
- (U) (\$100) Develop capability for automatic interface and update with SIIP and METOC.

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# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X2305

PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: GCCS-M Common Apps

- (U) (\$150) Investigate latest COTS H/W and S/W to implement a digital video system solution to accomplish full motion video transmission intra-ship, inter-ship, and ship to shore.
  - (U) (\$250) Design/Develop Security Architecture for Naval C4I systems.
  - (U) (\$100) Continue hardware design & development, including investigation of space saving COTS available GCCS-M compatible hardware for use in confined spaces on board submarines, and investigation of latest COTS display and large screen projector technology for use in GCCS-M.
  - (U) (\$1,138) Semi-annual testing of each DII COE build received from DISA, documentation and Configuration Management (CM) of required Software Trouble Report (STR) processes, and distribution to Navy DII COE customers.
  - (U) (\$325) Support the proof of concept testing in exercise environments of emerging technology in the C4I arena.
  - (U) (\$900) Perform systems testing on the integrated components of the Naval C4I architecture.
  - (U) (\$625) Design and develop systems documentation to support test, evaluation, and fielding of C4I systems.
3. (U) FY 2001 PLAN:
- (U) (\$575) Continue implementation of Real-time capabilities into DII COE in order to support migration of high performance systems to GCCS-M architecture, specifically addressing correlation algorithms based on kinematics.
  - (U) (\$370) Continue to evolve the USN C4I messaging architecture to incorporate emerging DII-COE based messaging components (e.g. CMP, DMS, etc.).
  - (U) (\$500) Redefine and evolve the PC/NT Common Operating Environment, continue the migration of Unix based segments and applications to the NT COE.
  - (U) (\$440) Refine and continue to develop the system architecture and products to evolve USN C4I systems from a FOTC/OTCIXS/BGBDM based network towards one that takes advantage of TCP/IP, LANs, and WANs (JMCOMS/ADNS, and SIPRNET).

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# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X2305

PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: GCCS-M Common Apps

- (U) (\$180) Implement INFOSEC products into the C4I software architecture.
- (U) (\$410) Implement DII COE compliant multi-source and multi-sensor correlation and fusion software segment to support Navy, Joint, and coalition requirements.
- (U) (\$120) Continue to develop and implement integrated shipboard architectures which utilize a common set of NIMA product services/servers, including geo-spatially distributed off-ship libraries.
- (U) (\$224) Continue to develop and implement core capabilities associated with strategic and tactical C4I management of TBM data and tools for decision-making and COP fusion of TBMD data.
- (U) (\$90) Continued to develop and implement Mil-std-2525A and supplemental symbology to support COP fusion and display, focusing on completion of 3D symbol sets.
- (U) (\$390) Continue to integrate GCCS (Joint) segments into GCCS-M.
- (U) (\$300) Continue to develop and implement of interoperable architectures for integration of PLI data in the COP, developing correlation algorithms required to correlate/de-correlate land based tracks in a joint battle environment.
- (U) (\$2,435) Continue to implement of DISA provided DII COE for Navy Customers, for each DII COE build, including rollup of operating system/kernel, application of patches/fixes, development and application of maritime extensions of SW fixes, and implementation of Navy-unique requirements.
- (U) (\$320) Continue to develop the 3-tier architecture (Data Servers, application servers, display & presentation) to support the transition of the USN C4I from the current client/server model. This will streamline the data maintenance function to data centers, and reduce overall system administration tasks/costs. The 3TA will enable the thin client capability required by the warfighter. Effort to support the evolution of the DII COE architecture to 3TA.
- (U) (\$190) Enable JSTARS/GCCS-M connectivity, addressing high bandwidth communication pipes such as CHBDL.
- (U) (\$1,150) Continued TADIL interoperability development as determined by CRWG and joint requirements efforts.

R-1 Shopping List-Item No. 89-46 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X2305

PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: GCCS-M Common Apps

- (U) (\$130) Continue to incorporate TBMCS aboard USN Flagships (LCC, AGF, CV/CVN) and develop the required interfaces, procedures to interoperate with GCCS-M.
- (U) (\$195) Continue to develop/enhance Interface support for Mission Planning.
- (U) (\$160) Continue to incorporate USMC MAGTF C4I based systems aboard USN amphibious and command ships (LCC, AGF, etc.). Develop Conops/procedures and interfaces to support joint amphibious warfare for embarked/disembarked Marine Corp. elements.
- (U) (\$140) Continue to develop/enhance/incorporate tools and functionality that supports joint and coalition C4I warfare. Develop Conops/procedures/tests/exercises that implement coalition interoperability.
- (U) (\$160) Continue to develop interfaces/Conops/procedures to take advantage of the LAN/WAN communications provided by JMCOMS/ADNS. Perform land and sea based testing of the integrated C4I architecture.
- (U) (\$80) Continue to develop capability for automatic interface and update with SIIP and METOC.
- (U) (\$266) Develop, integrate, test, and prototype a COTS based digital video system to accomplish full motion video transmission inter-ship, intra-ship, and ship to shore.
- (U) (\$425) Continue to design/develop Security Architecture for Naval C4I systems.
- (U) (\$110) Develop a miniaturized prototype GCCS-M hardware suite for use on submarines. Investigate latest COTS display and large screen projector technology for use in GCCS-M C3I system.
- (U) (\$1,080) Semi-annual testing of each DII COE build received from DISA, documentation and CM of required STR processes, and distribution to Navy DII COE customers.
- (U) (\$260) Support the proof of concept testing in exercise environments of emerging technology in the C4I arena.
- (U) (\$850) Perform systems testing on the integrated components of the Naval C4I architecture.
- (U) (\$410) Design and develop systems documentation to support test, evaluation, and fielding of C4I systems.

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# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X2305

PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: GCCS-M Common Apps

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

C. (U) ACQUISITION STRATEGY:

	FY 1999				FY 2000				FY 2001			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Program Milestones										▲		
										MS IIIA		
Engineering Milestones							▲					
							GCCS-M 4.1 Drop					
T&E Milestones		▲				▲				▲		
		SQT 1				SQT 2				DT/OT IIIA		
Contract Milestones												

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

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# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT COST ANALYSIS

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X2305

PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: GCCS-M Common Apps

Cost Categories	Contract Method & Type	Performing Activity & Location	Total 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
Software/Product Development	CPFF	INRI, Reston, VA	1,843	1,634.	10/98	3,798	10/99	3,620	10/00	CONT.	CONT.	
Software/Product Development	WX	SSC-San Diego	0	0		1,116	10/99	1,192	10/00	CONT.	CONT.	
Software/Product Development	CPFF	Delfin	0	0		1,400	10/99	1,226	10/00	CONT.	CONT.	
Software/Product Development	Various	Various	0	8,637	10/98	2,082	10/99	1,738	10/00	CONT.	CONT.	
Subtotal Product Development	Various	Various	1,843	10,271	10/98	8,396	Var.	7,776	10/00	CONT.	CONT.	
Remarks:												
System Engineering	WX	SSC-San Diego	0	0		800	10/99	376	10/00	CONT.	CONT.	
System Engineering	CPFF	INRI, Reston, VA	0	0		670	10/99	252	10/00	CONT.	CONT.	
System Engineering	Various	Various	0	1,824	10/98	850	10/99	381	10/00	CONT.	CONT.	
Subtotal Support	Various	Various	0	1,824		2,320	10/99	1,009	10/00	CONT.	CONT.	
Remarks:												

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# UNCLASSIFIED

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT COST ANALYSIS

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X2305

PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: GCCS-M Common Apps

Cost Categories	Contract Method & Type	Performing Activity & Location	Total 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
Operational Test & Evaluation	PD	OPTEVFOR				150	10/99	180	10/00	CONT.	CONT.	
Operational Test & Evaluation	Various	NTCSI				60	10/99	70	10/00	CONT.	CONT.	
Developmental Test & Eval.	WX	SSC-SD				1,700	10/99	1,900	10/00	CONT.	CONT.	
Developmental Test & Eval.	Various	Various				100	10/99	290	10/00	CONT.	CONT.	
Subtotal T&E						2,010	10/99	2,440	10/00	CONT.	CONT.	
Remarks												
Project Management	Various	Various	60	50	Var.	450	Var.	525	Var.	CONT.	CONT.	
Travel	Various	Various				200	Var.	210	Var.	CONT.	CONT.	
Subtotal Management			60	50	Var.	650	Var.	735	Var.	CONT.	CONT.	
Remarks												
Total Cost	Various	Various	1,903	12,145	Var.	13,376	Var.	11,960	.Var.	CONT.	CONT.	
Remarks												

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# UNCLASSIFIED

Exhibit R-3, Project Cost Analysis

# UNCLASSIFIED

EXHIBIT R-2a, FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X2306

PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Navy Simulation System

TITLE	ACTUAL	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	COMPLETE	PROGRAM
X2306 Naval Simulation System	1,679	0	5,240	5,335	5,438	5,535	5,635	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Naval Simulation System (NSS) provides a capability to simulate the execution of Naval Warfare and Operations Other Than War to be used for a number of related purposes. Fleet Command Centers, both ashore and afloat will use this capability for Course of Action Assessment; that is, to assess the effectiveness of operational plans with respect to measures defined by the fleet planner. NSS also supports fleet operations by providing a capability to inject simulated platform, system, or commander level entities into real world Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems, and by providing automated tools for conducting post-exercise analyses. Acquisition Planners in OPNAV will use this capability to conduct requirements analysis and cost effectiveness analysis for new Naval systems. NSS provides a comprehensive ability to simulate and assess Naval and joint CONOPS and system/platform/force level capabilities. NSS explicitly accounts for C4ISR interactions among all Warfare Mission Areas (WMAs). In each of these applications, NSS provides detailed analyses of performance including traceability of the warfighting outcome to specific components of the "sensor to decision-maker to shooter" architecture.

The Naval Simulation System will also support Command Level training for operational forces at the Task Force or Battlegroup level. To be accessible to fleet planners, the Naval Simulation System will be integrated into the Global Command and Control System (GCCS), both afloat and ashore configurations. In addition, the Naval Simulation System will support distributed computing on multiple High Performance Computers connected together on a network such as the Defense Information Infrastructure and Fleet Operational Communication Links at multiple classification levels. The same networks that are used to provide access to distributed computing will also be used for Distributed Collaborative Planning by means of which planners at different sites with responsibility for different aspects of the plan can work together collaboratively to produce a single coherent plan. This collaborative planning capability will be used to support Joint Planning between different service components. The Naval Simulation System will undergo Verification and Validation during its design and implementations phases, and will be Accredited for each intended major application. This effort funds the development and maintenance of the Naval Simulation System and the infrastructure of subject matter experts needed for ongoing Verification, Validation, and Accreditation (VV&A) and Configuration Control Management.

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# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

EXHIBIT R-2a, FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X2306

PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Navy Simulation System

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1999 ACCOMPLISHMENTS:

- (U) (\$175) Developed a Web-based Common NSS Analyst/Fleet Human Computer interface (HCI) Requirements Document and an NSS Common HCI Design and Implementation Plan.
- (U) (\$250) Implemented, test, and document the HCI and Model Engine. Provide for Training and Maintenance.
- (U) (\$390) Added/Improved Warfare Area representations (AMW, MIW, ASW, Kinematic Strike, C4ISR and Logistics) in NSS as specified by the NSS Requirements Working Group and directed by the NSS Configuration Control Board.
- (U) (\$74) Identified and imported the standard/validated data and information needed to characterize the additional/improved warfare area representations directed by the NSS Configuration Control Board.
- (U) (\$250) Added/Improved the interfaces between NSS and similar simulation systems from other services to improve interoperability with other services for an improved Joint Simulation capability to support Joint Assessments and Joint Command Level Training.
- (U) (\$121) Added/Improved the NSS functionality supported by NSS in the GCCS environment as specified by the Requirements Working Group and directed by the NSS Configuration Control Board.
- (U) (\$125) Development of C4ISR Demonstration Capability.
- (U) (\$115) Supported to Sea-Based Weapon and Advanced Tactics School (SWATS) S-3 Anti-Submarine Warfare (ASW) Study.
- (U) (\$75) Hosted NSS on PC Based NT Operating Systems.
- (U) (\$45) Supported the necessary subject matter expert review to provide VV&A and Configuration Control Management.
- (U) (\$59) Updated Program Management documentation VV&A Plan, System Requirements Specifications, and Software Development Plan.

R-1 Shopping List-Item No. 89-52 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

EXHIBIT R-2a, FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X2306

PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Navy Simulation System

## 2. (U) FY 2001 PLAN:

- (U) (\$440) Updates to NSS Segmentation on GCCS-M.
- (U) (\$375) Complete functionality development of C4ISR/IW Warfare Mission Areas (WMAs).
- (U) (\$350) Complete functionality development of Strike Warfare (SW), Air Warfare (AW), Theater Missile Defense (TMD).
- (U) (\$874) Complete development of UnderSea Warfare (USW), Mine Warfare (MW), Logistics (LOG) WMAs.
- (U) (\$210) Complete development of AW Performance Evaluation Course of Analysis (PE COA) Tool.
- (U) (\$225) Continue development of USW PE COA Tool and initiate development of SuW PE COA Tool.
- (U) (\$300) Support VV&A Subject Matter Expert (SME) activities.
- (U) (\$261) Implement Run-time improvement technology.
- (U) (\$190) Implement GCCS-M Operational Databases including Commanders guidance and targeting.
- (U) (\$215) Implement GCCS-M Environmental Databases including Atmospheric and Terrain.
- (U) (\$195) Initiate implementation of GCCS-M Environmental Databases including Electromagnetic and Littoral.
- (U) (\$325) Support JTFEXs 01.
- (U) (\$250) Add/improve the interfaces between NSS and similar simulation systems from other services to improve interoperability with other services for an improved Joint Simulation capability to support Joint Assessments and Joint Command Level Training.

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# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

EXHIBIT R-2a, FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X2306

PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Navy Simulation System

- (U) (\$125) Identify and import the standard/validated data and information needed to characterize the additional/improved warfare area representations directed by the NSS Configuration Control Board.
- (U) (\$300) Implement, test, and document the NSS Human Computer Interface (HCI)/PE COA Tool and Simulation Engine. Provide for Training and Maintenance.
- (U) (\$75) Implement Program Management process including Work Breakdown Structure (WBS).
- (U) (\$280) Support Integrated Product Teams (IPTs) addressing GCCS-M implementation issues and Integrated Development Teams addressing user based requirements (IDTs).
- (U) (\$250) Support NSS Configuration Control Board.

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

C. (U) ACQUISITION STRATEGY: Not Applicable

D. (U) SCHEDULE PROFILE: Not Applicable

R-1 Shopping List-Item No. 89-54 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT COST ANALYSIS

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X2306

PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Naval Simulation System

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 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
Primary Hardware Development												
Ancillary Hardware Development												
Systems Engineering	WR	VARIOUS	93	98	11/98			212	TBD	CONT.	CONT.	N/A
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			93	98				212				
Remarks:												
Development Support Equipment												
Software Development	RX/WX	VARIOUS	1,450	1,302	11/98			4,265	TBD	CONT.	CONT.	N/A
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
GFE												
Subtotal Support			1,450	1,302				4,265				

Remarks:

R-1 Shopping List-Item No. 89-55 of 89-61

# UNCLASSIFIED

Exhibit R-3, Project Cost Analysis

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT COST ANALYSIS

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X2306

PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Naval Simulation System

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 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
Developmental Test & Evaluation												
Operational Test & Evaluation												
Tooling												
GFE												
Subtotal T&E												
Remarks:												
Contractor Engineering Support												
Government Engineering Support	WR	SSCSC, SD	474	230	11/98			668	TBD	CONT.	CONT.	N/A
Program Management Support												
Program Management Personnel												
Travel	WR	VARIOUS	60	49	11/98			95	TBD	CONT.	CONT.	N/A
Labor (Research Personnel)												
Overhead												
Subtotal Management			534	279				763				
Remarks:												
<b>TOTAL COST</b>			2,077	1,679				5,240				
Remarks:												

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# UNCLASSIFIED

Exhibit R-3, Project Cost Analysis

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X2307

PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Shipboard LAN/WAN

(U) COST (Dollars in thousands)

PROJECT NUMBER TITLE	FY 1999 ACTUAL	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	COST TO COMPLETE	TOTAL PROGRAM
X2307 Shipboard LAN/WAN	411	0	4,508	4,858	5,011	5,089	5,210	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Shipboard Local Area Network (LAN) project provides every Navy ship, including submarines, with a reliable, high-speed LAN that will provide LAN and Wide Area Network (WAN) access to the Defense Information Systems Network (DISN) WAN (Secure and Nonsecure Internet Protocol Router Network -SIPRNet and NIPRNet). It provides real-time information exchange between afloat units, Component Commanders, numbered Fleet Commanders and Fleet CINCs through the migration of existing legacy systems into the Information Technology in the 21<sup>st</sup> Century (IT-21) strategy and is a key factor in the implementation of the Navy's portion of Joint Vision 2010.

The Shipboard LAN project uses a combination of Asynchronous-Transfer-Mode (ATM) or 100 Megabits per second (MBPs) switches, routers, servers and workstations, commercial networking, security and operating system software technologies to provide network access to classified and unclassified applications for use by ship's force, embarked units, embarked commanders and their staffs. The Shipboard LAN is integrated with the Automated Digital Networking System (ADNS) and existing RF systems.

Under the Navy's information modernization strategy, full synchronization of shipboard networks, mission and information applications, Radio/Satellite communications and shore data dissemination infrastructure, installations are necessary to ensure end-to-end mission capability. The LAN program is closely synchronized on a ship by ship basis with the following dependent programs: Global Command and Control System Maritime (GCCS-M) and Navy Tactical Command Support System (NTCSS); and with these other related programs: Navy Standard Integrated Personnel System (NSIPS), Theatre Medical Information Program - Maritime (TMIP-M), Defense Messaging System (DMS), Base Level Information Infrastructure (BLII), Extremely High Frequency Satellite Communication (EHF SATCOM), Super High Frequency Satellite Communication (SHF SATCOM), Commercial SATCOM, Ultra High Frequency Satellite Communication (UHF SATCOM), Digital Wideband Transmission System (DWTS), ADNS, Digital Modular Radio (DMR), Global Broadcasting System (GBS), Video Information Exchange System (VIXS) and Information Security (INFOSEC) programs. The LAN program provides infrastructure to support implementation/fielding of programs listed above. If the LAN infrastructure is not in place, a large segment of the Fleet will not be able to utilize the available capabilities to improve productivity and increase efficiency. The LAN program maximizes the use of Commercial Of the shelf (COTS) software and hardware resulting in dependence on these items being commercially supported. The LAN modernization rate must keep pace with hardware and software that is supported commercially.

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# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X2307

PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Shipboard LAN/WAN

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1999 ACCOMPLISHMENTS:

- (U) (\$106) Demonstrated the technical and tactical support applications of commercial wireless and cellular communications technology. Developed Naval strategy to utilize the opportunities offered by mobile computing.
- (U) (\$95) Investigated Voice-Over-Asynchronous-Transfer-Mode afloat networking infrastructure to determine a strategy for implementation on Shipboard LANs.
- (U) (\$210) Investigated problems and developed a strategy to implement ATM (Asynchronous-Transfer-Mode) protocols on highly mobile platforms.

2. (U) FY 2000 PLAN: No funding. Funding deferred to commence in FY 2001.

3. (U) FY 2001 PLAN:

- (U) (\$1,190) Investigate and develop Enterprise-Wide LAN Management and Administration and prepare a strategy to merge that with existing ADNS Integrated Network Management system. A seamless management and administration capability has great potential for reducing complexity of network operation for sailors.
- (U) (\$1,690) Investigate emerging networking technologies such as Gigabit Ethernet and Mobile Private Network to Network Interface (PNNI v2) for potential incorporation into the Shipboard LAN architecture. Eighteen month technology change cycles drive equipment availability and the Shipboard LAN must prepare for efficient insertion of replacement technology.
- (U) (\$1,628) Continue Voice-Over-Asynchronous-Transfer-Mode and other voice transmission technologies and commence Video integration efforts and develop a strategy to implement both capabilities on the Shipboard LAN.

R-1 Shopping List-Item No. 89-58 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT JUSTIFICATION

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X2307

PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Shipboard LAN/WAN

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

		FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	COST TO COMPLETE	TOTAL PROGRAM
(U)	OPN	69,168	139,702	114,039	125,499	116,760	88,415	70,360	CONT.	CONT.
(U)	O&MN	4,661	4,700	4,670	4,831	4,907	4,963	5,074	CONT.	CONT.

C. (U) ACQUISITION STRATEGY: Not applicable. This is not an acquisition program with milestones.

D. (U) SCHEDULE PROFILE: Not applicable.

R-1 Shopping List-Item No. 89-59 of 89-61

# UNCLASSIFIED

Exhibit R-2a, Project Justification

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT COST ANALYSIS

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X2307

PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Shipboard LAN/WAN

Cost Categories	Contract Method & Type	Performing Activity & Location	Total 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
Software/Product Development												
1.1.1 Prime Mission Product	TMM	EDS		75	04/99	0	N/A	0	N/A	CONT.	CONT.	
1.1.1 Prime Mission Product	N/A	SSC CH		0	N/A	0	N/A	2,508	12/01	CONT.	CONT.I.	
1.1.1 Prime Mission Product	N/A	SSC SD		136	12/98	0	N/A	2,000	12/01	CONT.	CONT.	
Subtotal Product Development				211		0		4,508		CONT.	CONT.	
Remarks:												
System Engineering												
1.1.1 System Engineering	MIPR	MITRE		200	03/99	0	N/A	0	N/A	CONT.	CONT.	
Subtotal Support				200		0		0		CONT.	CONT.	
Remarks:												

R-1 Shopping List-Item No. 89-60 of 89-61

# UNCLASSIFIED

Exhibit R-3, Project Cost Analysis

# UNCLASSIFIED

FY 2001 RDT&E,N PROJECT COST ANALYSIS

DATE: FEB 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604231N

PROJECT NUMBER: X2307

PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Shipboard LAN/WAN

Cost Categories	Contract Method & Type	Performing Activity & Location	Total 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
Operational Test & Evaluation												
Remarks												
Project Management	Various	Various										
Remarks												
Subtotal Management												
Total Cost				411		0		4,508		CONT.	CONT.	
Remarks												

R-1 Shopping List-Item No. 89-61 of 89-61

# UNCLASSIFIED