EXHIBIT R-2, FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION DATE: JUNE 2001

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

PROJECT NUMBER / TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	COST TO COMPLETE	TOTAL PROGRAM
E2213 Mission Planning	10,712	17,405	20,944							
X0486 GCCS-M Tactical/Mobile	1,322	1,515	1,627							
X0709 GCCS-M Maritime Applications	6,417	6,702	7,758							
X2009 Trusted Information Systems (formerly JMCIS OED)	5,065	5,617	3,939							
X0521 GCCS-M Intelligence Applications	6,607	6,495	6,596							
X2305 GCCS-M Common Applications	11,602	11,850	11,014							
X2306 Naval Simulation System 1/	2,785	5,192	5,033							
X2307 Integrated Shipboard Network System (formerly Shipboard LAN/WAN)	0	4,466	3,958							
X3032 NTCSS Enterprise & MLDN	0	0	3,963							
TOTALS	**44,510**	**59,242**	**64,832**							

EXHIBIT R-2, FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION DATE: JUNE 2001

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

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Tactical Command System (TCS) upgrades the Navy's Command, Control, Computer and Intelligence (C^3I) systems and processes C^3I 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 OED users. GCCS-M current phase includes continued usage of the Defense Information Infrastructure Common Operating Environment (DII COE), as stipulated by the Joint Technical Architecture, 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 an integrated UNIX/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.

(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: **FY 00**: Transfer to SBIR (-$640K), ONR BTR for NSS (+$2,286K), BTR for ANBS/MUOS ($-380), BTR to WINSAT (-$494k), Miscellaneous Navy adjustments (-$445K), Section 8055 Congressional Proportionate Rescission (-$173K). FY00 Net Change **(+$154K). FY 01**: Miscellaneous Navy adjustments (-$64K), Ocean Surveillance Information System (+$2,000), Section 8086 .7% Pro-Rata Reduction (-$420K). Government-Wide Recission (-$91K). FY01 Net Change **(+$1,425K).**

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

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: E2213
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Mission Planning

(U) COST: (Dollars in Thousands)

Project Number & Title	FY 2000 Budget	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	To Complete	Total Program
E2213 Mission Planning	10,712	17,405	20,944							

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Joint Mission Planning System (JMPS) is a co-development program with the Navy, Air Force, USSOCOM, and Army to develop a scaleable, extensible, and configurable open architecture to meet a full range of Joint automated mission planning needs. The JMPS mission planning system will provide the information, automated tools, and decision aids needed to rapidly plan for aircraft, weapon, or sensor missions as well as post-mission analysis of recorded data. This system will allow the warfighter to seamlessly perform flight planning, unit-level mission/combat planning, and multi-unit/strike planning, and will provide force-level decision aids. JMPS will be a Defense Information Infrastructure/Common Operating Environment (DII/COE) compliant mission planning system, which will meet future DOD requirements for interoperability within and across DOD C4I systems while reducing life-cycle cost. JMPS accomplishes these goals by establishing a standardized environment for mission planning systems (the Joint Mission Planning Environment (JMPE)) that provides a DII COE / Joint Technical Architecture (JTA) compliant Windows 2000 core, a mission planning infrastructure of basic databases, management tools, and framework services, and a set of common mission planning components. A JMPS mission planning system is a combination of the JMPE together with platform/Service unique components and the necessary system hardware to meet user mission planning needs and constraints. The Navy and Air Force will co-develop the common software, while individual platforms programs will develop platform specific functionality, similar to what is being done in both Tactical Automated Mission Planning System (TAMPS) and Air Force Mission Support System (AFMSS) programs.

(U) JUSTIFICATION FOR BUDGET ACTIVITY

These programs are funded under Engineering & Manufacturing Development because they encompass engineering and manufacturing development of new end-items prior to production approval decision.

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

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 2000 ACCOMPLISHMENTS:
   (U) ($10,712) Continued JMPS Version 1 development effort.

2. (U) FY 2001 Plan:
   (U) ($13,238) Continue JMPS Version 1 development effort.
   (U) ($3,600) Start development of Post Version 1 Combat Mission Planning components to support retirement of TAMPS.
   (U) ($567) Portion of extramural program reserved for Small Business Innovation Research Assessment in accordance with 15 USC 68.

3. (U) FY 2002 Plan:
   (U) ($17,286) Continue JMPS Post Version 1 development effort.
   (U) ($3,358) Start follow on additional Post Version 1 combat and force level component development.
   (U) ($300) Begin Operational Testing (OT) for JMPS version 1.

(U) B. PROGRAM CHANGE SUMMARY

	FY 2000	FY 2001	FY 2002
(U) FY 2001 President's Budget:	11,107	17,592	11,369
(U) Adjustments from President's Budget:	-395	-187	+ 9,577
(U) FY 2002 President's Budget Submit:	10,712	17,405	20,944

CHANGE SUMMARY EXPLANATION:

(U) Funding: The net decrease in FY2000 of -$395 thousand reflects a decrease of -$82 thousand for reprioritization of requirements within the Navy and a decrease of -$269 thousand for a Small Business Innovative Research assessment, and a decrease of -$44 thousand for a Congressional Rescission. The net decrease in FY2001 of -$187 thousand reflects a decrease of -$26 thousand for reprioritization of requirements within the Navy, and a decrease of -$161 thousand for a Congressional Rescission. The net increase in FY2001 of $9,571 thousand reflects a POM 02 adjustment of $10,458 thousand to fund JMPS

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: E2213
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Mission Planning

Combat and Force level component development, a decrease of -$63 thousand for reprioritization of requirements within the Navy, and a $39 thousand increase for economic assumptions, and a -$887 thousand decrease for a Web enabling effort.

(U) Schedule: The 3Q/01 JMPS OPEVAL has been redesignated as a 4Q/02 JMPS Version 1 (JV1) Operational Test (OT). The 1Q/02 JMPS IOC has been redesignated as a 2Q/03 JMPS Version 1 (JV1) IOC.

(U) Technical: Not Applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY

Appn	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY2007 Estimate	To Complete
BLI 287600 TAC A/C Mission Planning System (OPN)	20,457	11,771	13,411						
Air Force (total)	17,136	20,565	16,904						

Related RDT&E
(U) P.E. 0604215N (Standards Development)

(U) D. 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. Post Version I component development will be broken into two phases. Components required to retire TAMPS and meet F-16 planning requirements will be developed under a modification to the existing architecture framework contract. All other combat and force level components will be acquired through a follow-on full and open competition.

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

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: E2213
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Mission Planning

(U) D. SCHEDULE PROFILE

	FY 2000	FY 2001	FY 2002	To Complete
(U) Program Milestones				
TAMPS Version 6.2.1	4Q/00 release			
NPFPS Version 3.2	4Q/00 release			
TSCM Version 2.4	3Q/00 release			
JMPS Version 1 (JV1)				2Q/03 IOC
JMPS Post Version 1 (JC1)				2Q/04 IOC
JMPS Force Level Planning				IOC 2004
JMPS Responsive Planning				IOC 2005
(U) Engineering Milestones				
(U) T&E Milestones	2Q/00 TAMPS 6.2.1 OPEVAL		4Q/02 JMPS Version 1 OT	3Q/03 JMPS Post Version 1 OT
(U) Contract Milestones		3Q/01 JMPS Post V1 (JC1) Contract Award	1Q/02 JMPS Follow on Contract Award	

FY 2002/2003 RDT&E,N PROJECT COST ANALYSIS DATE: JUNE 2001

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: E2213
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Mission Planning

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total Prior Yrs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Development	SS/CPAF	Logicon, CA	16,463	10,682	11/00	12,592	11/01					
Primary Development	SS/CPAF	Logicon, CA				3,842	11/01					
Primary Development	MP	Eglin AFB, FL	4,665	2,165	11/00	150	11/01					
Primary Development	MP	Hill AFB, UT		563	11/00	120	11/01					
Systems Engineering	MP	FEDSIM (GSA)		100	11/00	70	11/01					
Award Fees				1,985	11/00	2,886	11/01					
Subtotal Product Development			**21,128**	**15,495**		**19,660**						

Remarks

The JMPS follow-on development contract will be competitively awarded in FY02. The Air Force development effort will complete in FY02 with the deliverables, Mission Planning S/W tools, provided as GFE/GFI to the development contractor. The development effort is critical to meeting the JMPS IOC in FY02. In accordance with the JMPS Award Fee Plan, Logicon was awarded a rating of "Very Good," equating to 82% of the available Award Fee Pool.

Integrated Logistics Support	WX	SPAWAR, PA	345	350	11/00	157	11/01					
Integrated Logistics Support	WX	NAWCAD, MD	179	180	11/00	100	11/01					
Subtotal Support			**524**	**530**		**257**						

Remarks

FY 2002/2003 RDT&E,N PROJECT COST ANALYSIS DATE: JUNE 2001

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: E2213
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Mission Planning

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total Prior Yrs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation	WX	OPTEVFOR, VA	400	0		400	11/01					
Subtotal Test & Evaluation			**400**	**0**		**400**						
Remarks												
Govt. Engineering Support	WX	NAWCAD, MD	566	325	11/00	330	11/01					
Program Mgmt Support	RX	Various	338	293	11/00	199	11/01					
Travel	WX	NAWCAD, MD	225	195	11/00	94	11/01					
SBIR Assessment				567								
Subtotal Management			**1,129**	**1,380**		**623**						
Remarks												
Total Cost			**23,181**	**17,405**		**20,940**						

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

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 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	COST TO COMPLETE	TOTAL PROGRAM
GCCS-M Tactical/Mobile (GCCS-M Tac/Mobile)										
X0486	1,322	1,515	1,627							

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 continue 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 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.

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

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X0486
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: GCCS-M Tac/Mobile

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS:

- (U) ($430) Ported additional functions to Windows NT. Developed 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) ($272) Developed 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. Investigated processing inverse and quadrature data from APS 137 B(V)5 radar.

- (U) ($310) Developed expanded interfaces for new weapons and sensors.

- (U) ($115) Performed initial steps to migrate Fast Time Analyzer System (FTAS) toward increased interoperability and commonality with the GCCS-M architecture. Investigated 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).

- (U) ($195) Developed integration plan for modernized Radio Frequency (RF) communications systems, including UHF, SHF, and EHF Satellite Communications (SATCOM) units into Tactical Mobile Units. Developed multi-Tactical Data Link (TADIL) interfaces to provide two-way TADIL support for the Tac/Mobile units.

2. (U) FY 2001 PLAN:

- (U) ($515) Rehost additional functions to Windows NT under (DII COE). Improve Aircraft Status segment operability by focusing on ease of use and data sharing from pre-mission planning to post mission wrap up. Develop new functionality for Generic Mission Replay (GMR) to support mission replay of new aircraft capabilities, including CFS, IEER, and. 78A/B. Develop new functionality for Tactical Data Insertion (TDI) operational usability. Incorporate new P-3 aircraft capabilities including Global Null Steer and Command Function Select (CFS). Redesign Human Machine Interface (HMI) of Aircrew Brief segment to improve operator usability by automating data entry and auto-populating other applications.

- (U) ($235) Develop expanded Aircraft Interfaces to improve processing for new aircraft sensors, including the APS-137 Synthetic Aperture Radar (SAR) and high resolution Inverse Synthetic Aperture Radar (ISAR) modes, as well as the Advanced Imaging Multi-spectral System (AIMS).

- (U) ($115) Develop interface for new aircraft data transport devices. Improve Aircraft Tape Operating System (ATOS) user interface and incorporate new P-3 aircraft data transport devices, including Replacement Data Storage Systems (RDSS), Command Function Select (CFS), Improved Extended Echo Ranging (IEER), S-3B 4.4.2 & 4.5a, and Canadian CP-140 aircraft.

- (U) ($189) Continue software development of improved acoustic Fast Time Analysis System (FTAS) into TSC and MOCC GCCS-M systems to enhance interoperability and commonality. Develop new function to support new aircraft IEER capability.

- (U) ($145) Software development of Electronic Support Measures (ESM) Workstation Interfaces for new aircraft Specific Emitter Identification functions.

- (U) ($316) Perform End-to-End Testing designed to simulate real world operational usage of the system to ensure that the system functions as an integrated product. Includes system compliance, system integration testing, segment compliance, aircraft interface, tactical feeds and requirements checking.

3. (U) FY 2002 PLAN:

- (U) ($516) Develop new capabilities to support emerging aircraft weapons and non-acoustic sensors on P-3C ASUW Improvement Program (AIP), P-3C Baseline Modification Upgrade Program (BMUP), and other derivative aircraft. Analyze Multi-mission Maritime Aircraft (MMA) aircraft impact on TSC and MOCC systems. Continue to develop interfaces for emerging aircraft data transport devices. Perform testing on new software and hardware components.

- (U) ($256) Analyze TSC/MOCC requirements for advanced data links such as LINK-16, Common Data Link (CDL) and other high bandwidth data transmission paths.

- (U) ($493) Continue improvements to acoustic Fast Time Analysis System (FTAS) to reduce reliability on obsolete proprietary hardware, incorporate Commercial Off The Shelf (COTS) technology, and incorporate new functionality in support of emerging aircraft acoustic capabilities. Analyze and develop detailed set of requirements for follow-on system.

- (U) ($150) Complete the rehosting of all functions to Windows NT including development of new hardware drivers and updates to stay current with the DII COE kernel.

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X0486
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: GCCS-M Tac/Mobile

- (U) ($212) Develop interfaces and incorporate joint and coalition SATCOM and line of site radios, cryptographic units and antenna technology. Ensure interoperability in a land, sea, air, and mobile environment.

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

Appn	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	COST TO COMPLETE	TOTAL PROGRAM
OMN (N62)	6,788	6,839	8,297							
OMN (N88)	3,527	3,197	3,305							

(U) RELATED RDT&E:

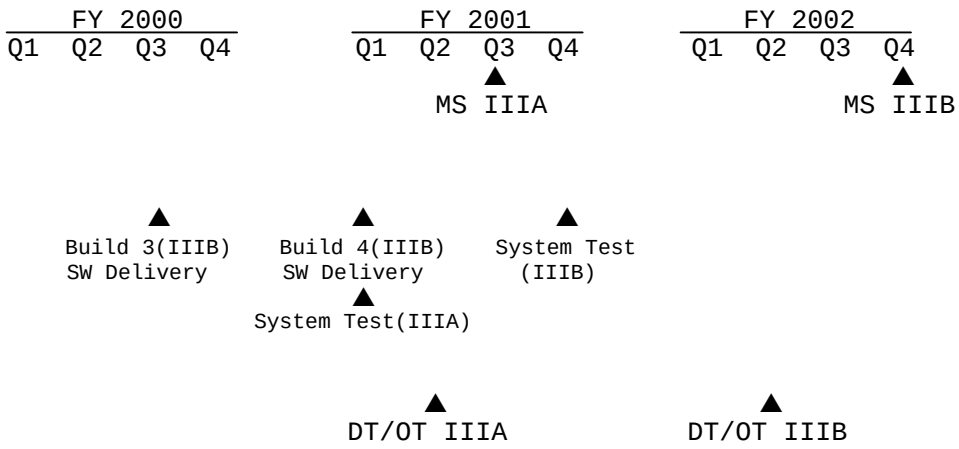
- PE 0604231N: (GCCS-M Maritime Apps X0709): GCCS-M Maritime Apps provides portions of GCCS-M functionality common among Afloat, Ashore, and Tactical/Mobile environments.
- PE 0604231N: (GCCS-M Common Apps X2305): GCCS-M Common Apps provides portions of the Defense Information Infrastructure Common Operating Environment (DII COE) functionality required by Afloat, Ashore, and Tactical/Mobile GCCS-M environments.
- 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.

C. (U) ACQUISITION STRATEGY: N/A

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

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X0486
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: GCCS-M Tac/Mobile

D. (U) SCHEDULE PROFILE:



Note (1): Change in nomenclature from “GCCS-M 4.1 Drop” to “Build 3” and “Build 4” to reflect internal milestones for GCCS-M 4.x Development.

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

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	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Software/Product Development	Various	Various	31,073	1,127	Var.	1,154	Var.					
Subtotal Product Development	Various	Various	31,073	1,127	Var.	1,154	Var.					
Remarks:												
System Engineering	Various	Various	18,469	135	Var.	138	Var.					
Subtotal Sys Eng Support	Various	Various	18,469	135	Var.	138	Var.					
Remarks												

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

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	FY01Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation	Various	Various	3,019	30	Var.	69	Var.					
Subtotal T&E	Various	Various	3,019	30	Var.	69	Var.					
Remarks												
Project Management	Various	Various	9,713	223	Var.	266	Var.					
Subtotal Management	Various	Various	9,713	223	Var.	266	Var.					
Remarks												
Total Cost	Various	Various	62,274	1,515	Var.	1,627	Var.					

(U) COST (Dollars in thousands)

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

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 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	COST TO COMPLETE	TOTAL PROGRAM
X0709 GCCS-M Maritime Apps	6,417	6,702	7,758							

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. 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. GCCS-M is a key system currently being used to support real world operations afloat, ashore, and with tactical/mobile commanders.

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

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

1. (U) FY 2000 ACCOMPLISHMENTS:

- (U) ($500) Joint Planning Network (JPN) / Tactical Data Information Links (TADILS) / Broadcasts: Developed new functionality and enhanced existing functionality to meet high priority requirements specified by the Fleet CINCs at the Copernicus Requirements Working Group (CRWG) '99. Built the ability to merge and display all source Tactical Intelligence Broadcast System (TIBS) and Tactical Receive Equipment & Related Applications (TRAP) data with TADIL tracks, desktop classified video teleconferencing, and distant learning tools.

- (U) ($610) Employment Scheduling / Water Space Management (WSM): Continued to develop employment scheduling and decision support tools to maximize use of native NT environment. Extended 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. Developed an integrated data display and dissemination tool to provide multiple echelons (ISICs, TYCOMs, and CINCs) a singular view of force scheduling data.

- (U) ($510) Readiness: Continued to provide interfaces to process raw readiness data input from lower echelons and incorporate into validated readiness data repositories at fleet command centers. Enhanced readiness data processing by integrating Navy readiness systems. Integrated 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). Provided an integrated product that enables users to develop scheduling data based upon input on force readiness.

- (U) ($155) Employment Scheduling / WSM: Ported existing Water Space Management (WSM) application to PC and provided capability to advance WSM display to time periods specified by the operator. Provided capability to incorporate three-dimensional WSM deconfliction processing.

- (U) ($155) JPN / TADILS / Broadcasts: Developed Anti Air Warfare Human Computer Interface (AAW HCI) & Situational Awareness (SA) tactical decision aids to support USN AAW missions in a joint/coalition environment. Interfaced TADIL capabilities to provide AAW SA to non-CDS equipped units that are not equipped with intelligence repositories.

- (U) ($497) Aircraft Mission Planning / TACMOBILE: Provided an integrated solution for all services that support the generation of pre-flight mission objective briefs, interfaced with in-flight aircraft to transmit and receive imagery and Link data, and fused 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 were 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) ($320) Threat Order of Battle (OOB) and Characteristics and Performance (C&P): Enhanced the C2WC decision aid & tools to take advantage of new/emerging sensors (organic & national). Developed and implemented C2WC capabilities to exploit national and theater EW/OOB databases (MIDB, EPL, etc.). Investigated providing C2WC capabilities to selected surface combatants.

- (U) ($150) Threat OOB and C&P: Enhanced 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). Enhanced current implementation to support improvement of joint sensor data based on post-mission analysis.

- (U) ($150) Architecture: Developed 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) JPN / TADILS / Broadcasts: Developed 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 provides 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) Architecture: Designed parsers that interface with the Defense Information Infrastructure Common Operating Environment (DII COE) messaging products to populate tactical databases for GCCS-M Maritime Applications. Developed 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) Testing: Provided operational test planning to prepare for Operational Evaluation (OPEVAL) / Operational Test (OT).

- (U) ($1,600) Testing: Provided Development Test phases in lab and operational sites for GCCS-M segments. Also provided any certification, compliancy (DII COE), and functional testing for each segment. Acceptance and development testing included joint certifications, compliancy with the DII COE and security policies, and functional testing for each segment.

- (U) ($150) Combat Systems Interface: Continued integration of GCCS Joint SW in shore and shipboard environments, including incorporation of Navy specific functionality. Fielding of the Maritime variant is interoperable with the joint GCCS system on the same network enabling seamless exchange of tactical data between platforms.

- (U) ($490) Architecture: Developed a common GCCS-M infrastructure to support the network-centric warfare concept. Design maximizes 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.

- (U) ($280) Combat Systems Interface: Developed and implemented 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 Advanced Tomahawk Weapon Control System (ATWCS), Tactical Tomahawk Weapon Control System (TTWCS) and Area Air Defense Commander (AADC).

- (U) ($100) Testing: Provided 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.

2. (U) FY 2001 PLAN:

- (U) ($1,300) Aircraft Mission Planning / TACMOBILE: 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, including development of P-3 aircraft interfaces and TBMCS interoperability.

- (U) ($135) Testing: Support operational test planning and execution to prepare for OPEVAL and MS IIIA.

- (U) ($810) Architecture: Provide thin-client front end to the existing scheduling and readiness 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) ($500) Readiness: Develop a web interface to the joint Global Status of Resources and Training (GSORTS) database 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) ($552) Aircraft Mission Planning / TACMOBILE: 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.

- (U) ($200) Threat OOB and C&P: 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) ($560) Useability: Provide Integrated Products (IP) that support both legacy AUTODIN or text-based data transfer, as well as move modern IP–based data transmission messages for data transfer and automated message handling. Leverage DMS effort into a Maritime implementation for organizational email and data transfer for population of tactical databases.

- (U) ($980) Testing: 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) ($280) Useability: 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) ($455) Combat Systems Interface: 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) ($730) Architecture: 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.

- (U) ($200) Employment Scheduling / WSM: Continue enhancements to Water Space Management (WSM), identified through CRWG requirements process.

3. (U) FY 2002 PLAN:

- (U) ($1,490) Aircraft Mission Planning / TACMOBILE: Provide C4I research and product improvement for P-3 mission and other avionics platforms. Support P-3 aircraft P3I and follow-on initiatives, including interface changes. Provide developmental support to P-3 Tactical Support Center operations by satisfying emerging technology requirements initiated by Fleet operators, developing interfaces to aircraft systems, and increasing the interoperability between P-3 support applications, including Aircraft Status, Aircrew Brief, Generic Message Replay & Reconstruction, Pre/Post-Flight ESM, P-3 Tactical Data Insertion, and Inverse Synthetic Aperture Radar (ISAR) video analysis. Provide interfaces to other aircraft mission planning systems, such as TAMPS or JMPS.

- (U)($731) Architecture: Develop and implement modernized architectures, including web-centric and N-Tier. Continue to develop Conops/procedures and interfaces to support joint amphibious warfare for embarked/disembarked Marine Corps elements. Test and integrate GCCS-M GOTS products into NT COTS installation and runtime environment. Perform testing and integration with latest commercial products to ensure complete interoperability and data level integration. Perform engineering to provide fleet recommendations on compatible hardware and software configurations/modifications to current baselines.

- (U)($2,225) Employment Scheduling / WSM: Develop and update employment scheduling capabilities in support of Fleet requirements. Develop VIPER capability on DII/COE compliant NT platforms. Integrate VIPER with latest versions of COTS/MS Office products. Incorporate emerging requirements validated and prioritized by VIPER operational community, which may include fuel management, notional templates, multiple proposals and deployment transit planning. Provide capability for employment scheduling data to be linked to readiness, logistics, intelligence, and track databases in such a way that operators can obtain a comprehensive understanding of all relevant data to be used in planning and command & control scenarios. Incorporate WSM requirements identified by CRWG process.
- (U)($1,837) Readiness: Research Fleet requirements for viewing and archiving readiness data. Link readiness data with track, intelligence, and imagery data to provide a comprehensive understanding of a unit’s operational status. Continue to integrate GCCS (Joint) segments into GCCS-M. Provide web-based, graphical entry of Readiness data, and develop web-based solutions for viewing archived readiness data in Fleet-specified formats. Incorporate emerging requirements identified and prioritized during CRWG requirements process.

- (U)($600) Spectral and Environmental Analysis: Develop capability for automatic interface and update with SPEDS/ICAP Integrated Product (SIIP) and Meteorological and Oceanography (METOC). Continued development of Tactical Decision Aids (TDAs) and COTS tactical analysis tools for incorporation into General Service (GENSER) and Sensitive Compartmented Information (SCI) Software for analyst workstations, Electronic Warfare Command Stations (EWCS), and supporting the Command and Control Warfare Center (C2WC). Incorporate new functional capability prioritized by Fleet users.

- (U)($875) Testing: Continue to perform systems testing on the integrated components of the Naval C4I architecture. Modernize test facilities to maintain capability to test newly developed software and architectures. Support the proof of concept testing in exercise environments of emerging technology in the C4I arena.

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

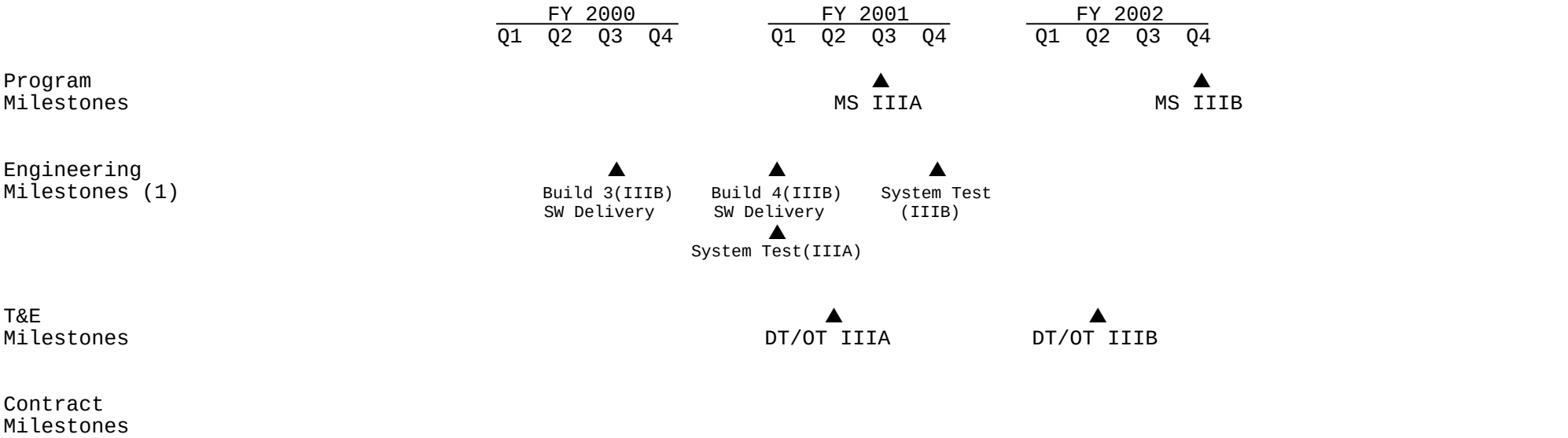
(U) RELATED RDT&E:PE 0604231N (Tactical Command Systems) GCCS-M Intelligence Applications.

C. (U) ACQUISITION STRATEGY: N/A

D. (U) SCHEDULE PROFILE:

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

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



Note (1): Change in nomenclature from “GCCS-M 4.1 Drop” to “Build 3” and “Build 4” to reflect internal milestones for GCCS-M 4.x Development.

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

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	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Software/Product Development	Various	Various	29,700	5,219	Var.	3,041	Var.					
Software/Product Development	WX	SSC San Diego				2,500	10/01					
Software/Product Development	WX	SSC Charleston				1,000	10/01					
Subtotal Product Development	Various	Various	29,700	5,219	Var.	6,541	Var.					
Remarks:												
System Engineering	Various	Various	10,070	983	Var.	717	Var.					
Subtotal Support	Various	Various	10,070	983	Var.	717	Var.					
Remarks												

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

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	FY01Cost	FY01 Award Date	FY02Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation	PD	OPTEVFOR	1,090	0		0						
Subtotal T&E	PD	OPTEVFOR	1,090	0		0						
Remarks												
Program Management	Various	Various	7,288	500	Var.	500	Var.					
Subtotal Management	Various	Various	7,288	500	Var.	500	Var.					
Remarks												
Total Cost	Various	Various	48,148	6,702	Var.	7,758	Var.					

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X2009
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Trusted Information Systems

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	COST TO COMPLETE	TOTAL PROGRAM
X2009 Trusted Information Systems (TIS) (Formerly JMCIS OED)	5,065	5,617	3,939							

A. (U) Trusted Information Systems (TIS) is a combination of the Ocean Surveillance Information System (OSIS) Evolutionary Development (OED) system, the Radiant Mercury (RM) system and multi-level security (MLS) web technologies. TIS provides the core on-line, automated, near-real time, multi-level secure, information analysis, dissemination, and receipt capabilities that enable Unified Commanders-in-Chief and Joint Task Force Commanders afloat and ashore to disseminate and receive critical operational and intelligence information with own forces and Coalition/Allied forces via tactical and record communications circuits. OED and RM are designated migration systems. 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. 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. Radiant Mercury is a tool for the automated sanitizing, downgrading, and transliteration of formatted message traffic. A linchpin of network-centric warfare aboard afloat platforms, Radiant Mercury helps ensure critical Indications and Warning intelligence is provided quickly to operational decision-makers. This capability to move all-source intelligence-derived track information into the realm of the operational community significantly improves the situational awareness of tactical operators and planners. Additionally, it assists in providing operational information to intelligence and cryptologic analysts.

(U) TIS builds upon the foundation set by JMCIS OED project which 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. TIS is built on the foundation of JMCIS OED Phase III EA strategy, which provides a mechanism for adding future capabilities including the incorporation of proven fleet initiated prototypes.

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

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X2009
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Trusted Information Systems

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS:

- (U) ($280) Began to implement, accredit and deploy MLS changes needed to support email-based and Defense Message Service (DMS) record message traffic.
- (U) ($460) Developed and deployed wide area imagery, site, and characteristics databases using an object-oriented MLS commercial database package.
- (U) ($760) Automated 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) ($145) Upgraded system capabilities for providing tailored MLS support.
- (U) ($420) Incorporated current state-of-the-art data correlation and data fusion software and hardware technology.
- (U) ($3,000) Developed the Concept, Technical Feasibility and Prototype for the Integration of the Contiguous Connection Model (CCM) Information Analysis, Storage and Retrieval System into the OED MLS System. Performed the Integration, Provide Test and Certification of the enhanced OED MLS Knowledge Capable (OED MLS/KD) System.

2. (U) FY 2001 PLAN:

- (U) ($558) Port MLS Capability to SUN based DII COE.
- (U) ($285) Continue to implement, accredit and deploy MLS changes needed to support email-based and DMS record message traffic.
- (U) ($500) Implement, accredit and deploy MLS changes needed to support MLS email and Network Guard technology.
- (U) ($439) Update message encoders, decoders and correlation algorithms as required to meet formatted MSG standards and changes in sensor data feeds.

- (U) ($726) Continue to 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) Develop system interface capabilities as required for current releases for record communications systems with in an accreditable MLS baseline.

- (U) ($460) Develop untrusted client architecture using single level clients to evolve into a Multi-Level Security design.

- (U) ($336) Develop and implement improved tactical decision aids, and system alerting capabilities.

- (U) ($2,000) Continue to develop the Concept, Technical Feasibility and Prototype for the Integration of the Contiguous Connection Model (CCM) Information Analysis, Storage and Retrieval System into the TIS MLS System. Continue to perform the Integration, Provide Test and Certification of the enhanced TIS MLS Knowledge Capable (TIS MLS/KD) System.

3. (U) FY 2002 PLAN:

- (U) ($500) Continue to port MLS Capability to SUN based DII-COE.

- (U) ($1,009) Continue to implement, accredit and deploy MLS changes needed to support MLS email and Network Guard technology.

- (U) ($370) Continue to update message encoders, decoders and correlation algorithms as required to meet formatted message standards and changes in sensor data feeds.

- (U) ($645) Continue to 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) Continue to develop system interface capabilities as required for current releases for record communications systems with in an accreditable MLS baseline.

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X2009
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Trusted Information Systems

- (U) ($550) Continue to develop and implement improved tactical decision aids, and system alerting capabilities.
- (U) ($552) Continue to develop untrusted client architecture using single level clients to evolve a Multi-Level Security design.

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

	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	COST TO COMPLETE	TOTAL PROGRAM
OMN 1C1C	1,300	1,053	1,275							

(U) RELATED RDT&E: Not applicable.

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X2009
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Trusted Information Systems

C.(U) ACQUISITION STRATEGY: N/A

D.(U) SCHEDULE PROFILE:

	FY 2000				FY 2001				FY 2002			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Program Milestones												
Engineering Milestones												
T&E Milestones												
Contract Milestones												

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

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X2009
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Trusted Information Systems

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Software/Product Development	Radius	NAVSUP	32,354	4,772	Var.	3,234	Var.					
Software/Product Development	Various	Various	4,501	315	Var.	230						
Subtotal Product Development	Various	Various	36,855	5,087	Var.	3,464	Var.					
Remarks:												
System Engineering	WX	Various	8,268	425	Var.	400	Var.					
Subtotal Support	Various	Various	8,268	425	Var.	400	Var.					
Remarks												

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

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X2009
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Trusted Information Systems

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation	PD	OPTEVFOR	630	30	Var.	0	Var.					
Subtotal T&E	PD	OPTEVFOR	630	30	Var.	0	Var.					
Remarks												
Project Management	Various	Various	1,935	75	Var.	75	Var.					
Subtotal Management	Various	Various	1,935	75	Var.	75	Var.					
Remarks												
Total Cost	Various	Various	47,688	5,617	Var.	3,939	Var.					

EXHIBIT R-2A, FY 2002 RDT&E,N PROJECT JUSTIFICATION DATE: JUNE 2001

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 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	COST TO COMPLETE	TOTAL PROGRAM
X0521 GCCS-M Intelligence Apps	6,607	6,495	6,596							

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: GCCS-M Intelligence Applications are an integrated set of Defense Information Infrastructure Common Operating Environment (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. The current GCCS-M Intel Apps effort includes providing intelligence data distribution to multiple shipboard warfighters via an analog video distribution system. Furthermore, the GCCS-M Intel Apps effort will integrate Radiant Mercury (RM) into the GCCS-M Afloat architecture to meet downgrading and releasability requirements. GCCS-M imagery applications provide for archiving, viewing and mensuration of still and video images. 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.

EXHIBIT R-2A, FY 2002 RDT&E,N PROJECT JUSTIFICATION DATE: JUNE 2001

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X0521
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: GCCS-M Intel Apps

1. (U) FY 2000 ACCOMPLISHMENTS:

- (U) ($350) Joint Planning Network (JPN) / Tactical Digital Information Links (TADILS) / Broadcasts: Migrated 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) Threat Order of Battle (OOB) / Characteristics & Performance (C&P): Migrated Joint Deployable Intelligence Support System (JDISS) stand-alone intelligence system tools into a GCCS-M application, creating an integrated, afloat intelligence architecture.

- (U) ($470) JPN / TADILS / Broadcasts: Continued 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) ($780) Threat OOB / C&P: Continued evolving Navy-USMC Team unique intelligence and intelligence-related database support for GCCS-M and Marine Air-Ground Task Force(MAGTF)/C4I/Expeditionary Warfare applications as required outside Modernized Intelligence Database capability (MIDB).

- (U) ($1,000) Imagery / Video Processing: Continued development, integration and testing of advanced digital imagery server and Navy-Marine Team unique client applications to keep pace with evolving National Imagery and Mapping Agency (NIMA), Defense Airborne Reconnaissance Office (DARO) and Naval Reconnaissance Office (NRO) imagery architectures.

- (U) ($1,144) Threat OOB / C&P: Continued developing, integrating and testing MIDB (v 2.0, 3.0, 4.0 etc.) based ISDS (General Service (GENSER) and Sensitive Compartmented Information (SCI)) and associated intelligence applications in accordance with GCCS-I3 evolutionary directions and in conjunction with Cryptologic/C2W and other Warfare Commander developments.

- (U) ($500) Threat OOB / C&P: Continued 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 Command and Control systems, mission planning systems, and combat direction systems while reducing numbers of databases which have to be maintained.

- (U) ($300) Useability: Migrated development of Intelligence and Imagery segments to meet fleet IT21 requirements (PC/NT) and DII COE.

- (U) ($400) Useability: Implemented new fleet validated GCCS-I3 Intelligence Functional Working Group and Copernicus Requirements Working Group (CRWG) requirements. Developed an automated mechanism to register and catalogue software submissions for all GCCS-I3 development, integration and test software builds.

- (U) ($520) Imagery / Video Processing: Developed 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) ($400) Threat OOB / C&P: Continued development and test enhancements to unit level GCCS-M Afloat intelligence capabilities, including access to imagery and associated support data; e.g., Characteristics & Performance (C&P).

- (U) ($253) Testing: Continued testing of OBU/OED intelligence capability with GCCS-M development; provided OED-unique intelligence tools afloat.

- (U) ($250) Testing: Developed and tested GCCS-M Intel database applications (MIDB interfaces) with JTT.

2. (U) FY 2001 PLAN:

- (U) ($490) JPN / TADILS / Broadcasts: 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) ($640) Threat OOB / C&P: 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) Imagery / Video Processing: 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.

- (U) ($1,130) Threat OOB / C&P: 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) Threat OOB / C&P: 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) Useability: Continue migration development of Intelligence and Imagery segments to meet fleet IT21 requirements (PC/NT) and DII COE.

- (U) ($654) Useability: Continue development of fleet validated GCCS-I3 Configuration Control Board (CCB), Intelligence Functional Working Group (IFWG) and Copernicus Requirements Working Group (CRWG) requirements. Develop an automated mechanism to register and catalog software submissions for all GCCS-I3 development, integration and test software builds.

- (U) ($500) Imagery / Video Processing: 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) Threat OOB / C&P: Continue development and test enhancements to unit level GCCS-M Afloat intelligence capabilities including access to imagery, associated support data and Electronic Intelligence (ELINT) correlation factors.

- (U) ($200) Testing: Continue testing of OBU/OED intelligence capability with GCCS-M development; provide OED-unique intelligence tools afloat.

- (U) ($206) Imagery / Video Processing: Continue to develop and test GCCS-M Intel database applications (MIDB interfaces) with Joint Targeting Toolbox.

- (U) ($250) Testing: Develop and test the GCCS-M integration of Common Operating Picture (COP) and MIDB.

3. (U) FY 2002 PLAN:

- (U)($185) Combat Systems Interface: Provide increased functionality and expand the performance envelope in the Intelligence and Imagery applications to support capabilities in the DII COE, including real-time, updates to mapping, communication, and track management tools of particular interest to the combat systems community.

- (U)($1,115) Imagery / Video Processing: Continue migration of the imagery applications that support the Integrated Imagery and Intelligence (I3) product line to the NT platform. Meet fleet requirements for integrating order of battle maintenance, imagery analysis, and intelligence support to the Common Operational Picture into commercial COTS environments to facilitate easy integration with IT-21 platforms and products.

Integrate capability into GCCS-M to support UAV data visualization and analysis. Continue to research and integrate Geospatial Information Services (GI&S) into GCCS-M, ensuring compatibility with NIMA developed systems with links to the applicable Imagery and Geospatial libraries. Develop interfaces to other imagery archives. Incorporate emerging requirements validated by Fleet operators through the CRWG requirements process. Develop capabilities that utilized enhanced features of the DII COE.

- (U)($2,595) Threat OOB and C&P: Meet fleet requirements identified and prioritized at the CRWG for integrating order of battle maintenance, and intelligence support to the Common Operational Picture into commercial COTS environments to facilitate easy integration with IT-21 platforms and products. Provide Intel application research and support for IT-21 workstations. Provide data fills for the Intel database. Implement and enhance a fully functional MIDB interface mechanism that enables GCCS-M intelligence applications, combat systems, and mission planning systems to access data within MIDB without having to change their software architecture with each MIDB release from the Defense Intelligence Agency (DIA). Provide increased functionality in the Intelligence and Imagery applications to support capabilities in the DII COE, including real-time, updates to mapping, communication, and track management tools. Integrate Intel data into the SCI enclave.

- (U)($280) Spectral and Environmental Analysis: Develop and enhance Intel data sources for C2WC.

- (U)($616) JPN / TADIL / BROADCASTS: Enhance capability to attach tactically relevant intelligence data to near real-time tracks that are distributed via the Common Operational Picture pre requirements generated through the CRWG process. Enhance Intelligence and Imagery subscription methodologies to support disadvantaged users. Incorporate COTS Internet tools to enable users to use IT-21 infrastructure to obtain a subset of finished intelligence data via the web. Provide the capability to distribute intelligence data cross-referenced to imagery that will enable users to view and edit, OOB data, characteristics and performance data, and imagery over the WAN and distribute those changes through the COP to joint intelligence centers. Integrate the Special Intelligence (SI) correlation functions into the core of DII COE, enabling closer integration with the other correlation functions that currently exist in the Joint baseline.

- (U)($775) Targeting / Land Track: Update the Naval Strike Warfare Planning product SPF-Lite per Fleet requirements identified at the CRWG. Continue integration of the Joint Targeting Toolbox products into GCCS-M, providing seamless capability to edit and view the targeting tables in combination with the Order of Battle (OOB) maintenance function performed in GCCS-M and provide a single set of interfaces within JTT for creation of target lists, selection of imagery, creation of task collection, plans, etc.

- (U)($1,030) Testing: Perform systems testing on the integrated components of the GCCS-M Intel architecture.

EXHIBIT R-2A, FY 2002 RDT&E,N PROJECT JUSTIFICATION DATE: JUNE 2001

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X0521
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: GCCS-M Intel Apps

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

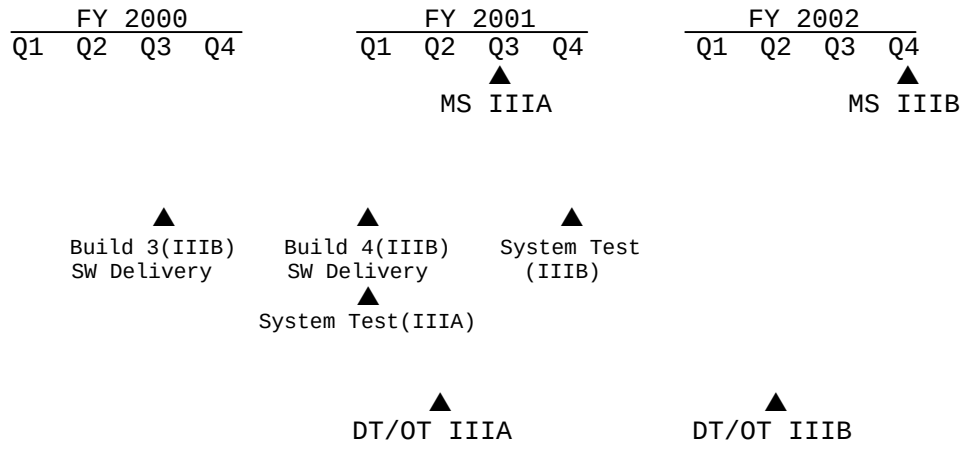
(U) RELATED RDT&E:PE 0604231N (Tactical Command Systems) GCCS-M Maritime Applications

C. (U) ACQUISITION STRATEGY:

EXHIBIT R-2A, FY 2002 RDT&E,N PROJECT JUSTIFICATION DATE: JUNE 2001

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X0521
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: GCCS-M Intel Apps

D. (U) SCHEDULE PROFILE:



Note (1): Change in nomenclature from “GCCS-M 4.1 Drop” to “Build 3” and “Build 4” to reflect internal milestones for GCCS-M 4.x Development.

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

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	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Software/Product Development	Various	Various	12,503	3,704	12/00	602	12/01					
Software/Product Development	CPFF	PRC				3,000	10/01					
Software/Product Development	WX	SSC San Diego				800	10/01					
Software/Product Development	WX	SSC Charleston				1,500	10/01					
Subtotal Product Development	Various	Various	12,503	3,704	12/00	5,902	12/01					
Remarks:												
System Engineering	Various	Various	14,862	2,771	12/00	654	12/01					
Subtotal Support	Various	Various	14,862	2,771	12/00	654	12/01					
Remarks:												

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract

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

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X0521
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: GCCS-M Intel Apps

Operational Test & Evaluation	PD	OPTEVFOR	2,056	0		0						
Subtotal T&E	PD	OPTEVFOR	2,056	0		0						
Remarks												
Project Management	CPFF	Various	603	20	Var.	40	Var.					
Travel	WR	HQ	1,411	0	Var.	0	Var.					
Subtotal Management	Various	Various	2,014	20	Var.	40	Var.					
Remarks												
Total Cost	Various	Various	31,435	6,495	Var.	6,596	Var.					
Remarks												

EXHIBIT R-2A, FY 2002 RDT&E,N PROJECT JUSTIFICATION DATE: JUNE 2001

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X2305
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: GCCS-M Common Apps

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	COST TO COMPLETE	TOTAL PROGRAM
X2305 GCCS-M Common Apps	11,602	11,850	11,014							

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The GCCS-M Common Apps program contains the fundamental building blocks and common applications for all fielded Global Command and Control System (Maritime) C4I systems in the Navy, Marine Corps, and Coast Guard. It is the Navy’s tactical implementation of the Global Command and Control System (GCCS) 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 Common Operating Environment 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 Defense Information Infrastructure Common Operating Environment (DII COE) continues 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 continue to evolve with the DII COE, new technology, and COMMERCIAL-OFF-THE-SHELF (COTS) products.

GCCS-M Common Apps includes 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.

EXHIBIT R-2A, FY 2002 RDT&E,N PROJECT JUSTIFICATION DATE: JUNE 2001

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X2305
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: GCCS-M Common Apps

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS:

- (U) ($500) Architecture: Began implementation of Real-time capabilities into DII COE in order to support migration of high performance systems to GCCS-M architecture.
- (U) ($200) Training: Continued development of program documents and data.
- (U) ($400) Architecture: Evolved the USN C4I messaging architecture to incorporate emerging DII-COE based messaging components (e.g. Communication Message Processor (CMP), Defense Message System (DMS), etc.)
- (U) ($600) Useability: Defined and established the PC/NT Common Operating Environment; initiating the migration of Unix based segments and applications to the NT COE.
- (U) ($300) Architecture: Defined and developed the system architecture and products to evolve USN C4I systems from a Force Over-the-Horizon Track Coordinator (FOTC) / Officer in Tactical Command Information Exchange Subsystem (OTCIXS) / BGBDM based network towards one that takes advantage of Terminal Control Protocol(TCP)/Internet Protocol(IP), LANs, and WANs (Joint Maritime Communications Systems (JMCOMS) / Advanced Digital Network System (ADNS), and Secret Internet Protocol Routing Network (SIPRNET)).
- (U) ($200) Useability: Implemented Information Security (INFOSEC) products into the C4I software architecture.
- (U) ($300) Joint Planning Network (JPN)/ Tactical Digital Information Links (TADILS) / Broadcasts: Investigated DII COE compliant multi-source and multi-sensor correlation and fusion software segment development to Navy, Joint, and coalition Common Operational Pictures (COPs).
- (U) ($175) Imagery / Video Processing: Developed and implemented integrated shipboard architectures which utilize a common set of National Imagery and Mapping Agency (NIMA) product services / servers.
- (U) ($400) JPN / TADILS / Broadcasts: Developed and implemented core capabilities associated with strategic and tactical C4I management of Theater Battle Management (TBM) data and tools for decision-making and COP fusion of (TBM) data.
- (U) ($650) Useability: Integrated GCCS-Joint segments into GCCS-M.

- (U) ($175) JPN / TADILS / Broadcasts: Developed and implemented Mil-std-2525A and supplemental symbology to support COP fusion and display.
- (U) ($332) JPN / TADILS / Broadcasts: Developed and implemented interoperable architectures for integration of Position Location Information (PLI) data in the COP.
- (U) ($1,720) Architecture: Implemented 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 software fixes, and implementation of Navy-unique Engineering Change Proposals (ECPs) in DII COE.
- (U) ($500) Architecture: Developed 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) Targeting / Land Track: Enhanced Moving Target Indicator (MTI) autotrack generation capabilities for JSTARS data.
- (U) ($800) JPN / TADILS / Broadcasts: Completed 2-way TADIL J and incorporate Multi-TADIL correlation.
- (U) ($200) JPN / TADILS / Broadcasts: Incorporated Theater Battle Management Core System (TBMCS) aboard USN Flagships (LCC, AGF, CV/CVN) and developed the required interfaces, procedures to interoperate with GCCS-M.
- (U) ($100) Aircraft Mission Planning / TACMOBILE: Developed/Enhanced interface support for Mission Planning Systems.
- (U) ($250) Useability: Incorporated USMC MAGTF C4I based systems aboard USN amphibious and command ships (LCC, AGF, etc.). Developed Conops/procedures and interfaces to support joint amphibious warfare for embarked/disembarked USMC elements.
- (U) ($250) Useability: Developed/Enhanced/Incorporated tools and functionality that supports joint and coalition C4I warfare. Developed Conops/procedures/tests/exercises that implement coalition interoperability.
- (U) ($250) Testing: Developed interfaces/Conops/procedures to take advantage of the LAN/WAN commonizations provided by JMCOMS/ADNS and performed land and sea based testing of the integrated C4I architecture.

- (U) ($100) Spectral and Environmental Analysis: Developed capability for automatic interface and updates with SPEDS/ICAP Integrated Product (SIIP) and Meteorological and Oceanography (METOC).

- (U) ($150) Imagery / Video Processing: Investigated latest COTS hardware and software to implement a digital video system solution to accomplish full motion video transmission intra-ship, inter-ship, and ship to shore.

- (U) ($250) Architecture: Designed/Developed security architecture for Naval C4I systems.

- (U) ($100) Useability: Continued 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) ($1,000) Testing: 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) ($300) Testing: Supported the proof of concept testing in exercise environments of emerging technology in the C4I arena.

- (U) ($700) Testing: Performed systems testing on the integrated components of the Naval C4I architecture.

- (U) ($500) Testing: Designed and developed systems documentation to support test, evaluation, and fielding of C4I systems.

2. (U) FY 2001 PLAN:

- (U) ($275) Architecture: 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) ($170) Architecture: Continue to evolve the USN C4I messaging architecture to incorporate emerging DII-COE based messaging components (e.g. CMP, DMS, etc.).
- (U) ($650) Useability: Redefine and evolve the PC/NT Common Operating Environment. Continue the migration of Unix based segments and applications to the NT COE to support IT-21.

- (U) ($1,085) Architecture: 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).

- (U) ($190) Useability: Implement INFOSEC products into the C4I software architecture.

- (U) ($410) JPN / TADILS / Broadcasts: Implement DII COE compliant multi-source and multi-sensor correlation and fusion software segment to support Navy, Joint, and coalition requirements.

- (U) ($120) Imagery / Video Processing: 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) ($220) JPN / TADILS / Broadcasts: Continue to develop and implement core capabilities associated with strategic and tactical C4I management of Theater Battle Management (TBM) data and tools for decision-making and COP fusion of TBM data.

- (U) ($90) JPN / TADILS / Broadcasts: Continue 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) Useability: Continue to develop and integrate GCCS (Joint) segments into GCCS-M.

- (U) ($300) Targeting / Land Track: Continue to develop and implement interoperable architectures for integration of Position Location Information (PLI) data in the COP, developing correlation algorithms required to correlate/de-correlate land based tracks in a joint battle environment.

- (U) ($2,409) Architecture: Continue to implement 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 software fixes and implementation of Navy-unique requirements.

- (U) ($320) Architecture: Continue to develop the 3-tier architecture (3TA)(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) Targeting / Land Track: Enable JSTARS/GCCS-M connectivity, addressing high bandwidth communication pipes such as Common High-Bandwidth Data Link (CHBDL).
- (U) ($800) JPN / TADILS / Broadcasts: Continue TADIL interoperability development as determined by CRWG and joint requirement efforts.
- (U) ($130) JPN / TADILS / Broadcasts: Continue to incorporate TBMCS aboard USN Flagships (LCC, AGF, CV/CVN) and develop the required interfaces, procedures to interoperate with GCCS-M.
- (U) ($195) Aircraft Mission Planning / TACMOBILE: Continue to develop/enhance Interface support for Mission Planning.
- (U) ($160) Useability: 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) Useability: 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) Testing: 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) Spectral and Environmental Analysis: Continue to develop capability for automatic interface and update with SIIP and METOC.
- (U) ($256) Testing: 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) ($415) Architecture: Continue to design/develop Security Architecture for Naval C4I systems.
- (U) ($110) Useability: 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) ($1,065) Testing: Semi-annual testing of each DII COE build received from DISA, documentation and Configuration Management (CM) of required Software Test Report (STR) processes, and distribution to Navy DII COE customers.

- (U) ($260) Testing: Support the proof of concept testing in exercise environments of emerging technology in the C4I arena.

- (U) ($850) Testing: Perform systems testing on the integrated components of the Naval C4I architecture.

- (U) ($410) Testing: Design and develop systems documentation to support test, evaluation, and fielding of C4I systems.

3. (U) FY 2002 PLAN:

- (U)($305) Aircraft Mission Planning / TACMOBILE: Continue to develop/enhance/interface aircraft mission planning systems. Enable mission planning or mission routes and plans to be displayed on GCCS-M along with other threat and blue force data. Continue to incorporate TBMCS and develop the required interfaces and procedures that interoperate with GCCS-M.

- (U)($1,228) Architecture: Continue to develop the N-tier architecture to support the transition of the USN C4I from the current client/server model. The N-tier will enable the thin client capability required by the warfighter. Provide security infrastructure that will support SI and Collateral levels. Research and implement a public key exchange capability that enables internet based applications such as web, e-mail, newsgroups to access a wide range of data over the DoD enterprise and maintain consistency with the DoD Public Key Infrastructure (PKI) policy. Incorporate development efforts for emerging COTS products.

- (U)($255) Employment Scheduling / WSM: Provide employment scheduling capabilities in support of coalition/Joint operations.

- (U)($355) Readiness: Provide readiness capabilities, which integrate with Joint and coalition forces, including integration with GCCS-Joint, JOPES, and similar theater-level C4I systems.

- (U)($539) Combat Systems Interface: Provide C4I support of combat systems interfaces. Continue development of track management/correlation/merge processing as specified in WS-19702/1 to enable full exchange of tracks between GCCS-M, Aegis, Common Cover & Deception (C&D), Advanced Combat Direction System (ACDS), Ship Self Defense System (SSDS), Naval Fire Control System (NFCS) and other emerging combat systems. Modify track exchange architecture to promote orderly merging of OTH data between ATWCS/TTWCS/GCCS-M, including support for backwards compatibility of track databases. As required, provide support for Ground Order of Battle data to the combat system. Provide support for combat systems to utilize GCCS-M subscription methodologies to obtain

tailored intelligence and imagery products for analysis and display. Ensure full tactical data link message sets can be transmitted and received across the interface.

- (U)($3,749) JPN / TADILS / BROADCASTS: Support Joint/coalition warfare by developing an interoperable & scalable C4I system. Implement expanded TMS motion models to support static and stationary contact reporting in the TIBS segment, and incorporate emerging TIBS requirements identified by the CRWG. Modernize TIBS to support the data feeds provided by the IBS. Provide receive and transmit capability in the TIBS segment, to include transmit capability. Integrate and support interfaces to the Joint Tactical Terminal Control Client. Utilize data compression and improved multicast techniques to reduce the amount of bandwidth required to disseminate the COP from 16KBS to 8KBS, including support for new Fleet requirements emerging from the CRWG. Enhance and improve COP Sync Tools per CRWG direction, including implementation of a capability for CST to operate in a Quality of Service mode so that multicast IP transmissions can be managed over the IT-21 ATM backbone. Provide an automated mechanism for replicating web and newsgroup data from ship's servers to the Network Operations Centers (NOCs). Web-based replication mechanisms will enable tactically relevant data to be assessed in near real-time by shore commands without using ship bandwidth, compromising firewall security, or placing additional burdens on the NOC or ship. Continue to implement 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. Develop track management capabilities that utilize emerging capabilities of the DII/COE and COTS products. Support promulgation of the COP via industry standard COTS infrastructures.

- (U)($2,146) Targeting / Land Track: Provide enhanced capability for the Naval JSTARS Interface segment per Fleet direction at the CRWG, with full utilization of the Joint Mapping Toolkit. Incorporate the ability to provide radar services requests to the JSTARS aircraft. Integrate fire control call for fire capability into the JTT/GCCS-M/JSIPS-N targeting architecture. Expand ELINT data processing in GCCS-M to process specific emitter id data provided by enhanced sensor packages aboard P-3 AIP, U-2 and other national assets. COMEXT/MAREXT: Continue to integrate the Moving Target Exploitation (MTE) capability into JSTARS Interface, providing the ability to automatically initiate and maintain tracks on potential targets. Integrate Joint Collaborative products into GCCS-M to enable analysts to exchange application and text data over IP communications.

- (U)($833) Testing: Support the proof of concept testing in exercise environments of emerging technology in the C4I arena. Perform systems testing on the integrated components of the Naval C4I architecture.

- (U)($634) Theater Battle Management (TBM): Continue to improve Tactical Information Broadcast System (TIBS)/ Integrated Broadcast System (IBS) TBM processing. Support coalition TBM environment. As required, provide support forwarding TBM data to the combat system.

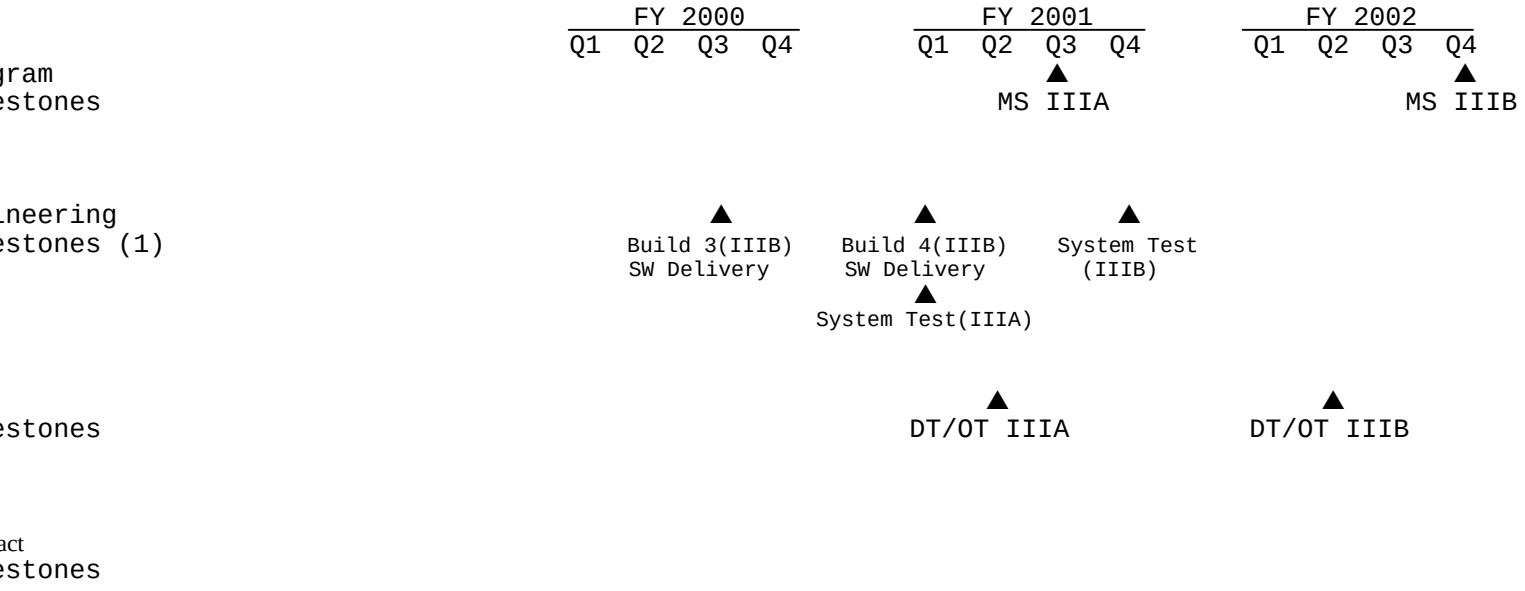
- (U)($970) Useability: (COMEXT/MAREXT) Develop and enhance an Enterprise Management capability within GCCS-M to enable remote monitoring and inventory of network and computing assets associated with the system. Enable fleet engineering activities and administrators to use enterprise management tools to remotely update software packages on PCs over the LAN, decreasing administrative burden and staffing requirements. Provide ability to translate between the two environments, as well as the ability for tactical systems to exchange data updates over both mechanisms.

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

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X2305
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: GCCS-M Common Apps

C. (U) ACQUISITION STRATEGY: N/A

D. (U) SCHEDULE PROFILE:



Note (1): Change in nomenclature from “GCCS-M 4.1 Drop” to “Build 3” and “Build 4” to reflect internal milestones for GCCS-M 4.x Development.

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

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	FY01 Cost	FY01 Award Date	FY02Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Software/Product Development	CPFF	INRI, Reston, VA	7,275	3,677	10/00	3,200	10/01					
Software/Product Development	WX	SSC-San Diego	1,116	1,180	10/00	2,500	10/01					
Software/Product Development	CPFF	Delfin	1,400	1,216	10/00	0	10/01					
Software/Product Development	Various	Various	9,297	1,702	10/00	2,364	10/01					
Subtotal Product Development	Various	Various	19,088	7,775	10/00	8,064	10/01					
Remarks:												
System Engineering	WX	SSC-San Diego	800	376	10/00	420	10/01					
System Engineering	CPFF	INRI, Reston, VA	718	242	10/00	250	10/01					
System Engineering	Various	Various	2,274	377	10/00	402	10/01					
Subtotal Support	Various	Various	3,792	995	10/00	1,072	10/01					
Remarks												

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

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	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation	PD	OPTEVFOR	150	225	10/00	225	10/01					
Operational Test & Evaluation	Various	NTCSI	60	0	10/00	0	10/01					
Developmental Test & Eval.	WX	SSC-SD	1,700	1,880	10/00	730	10/01					
Developmental Test & Eval.	Various	Various	100	310	10/00	248	10/01					
Subtotal T&E			2,010	2,415	10/00	1,203	10/01					
Remarks												
Project Management	Various	Various	560	525	Var.	525	Var.					
Travel	Various	Various	200	140	Var.	150	Var.					
Subtotal Management			760	665	Var.	675	Var.					
Remarks												
Total Cost	Various	Various	25,650	11,850	Var.	11,014	Var.					

EXHIBIT R-2A, FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION (PROJECT) DATE: JUNE 2001

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X2306
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Naval Simulation System

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X2306 Naval Simulation System	2,785	5,192	5,033							

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Naval Simulation System (NSS) provides a capability to simulate the execution of all Naval Warfare including 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.

EXHIBIT R-2A, FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION (PROJECT) DATE: JUNE 2001

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X2306
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Naval Simulation System

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS:

- (U) ($1,544) Performed software development to make NSS Model Engine, Object Oriented Database, Object Oriented Database Management System, and Campaign Analysis Tool (CAT) Graphical User Interface (GUI) DII COE compliant. Designed Generic NSS Model Engine Application Programmer Interface (API). Developed and factory tested Targeting Management System (TMS) enhancements for integration into NSS. Executed factory testing on all NSS segments components for DII COE compliance. Resolved over 100 DII COE issues. Initiated design interface with NTCS-A Integrated Tactical Environment/Tactical Environmental Data Server (NITES/TEDS GCCS-M) segments, Commander's Analytic and Planning Simulation (CAPS) GCCS segment, and JMV (GCCS-M map server).

- (U) ($295) Conducted numerous ORD reviews with OPNAV and Fleet. (Draft ORD currently in review by N62). Initiated development of concepts of operations (CONOPS) for MIW functionality module and planning tool.

- (U) ($425) Made significant improvements and enhancements to NSS build v2.1.7 including scenario building and checking. Conducted factory testing to certify v2.1.7 for deployment on 5 Jan 00. Prepared Design Decision Brief (DDB) for NSS builds v3.0 and v3.1.

- (U) ($101) Initiated task to improve runtime. Drafted a DDB to improve user friendliness of GUI.

- (U) ($270) Supported NSS software Configuration Control Board. Implemented and tested over 80% CPF and Global 00 Software Change Requests (SCRs).

- (U) ($150) Supported FBE-H planning. Initiated establishment of Cooperative, Research and Development Agreement (CRADA) to establish relationships with commercial NSS users. Provided management support, travel, and materials. Paid all required COTS licenses including Object Store Database Management System, SIPRNET and GCCS-M fees. Developed ACAT III documentation including draft Test and Evaluation Master Plan (TEMP) and draft Acquisition Program Baseline (APB).

2. (U) FY 2001 PLAN:

- (U) ($640) Update NSS Segmentation on GCCS-M. Conduct independent testing and integration of the NSS model engine, Object Oriented Database, Object Oriented Database Management System, and Campaign Analysis Tool (CAT) GUI for integration into GCCS-M. Conduct independent testing of the generic NSS model engine Application

Programmer Interface (API), the JMV (GCCS-M map server) interface to GCCS-M and TMS. Update all documentation including user's manual.

- (U) ($264) Complete development of C4ISR functionality in support of Mine Warfare (MIW), Theater Missile Defense (TMD) and Strike Warfare (STK).
- (U) ($250) Complete development of STK and TMD functionality modules. Improve NSS Joint Forces Air Component Commander (JFACC) and Theater Ballistic Missile Defense (TBMD) Course of Action (COA) planning tools. Complete NITES/TEDS, CAPS, and JMV, and collaborative planning tool integration into NSS.
- (U) ($674) Initiate Mine Warfare (MIW) model engine functionality module and MIW COA planning tool. Initiate development of AntiSubmarine Warfare (ASW) functionality module and ASW COA planning tool. Continue development of Logistics (LOG) functionality module.
- (U) ($160) Initiate development of Air Warfare (AW) functionality module and AW COA planning tool.
- (U) ($225) Initiate development of Surface Warfare (SuW) functionality module and SuW COA planning tool.
- (U) ($300) Support VV&A Subject Matter Expert (SME) activities. Include SME review of all conceptual models and code development.
- (U) ($261) Develop DDB for run time improvement. Implement Run-time improvement technology as specified by DDB.
- (U) ($190) Complete Integration of GCCS-M Operational Databases including Common Operational Picture (COP), and Commanders' Guidance into NSS.
- (U) ($410) Initiate integration of GCCS-M Environmental Databases including Atmospheric, Terrain databases, Electromagnetic and Littoral databases into NSS.
- (U) ($308) Support JTFEXs 01. Support Naval Post Graduate School (NPGS) Fires Analysis project and FBEs 01 planning, wargaming, and experimentation.
- (U) ($230) 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.

- (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) ($355) Support Integrated Product Teams (IPTs) addressing GCCS-M implementation issues and Integrated Development Teams (IDTs) addressing user based requirements. Implement Earned Value management system.

- (U) ($800) Support NSS Configuration Control Board. Conduct factory testing of the NSS builds v3.0, v3.1 for deployment certification. Develop DDBs for NSS builds v3.2 and v4.0. Implement and perform factory testing on all outstanding SCRs. Conduct independent testing of all newly developed software code.

3. (U) FY 2002 PLAN:

- (U) ($822) Updates to NSS Segmentation on GCCS-M. Factory test and integrate AW, STK, MIW, TMD and ASW Warfare functionality modules and planning tools into GCCS-M. Interface NSS with the GCCS-M Distributive Collaborative Planning tool, CAPS, JMV, COP, and commander’s guidance. Perform assessment to determine which GCCS-M Tactical Decision Aids (TDAs) are supportive of meeting NSS ORD requirements. Conduct testing of all newly developed software for DII COE compliance. Conduct independent testing on all newly developed software.

- (U) ($275) Complete development of C4ISR functionality in support of ASW, SuW and AW.

- (U) ($289) Complete development of Surface Warfare (SuW) functionality module and planning tool. Initiate development of Amphibious Warfare (AMW) functionality module and planning tool. Initiate development of Information Warfare (IW) functionality module and planning tool.

- (U) ($224) Continue development of LOG functionality module. Initiate development of Naval Coastal Warfare (NCW) functionality module and planning tool.

- (U) ($388) Support VV&A Subject Matter Expert (SME) activities. Include review of all conceptual models and code development.

- (U) ($250) Continue implementation of run-time improvement technology as specified by DDB.

- (U) ($190) Implement GCCS-M Operational Databases including current tactical picture and targeting databases.

- (U) ($410) Continue implementation of GCCS-M Environmental Databases including Atmospheric, Terrain, Electromagnetic and Littoral.

- (U) ($295) Support JTFEXs 02. Continue support to NPGS Fires Analysis project and FBEs 02 planning, wargaming, and experimentation.
- (U) ($230) 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.
- (U) ($205) 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 improvements to the NSS GUI CAT COA Tool. Provide for Training and Maintenance.
- (U) ($355) Support Integrated Product Teams (IPTs) addressing GCCS-M implementation issues and Integrated Development Teams (IDTs) addressing user based requirements. Implement Earned Value management system.
- (U) ($800) Support NSS Configuration Control Board. Conduct factory testing of NSS builds v3.2 and v4.0 for deployment certification. Develop DDBs for NSS builds v4.2, v5.0 and v5.1. Conduct independent testing of all newly developed software code.

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

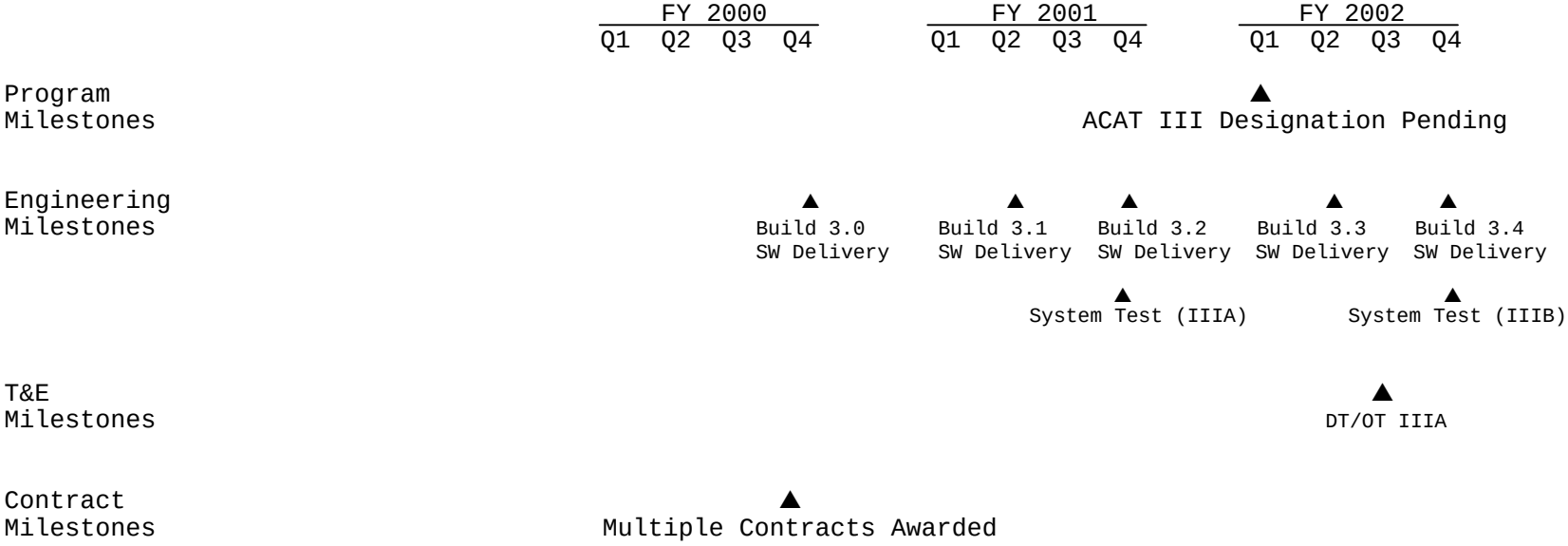
	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	COST TO COMPLETE	TOTAL PROGRAM
OMN PE0204662N/1C1C	0	0	200							

C. (U) ACQUISITION STRATEGY: N/A

EXHIBIT R-2A, FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION (PROJECT) DATE: JUNE 2001

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X2306
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Naval Simulation System

D. (U) SCHEDULE PROFILE:



(Two competitive contracts awarded for the following tasks: S/W Development, Analysis, Training, Installation, Independent Testing and VV&A SME (Verification, Validation and Accreditation Subject Matter Expert))

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

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	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development												
Ancillary Hardware Development												
Systems Engineering	WR	VARIOUS	450	210	10/00	144	10/01					
Licenses			120									
Tooling												
GFE												
Award Fees												
Subtotal Product Development			570	210		144						
Remarks:												
Development Support Equipment												
Software Development	RX/WX	VARIOUS	3,100	3,328	10/00	3,327	10/01					
Training Development			255	200	10/00	150	10/01					
Integrated Logistics Support												
Configuration Management			415	300	10/00	250	10/01					
Technical Data												
GFE												
Subtotal Support			3,770	3,828		3,727						

Remarks:

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

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	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	RX/WX	VARIOUS	828	400	10/00	427	10/01					
Operational Test & Evaluation												
Tooling												
GFE												
Subtotal T&E			828	400		427						
Remarks:												
Contractor Engineering Support												
Government Engineering Support	WR	SSC SD	1270	670	10/00	650	10/01					
Program Management Support												
Program Management Personnel												
Travel	WR	SPAWAR SD	103	84	10/00	85	10/01					
Labor (Research Personnel)												
Overhead												
Subtotal Management			1,373	754		735						
Remarks:												
TOTAL COST			6,541	5,192		5,033						
Remarks:												

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROGRAM ELEMENT TITLE: Tactical Command System PROJECT NUMBER: X2307 PROJECT TITLE: Integrated Shipboard Networking System

(U) COST (Dollars in thousands)

PROJECT NUMBER TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	COST TO PROGRAM	TOTAL PROGRAM
X2307 Integrated Shipboard Network System (ISNS) (formerly Shipboard LAN/WAN)	0	4,466	3,958							

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Integrated Shipboard Network System (ISNS) program provides every Navy ship, including submarines, with a reliable, high-speed Local Area Network (LAN) that will provide LAN and Wide Area Network (WAN) access to the 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 IT-21 strategy and is a key factor in the implementation of the Navy's portion of Joint Vision 2010. Under the Navy's information modernization strategy, full synchronization of shipboard networks, mission and information applications and Radio/Satellite communications and shore data dissemination infrastructure, installations are necessary to ensure end-to-end mission capability. The ISNS program maximizes the use of both COTS software and hardware resulting in dependence on commercially supported hardware and software. Engineering and technical support is provided so that existing systems will keep pace with hardware and software that is supported commercially.

The Integrated Shipboard Networking System (ISNS) project uses a combination of high speed 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 Integrated Shipboard Networking System 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 Integrated Shipboard Networking System 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), , 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 ISNS program provides infrastructure to support implementation/fielding of programs listed above. If the ISNS 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 ISNS program maximizes the use of Commercial off 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.

EXHIBIT R-2A, FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION DATE: JUNE 2001

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N
PROGRAM ELEMENT TITLE: Tactical Command System
PROJECT NUMBER: X2307
PROJECT TITLE: Integrated Shipboard Networking System

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS:

- No funding. Funding deferred to commence in FY 2001.

2. (U) FY 2001 PLAN:

- (U) ($1,791) Investigate, develop, and test Enterprise-Wide LAN Management and Administration and prepare a strategy to merge that with other existing Integrated Network Management development solutions. A seamless management and administration capability has great potential for reducing complexity of network operation for sailors.

- (U) ($1,783) Investigate emerging networking technologies such as, Next Generation LAN Protocols, Wireless LAN, Secure/Nonsecure Voice Integration and Internet Protocol Video 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) ($892) Investigate, develop and test NT software scripting to provide more easily maintainable and flexible NT network services.

3. (U) FY 2002 PLAN:

- (U) ($1,008) Investigate, develop and test server and workstation technology upgrades to incorporate into existing architecture. The ISNS program must prepare for efficient insertion of replacement technology being driven by an eighteen month technology change cycle.

- (U) ($1,600) Investigate, develop and test Enterprise-Wide Network Management and Administration to merge with existing Integrated Network Management development solutions.

- (U) ($600) Research and develop more complex e-mail security and general security systems as they relate to the Shipboard LAN infrastructure.

- (U) ($750) Investigate, develop and test NT software scripting.

EXHIBIT R-2A, FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION DATE: JUNE 2001

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N
PROGRAM ELEMENT TITLE: Tactical Command System
PROJECT NUMBER: X2307
PROJECT TITLE: Integrated Shipboard Networking System

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

		FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY2007 ESTIMATE	COST TO COMPLETE	TOTAL PROGRAM
(U)	OPN	148,037	95,059	49,036							
(U)	O&MN	4,862	4,582	7,169							

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

D. (U) SCHEDULE PROFILE: Not applicable.

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

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X2307
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: Integrated Shipboard Networking System

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Costs	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Software/Product Development												
1.1.1 Prime Mission Product	MIPR	FEDSIM/SAIC	0	650	12/00	650	12/01					
1.1.1 Prime Mission Product	WX	SSC CH	0	983	12/00	998	12/01					
1.1.1 Prime Mission Product	WX	SSC SD	0	400	12/00	350	12/01					
1.1.1 Prime Mission Product			0									
			0									
Subtotal Product Development			0	2,033		1,998						
Remarks:												
System Engineering			0									
1.1.1 System Engineering	MIPR	MITRE	0	204	10/00	210	10/01					
1.1.1 System Engineering	MIPR	FEDSIM/SAIC	0	685	12/00	600	12/01					
1.1.1 Systems Engineering	Various	Various	0	100	12/00	100	12/01					
			0									
Subtotal Support			0	989		910						
Remarks												

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

BUDGET ACTIVITY: 5
PROGRAM ELEMENT: 0604231N
PROGRAM ELEMENT TITLE: Tactical Command System
PROJECT NUMBER: X2307
PROJECT TITLE: Integrated Shipboard Networking System

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation	WX	SSC Charl		305	12/00	250	12/01					
	WX	SSC SD	0	669	12/00	350	12/01					
	WX	SSC Ches	0	220	12/00	250	12/01					
	WR	OPTEVFOR	0	100	12/00	100	12/01					
Subtotal Operational T & E			0	1,294		950						
Remarks												
Project Management	WX	SSC Charl	0	150	12/00	100	12/01					
Subtotal Management			0	150		100						
Remarks												
Total Cost			0	4,466		3,958						

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

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X3032
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: NTCSS Enterprise & MLDN

(U) COST: (Dollars in Thousands)

Project Number & Title	FY 2000 Budget	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	To Complete	Total Program
X3032 NTCSS Enterprise & MLDN	0	0	3,963							

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This RDT&E Project funding supports design, development and testing of two components of the Naval Tactical Command Support System (NTCSS) web initiative, NTCSS Enterprise Database and Maritime Logistics Data Network (MLDN). The development of a web-enabled enterprise database for NTCSS application will place all NTCSS databases into a similar structure, allowing greater interoperability between applications. MLDN will facilitate the movement of administrative workload from ships to shore.

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

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X3032
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: NTCSS Enterprise & MLDN

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS: Not Applicable

2. (U) FY 2001 PLAN: Not Applicable

3. (U) FY 2002 PLAN:

- (U) ($3,963) Enterprise database design, development and testing. MLDN initiative starts with Business Process Improvement to identify which shipboard business can be put ashore.

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

Appn	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	COST TO COMPLETE	TOTAL PROGRAM
OPN	57,686	54,387	42,826							
OMN (BA-1)	15,357	19,007	19,895							
OMN (BA-4)	17,396	18,729	20,375							
OMN,R	615	621	623							

C. (U) ACQUISITION STRATEGY: N/A

D. (U) SCHEDULE PROFILE: N/A

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

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X3032
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: NTCSS Enterprise & MLDN

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	Various	Various	0	0		600	10/01					
Systems Engineering	Various	Various	0	0		700	10/01					
Licenses	Various	Various	0	0		400	10/01					
Subtotal Product Development			0	0		1,700	10/01					
Remarks:												
Software Development	Various	Various	0	0		800	10/01					
Configuration Management	Various	Various	0	0		100	10/01					
Technical Data	Various	Various	0	0								
Subtotal Support			0	0		900	10/01					
Remarks:												

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

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604231N PROJECT NUMBER: X3032
PROGRAM ELEMENT TITLE: Tactical Command System PROJECT TITLE: NTCSS Enterprise & MLDN

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various	Various	0	0		35	10/01					
Subtotal T&E			0	0		35	10/01					
Remarks												
Contractor Engineering Support	Various	Various	0	0		1,298	Various					
Government Engineering Support	Various	Various	0	0		30	Various					
Subtotal Management			0	0		1,328	Various					
Remarks												
Total Cost	Various	Various	0	0	N/A	3,963	Various					
Remarks												