

DRAFT

NAVY TRAINING SYSTEM PLAN

FOR THE

TACTICAL OPERATIONAL

PREVIEW SCENE

N88-NTSP-A-50-9903/D

NOVEMBER 1999

TOPSCENE OPERATIONAL PREVIEW SCENE

EXECUTIVE SUMMARY

This Draft Navy Training System Plan (NTSP) was developed by the Naval Air Systems Command (AIR 3.4.1.1) to identify the life-cycle Manpower, Personnel, and Training (MPT) requirements associated with the Tactical Operational Preview Scene (TOPSCENE). TOPSCENE is intended to provide armed forces strike and assault support aircrews increased pre-mission rehearsal of missions within a scenario with which they are not familiar.

The TOPSCENE system consists of three configurations, the early model 3500, the current model 4000, and the latest model 400. These systems are or will be installed on all Aircraft Carriers and Amphibious Assault ships, and at several land-based sites. The TOPSCENE system is a computer-based system that provides interactive video of areas of interest in planning or rehearsing attack routes and targets. The system has the ability to be updated as required through a networking system. Terrain features, including altitude information, is depicted into a moving, three-dimensional presentation which enables aircrews to repeatedly “fly” their missions, become familiar with target areas and aimpoints, utilize terrain masking, avoid known threat areas, and make adjustments to planned routes.

The TOPSCENE preventive maintenance requirements are minimal at the user level, and contractor or civil service support personnel will accomplish all other maintenance. No increase to existing Navy or Marine Corps manpower will be required to operate or maintain the TOPSCENE equipment.

TOPSCENE OPERATIONAL PREVIEW SCENE

TABLE OF CONTENTS

	Page
Executive Summary.....	i
List of Acronyms.....	iii
Preface.....	iv
 PART I - TECHNICAL PROGRAM DATA	
A. Nomenclature-Title-Program	I-1
B. Security Classification	I-1
C. Manpower, Personnel, and Training Principals.....	I-1
D. System Description.....	I-2
E. Developmental Test and Operational Test.....	I-2
F. Aircraft and/or Equipment/System/Subsystem Replaced	I-2
G. Description of New Development	I-3
H. Concepts	I-3
I. On-Board (In-Service) Training.....	I-5
J. Logistics Support	I-6
K. Schedules	I-7
L. Government Furnished Equipment and Contractor Furnished Equipment Training Requirements.....	I-8
M. Related NTSPs and Other Applicable Documents	I-8
 PART II - BILLET AND PERSONNEL REQUIREMENTS	 II-1
 PART III - TRAINING REQUIREMENTS.....	 III-1
 PART IV - TRAINING LOGISTICS SUPPORT REQUIREMENTS.....	 IV-1
 PART V - MPT MILESTONES.....	 V-1
 PART VI - DECISION ITEMS/ACTION REQUIRED	 VI-1
 PART VII - POINTS OF CONTACT	 VII-1

TOPSCENE OPERATIONAL PREVIEW SCENE

LIST OF ACRONYMS

CMC	Commandant Marine Corps
CNO	Chief of Naval Operations
COTS	Commercial Off-The-Shelf
CV	Aircraft Carrier
CVIC	Carrier Intelligence Center
CVN	Aircraft Carrier Nuclear
CVW	Carrier Air Wing
DBWG	Data Base Working Group
Hz	Hertz
ILSP	Integrated Logistics Support Plan
JMCIS	Joint Maritime Command Integration System
JSIPS	Joint Service Imagery Processing System
MAG	Marine Aircraft Group
MAGTF	Marine Air-Ground Task Forces
MAWTS	Marine Aviation Weapons and Tactics Squadron
MCCDC	Marine Corps Combat Development Command
MPT	Manpower, Personnel, and Training
MRC	Maintenance Requirement Card
MRWG	Mission Rehearsal Working Group
NA	Not Applicable
NAS	Naval Air Station
NAVAIRSYSCOM	Naval Air Systems Command
NAVPERSCOM	Naval Personnel Command
NSAWC	Naval Strike and Air Warfare Center
NTSP	Navy Training System Plan
OAG	Operations Advisory Group
OPO	OPNAV Principal Official
TAMPS	Tactical Automated Mission Planning System
TOPSCENE	Tactical Operational Preview Scene

TOPSCENE OPERATIONAL PREVIEW SCENE

PREFACE

This is the first edition of the Tactical Operational Preview Scene (TOPSCENE) Navy Training System Plan (NTSP). This Draft NTSP complies with guidelines set forth in the Navy Training Requirements Documentation Manual. It provides current information on manpower, personnel, and training requirements.

PART I - TECHNICAL PROGRAM DATA

A. NOMENCLATURE-TITLE-PROGRAM

1. **Nomenclature-Title-Acronym.** Tactical Operational Preview Scene (TOPSCENE)
2. **Program Element.** To be determined

B. SECURITY CLASSIFICATION

1. **System Characteristics** Unclassified
2. **Capabilities** Unclassified
3. **Functions**..... Unclassified

C. MANPOWER, PERSONNEL, AND TRAINING PRINCIPALS

- OPNAV Principal Official (OPO) Program Sponsor..... CNO (N885)
- OPO Resource Sponsor CNO (N885)
- Functional Mission Sponsor CNO (N889F)
- Marine Corps Program Sponsor..... CMC(APW)
- Developing Agency..... NAVAIRSYSCOM (PMA205)
- Training Agency CINCLANTFLT
CINCPACFLT
- Training Support Agency NAVAIRSYSCOM (PMA205)
- Manpower and Personnel Mission Sponsor CNO (N12)
NAVPERSCOM (PERS-4, PERS-404)
- Director of Naval Training CNO (N7)
- Marine Corps Combat Development Command
Manpower Management TFS Division

D. SYSTEM DESCRIPTION

1. Operational Uses. The TOPSCENE mission rehearsal system, hereafter referred to as TOPSCENE, is a stand-alone system that enables Naval Strike Warfare and Marine Air-Ground Task Forces (MAGTF) aircrews to perform superior mission planning and have total familiarity with their mission routes and target areas in order to ensure mission success and high survivability. TOPSCENE utilizes Commercial Off-The-Shelf (COTS) components integrated to provide a mission rehearsal program, which generates high quality, free-roam perspective views in 3-D and in real time. Using the integrated visual generation and the operator inputs (stick and throttle joystick), TOPSCENE can view terrain at high and low altitudes while maneuvering through terrain and among 3-D cultural features. Country-sized databases display frame rates generally exceeding 30 Hertz (Hz) and are capable of networking with intelligence, imagery, and planning systems. Out-of-the window and Night Vision Device (NVD) views show effects of varying light conditions, fog, haze, etc. The system is completely deployable and will be installed on all aircraft carriers, and most of the Marine Attack carrying ships. The system is installed at various land-based sites for use while “gearing up” for a deployment.

All known Department of Defense (DoD) military services are currently using TOPSCENE systems and databases successfully in support of every U. S. military mission since Desert Shield and Desert Storm. TOPSCENE databases are made for all services at Naval Strike and Air Warfare Center (NSAWC) Fallon, and further development of and issuance of these databases is also provided by Hurlburt Field Air Force Base, Florida; Training and Contingency Division at the Washington Navy Yard; and the 160th Special Operations Training Regiment at Fort Campbell, Kentucky.

A yearly Navy Mission Rehearsal Operations Advisory Group (OAG) will afford the fleet a means to provide inputs for the required improvements to the system. A TOPSCENE Database Working Group (DBWG) has been established to address the database production issues. In addition, the Mission Rehearsal Working Group (MRWG), which meets quarterly, provides programmatic coordination and guidance between related Navy Program Offices and the OPNAV sponsor.

2. Foreign Military Sales. TOPSCENE has been in use by the other U. S. armed services, and there is a possibility that this system may be available to our allies in the future.

E. DEVELOPMENTAL TEST AND OPERATIONAL TEST. TOPSCENE has been in use for over 10 years and is composed of COTS components. Operational Evaluation (OPEVAL) or Technical Evaluation (TECHEVAL) were not planned or required.

F. AIRCRAFT AND/OR EQUIPMENT/SYSTEM/SUBSYSTEM REPLACED. Not Applicable (NA)

G. DESCRIPTION OF NEW DEVELOPMENT

1. Functional Description. TOPSCENE provides aircrew and ground personnel with familiarization of actual terrain and cultural features prior to flight or deployment to the area of interest. The system uses national asset imagery databases derived from multiple sources for display.

2. Physical Description. TOPSCENE is located in the Carrier Intelligence Center (CVIC) spaces aboard aircraft carriers, squadron ready rooms on amphibious assault ships, and various shore locations. TOPSCENE consists of a rack and a half, occupying a space 44 inches wide, 70 inches tall, and 36 inches deep, with a total weight of 645 pounds. Electrical requirements require a dedicated 20-ampere circuit, 120-volt Alternating Current, at 60 Hz. TOPSCENE is permanently mounted with 4 mounting points on each rack. The full rack consists of one Silicon Graphics ONYX 2 computer, a 24-inch monitor, and two hot swap chassis. All components are shock mounted inside the rack and enclosed in aluminum containers. The remaining equipment consists of a Hewlett Packard laser printer and storage area.

3. New Development Introduction. Prototype TOPSCENE systems were developed and delivered to the Navy in 1989 and 1990. Fleet exposure to the prototype systems provided feedback that identified improvements and generated requests for additional units. Based on these requests, a number of engineering development models were improved and upgraded. Production unit level systems have been delivered to the Navy, Marines Corps, Army, and Air Force. Improvements and upgrades will be incorporated as TOPSCENE is further refined as approved by the OAG.

4. Significant Interfaces. A direct interface with the NSAWC was developed in 1998 to allow direct electronic access and connectivity to national imagery resources. This interface supports direct access with the afloat Joint Service Imagery Processing System – Navy (JSIPS – N), the Tactical Automated Mission Planning System (TAMPS), the Joint Maritime Command Integration System (JMCIS), and other systems.

5. New Features, Configurations, or Material. The model 4000 utilized the Silicon Graphics ONYX 2 Infinite Reality workstation resulting in improved graphics, special effects maintainability and size reduction. The model 400 utilizes a Silicon Graphics OCTANE workstation which represents a significant decrease in cost and size of footprint.

H. CONCEPTS

1. Operational Concept. TOPSCENE is a stand-alone system that only requires a user. TOPSCENE is not a watch station, and requires no sharing during use. Aviators from various platforms, for the purpose of mission rehearsal, operate the system. The ship's company computer specialist personnel monitor the equipment for failure and/or malfunction.

2. Maintenance Concept

a. Organizational. This system is not under an Integrated Logistics Support Plan (ILSP) or a planned life-cycle maintenance support plan. It is a stand-alone system that is treated as an operator/trainer for the use as required by individuals and is not a required system to accomplish a mission by itself.

(1) Preventive Maintenance. Military personnel conduct Preventive Maintenance during deployment. Either military or civilian technical personnel, as determined by the Program Office, perform preventive maintenance ashore. Electronic Technicians (ET) perform the preventive maintenance, which normally consists of cleaning the equipment and checking filters, etc. There is no Maintenance Requirement Card (MRC) deck.

(2) Corrective Maintenance. Both civilian and military personnel perform corrective maintenance. This is determined on a case by case basis. Silicon Graphics equipment is repaired by certified personnel in accordance with the manufacturer's warranty requirement. Both civilian and military personnel conduct fault isolation, both individually and/or collectively, to determine failed or defective Shop Replaceable Assemblies (SRAs).

b. Intermediate. Civilian personnel perform intermediate maintenance. No requirements for military personnel are expected. There is no requirement for Support Equipment (SE), Automatic Test Equipment (ATE), or Special Test Equipment (STE). Common test equipment required is a multimeter.

c. Depot. Depot maintenance is performed at the system manufacturing facility, Lockheed Martin Vought Systems, Dallas, Texas, on an as required basis. Government technical representatives or Lockheed Martin Vought Systems perform modifications on-site when required.

d. Interim Maintenance. Contractor Engineering and Technical Services (CETS) personnel and Mission Rehearsal government technical representatives perform maintenance throughout the full service life of the equipment. There is no Navy Support Date (NSD) as such. Technical and advisory services are provided to operational communities for a period determined by PMA205. Civilian government technical representatives are located one each on the East and West Coast of the United States. There is a staff of engineers and support personnel located at Lockheed Martin Vought Systems manufacturing and integration facility in Dallas, Texas. There are Lockheed Martin Vought Systems engineers located at the NSA WC Data Base Generation Facility to support TOPSCENE. These two groups of individuals are tasked to provide engineering services as long as TOPSCENE is deployed.

e. Life Cycle Maintenance Plan. There is no formal life cycle maintenance plan, but there is a contractual responsibility on the manufacturer and the government technical representatives to provide maintenance and support for hardware and software on both a scheduled and as required basis.

3. Manning Concept. Initial analysis indicates that there will be no increase in the allotted uniformed manpower. Personnel who operate TOPSCENE are already trained in their particular specialty and are using the equipment to sharpen skills and cognitive ability. After initial system administrator training and operator training are conducted during installation, the manpower required remains stable. There are currently no figures available to document mean time between failure, mean time to repair, etc. The workload that has occurred has not resulted in requests for increased manpower from the fleet.

4. Training Concept. There is no formalized course of instruction either for TOPSCENE operators or maintainers. TOPSCENE is delivered and installed by Navy, civilian, and contracted technical representatives who provide training at the delivery site. Training generally consists of approximately one hour for users (operators) and up to four hours for ETs. TOPSCENE at NSWC supports aircrew training during their annual or pre-deployment training cycles. TOPSCENE does not require dedicated instructor training. Additional technical or training support is available from two U. S. government technical representatives located one each on the coasts.

a. Initial Training. Initial training is On-the-Job Training (OJT) and is fulfilled at the time of installation. This oral training is of a general nature including computer uses and database update procedures.

b. Follow-on Training. TOPSCENE contractor personnel located at NSAWC, Fallon, Nevada, are available to provide follow-on training to Carrier Air Wing (CVW) detachments, approximately 80 aircrews per CVW, with six to eight detachments per year. Marine Aviation Weapons and Tactics Squadron (MAWTS)-1 provides training support for the Weapons and Tactics Instructor courses and related MAGTF training programs. TOPSCENE technical representatives provide refresher training to the Marine Expeditionary Units and others as requested. There is no formal follow-on training planned at this time.

c. Student Profiles. Systems Administrators are designated by the ship's CVIC Officer or the Combat Systems Maintenance Officer for the Navy and by the Operations Officer for the Marine Corps. Systems Administrators must possess basic computer systems knowledge and an understanding of the UNIX operating system. The computer systems technician must have knowledge of standard computer cleanliness techniques. Navy and Marine Corps aviators comprise the majority of the operators requiring user training. Additional training is provided to Intelligence Officers on various components as required.

d. Training Pipelines. At the current time there is no training pipeline designated for TOPSCENE. All training is conducted on-site during system installation.

I. ON-BOARD (IN-SERVICE) TRAINING. There is no further training envisioned at this time. TOPSCENE is intended to provide the rehearsal required for the safety and proficiency of the aircrews. No PQS exists for either operators or maintainers.

1. Proficiency or Other Training Organic to the New Development. The only proficiency training is through continued use of the equipment itself.

The Maintenance Training Improvement Program (MTIP) would normally be used as a training management tool that, through diagnostic testing, identifies individual training deficiencies. Since the bulk of both the preventive and all of the corrective maintenance is being performed by technical representatives, this program will not be utilized.

2. Personnel Qualification Standards. NA

3. Other On-Board or Inservice Training Packages. NA

J. LOGISTICS SUPPORT

1. Manufacturer and Contract Numbers. The following is the result of the sole source procurement of the TOPSCENE system and the integrated support for this system.

CONTRACT NUMBER	MANUFACTURER	ADDRESS
Unknown	Lockheed Martin Vought Systems	1701 West Marshall Drive Grand Prairie, TX 75051

2. Program Documentation. No ILSP has been developed for TOPSCENE. There is no MRC deck, and no maintenance instruction pages have been developed.

3. Technical Data Plan. Technical manuals and operator manuals are available for fleet users and are delivered upon installation. Replacement manuals are available through PMA205 or the technical representatives.

4. Test Sets, Tools, and Test Equipment. No special equipment is required for fleet personnel. All that is required for the local level is common test equipment.

5. Repair Parts. The manufacturer provides all repair parts. No parts for this system are planned to be integrated into the Navy supply system.

6. Human Systems Integration. NA

K. SCHEDULES

1. Schedule of Events

a. Installation and Delivery Schedules. The delivery and installation schedule is the same, as installation normally takes one day and is ready for use when installed. All FY99 installations have been completed.

INSTALLATION SCHEDULE

ACTIVITY	FY99	FY00	FY01	FY02	FY03
CV-63 USS Kitty Hawk	1				
CV-64 USS Constellation	1				
CVN-65 USS Enterprise	1				
CV-67 USS Kennedy	1				
CVN-68 USS Nimitz		1			
CVN-69 USS Eisenhower	1				
CVN-70 USS Vinson	1				
CVN-71 USS Roosevelt	1				
CVN-72 USS Lincoln	1				
CVN-73 USS Washington		1			
CVN-74 USS Stennis	1				
CVN-75 USS Truman		1			
CVN-76 USS Reagan					1
Fighter Weapons School	1				
NAS Fallon	3				
NAS Oceana	3				
PMA205 (Germany)	1				
VDS Alexandria, Virginia	3				
PMA205 Dallas, Texas	2				
LMVS Dallas, Texas	2				
HMM-264	1				
HMM-266	1				

ACTIVITY	FY99	FY00	FY01	FY02	FY03
HMM-364	1				
MAG-11	1				
MAG-31	1				
MAG-36	1				
MAG-39	1				
RLWFTRD	1				
MAWTS-1	2				
Model 4000		4	4	0	1
Model 400		4	4	2	4

b. Ready For Operational Use Schedule. The systems are ready for operational use upon delivery and installation.

c. Time Required to Install at Operational Sites. Normal installation time is one day, plus one day for on-site training.

d. Foreign Military Sales and Other Source Delivery Schedule. TOPSCENE has been in use by the other U. S. armed services, and there is a possibility that this system may be available to our allies in the future.

e. Training Device and Delivery Schedule. NA

L. GOVERNMENT FURNISHED EQUIPMENT AND CONTRACTOR FURNISHED EQUIPMENT TRAINING REQUIREMENTS. NA

M. RELATED NTSPs AND OTHER APPLICABLE DOCUMENTS

DOCUMENT OR NTSP TITLE	DOCUMENT OR NTSP NUMBER	PDA CODE	STATUS
Tactical Automated Mission Planning System (TAMPS) NTSP	N88-NTS-A-50-9301C/D	PMA233	Draft Nov 1998
Advanced Mission Computer and Displays Initial NTSP	Unnumbered	PMA209	Initial Dec 1997

DOCUMENT OR NTSP TITLE	DOCUMENT OR NTSP NUMBER	PDA CODE	STATUS
Joint Service Imagery Processing System NTSP	N88-NTP-A-50-9204B/A	PMA209	Approved Feb 1999
Tactical Operational Scene (TOPSCENE) Generic Mission Rehearsal Trainer	Training Device Requirements Document (TDRD)	PMA205	Revision 1 Oct 1998

PART II - BILLET AND PERSONNEL REQUIREMENTS

The following elements are not effected by TOPSCENE and, therefore, are not included in Part II of this NTSP:

II.A. Billet Requirements

II.A.1.a. Operational and Fleet Support Activity Activation Schedule

II.A.1.b. Billets Required for Operational and Fleet Support Activities

II.A.1.c. Total Billets Required for Operational and Fleet Support Activities

II.A.2.a. Operational and Fleet Support Activity Deactivation Schedule

II.A.2.b. Billets to be Deleted in Operational and Fleet Support Activities

II.A.2.c. Total Billets to be Deleted in Operational and Fleet Support Activities

II.A.3. Training Activities Instructor and Support Billet Requirements

II.A.4. Chargeable Student Billet Requirements

II.A.5. Annual Incremental and Cumulative Billets

II.B. Personnel Requirements

II.B.1. Annual Training Input Requirements

PART III - TRAINING REQUIREMENTS

The following elements are not effected by TOPSCENE and, therefore, are not included in Part III of this NTSP:

III.A.1. Initial Training Requirements

III.A.2. Follow-on Training

III.A.2.a. Existing Courses

III.A.2.b. Planned Courses

III.A.2.c. Unique Courses

III.A.3. Existing Training Phased Out

PART IV - TRAINING LOGISTICS SUPPORT REQUIREMENTS

The following elements are not effected by TOPSCENE and, therefore, are not included in Part IV of this NTSP:

IV.A. Training Hardware

IV.A.1. TTE / GPTE / SPTE / ST / GPETE / SPETE

IV.A.2. Training Devices

IV.B. Courseware Requirements

IV.B.1. Training Services

IV.B.2. Curricula Materials and Training Aids

IV.B.3. Technical Manuals

IV.C. Facility Requirements

IV.C.1. Facility Requirements Summary (Space/Support) by Activity

IV.C.2. Facility Requirements Detailed by Activity and Course

IV.C.3. Facility Project Summary by Program

PART V - MPT MILESTONES

COG CODE	MPT MILESTONES	DATE	STATUS
OPO	Approved Training Device Requirement Document (TDRD)	Jul 91	Completed
OPO	Updated TDRD	Feb 96	Completed
PDA	Began Model 3500 Installation Schedule	Oct 98	Completed
PDA	Established TAMPS V (6.2) Interface	Jan 99	Completed
OPO	Updated TDRD	Jan 99	Completed
PDA	Complete Model 3500 Installation	Jan 99	Completed
OPO	Developed Draft NTSP	Nov 99	Completed
PDA	Promulgate Draft NTSP for review	Dec 99	Pending
PDA	Submit Proposed NTSP to OPNAV	Feb 00	Pending
DCNO (MPT)	Approve and promulgate NTSP	Mar 00	Pending
CMC	Complete MAG Model 4000 Installation	Sep 02	Pending
PDA	Complete CVN Model 4000 Installation	Sep 02	Pending
CMC	Complete MAG Model 400 Installation	FY03	Pending
PDA	Complete CVN Model 400 Installation	FY03	Pending

PART VI - DECISION ITEMS / ACTION REQUIRED

DECISION ITEM OR ACTION REQUIRED	COMMAND ACTION	DUE DATE	STATUS
Preview, Rehearsal, and Combat Training Users Survey (PRACTUS) will be used as the primary guide for future TOPSCENE functional improvements and modifications.	PMA205		Continuing
Development of a system interface with TAMPS 6.X. NAVAIR must coordinate and develop the ability to share and pass threat, route, profile, and environmental data between TAMPS and TOPSCENE.	PMA205 / PMA233		Complete with TOPSCENE

PART VII - POINTS OF CONTACT

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