

## TACTICAL AIRCRAFT MISSION PLANNING SYSTEM (TAMPS)



### Navy ACAT III Program

Total Number of Systems:	3,485
Total Program Cost (TY\$):	\$61M
Average Unit Cost (TY\$):	
CVIC Server System:	\$200K
Single Seat Version:	\$45K
Full-rate production:	1986
SEP Production	3QFY94

### Prime Contractor

Lockheed Martin

### SYSTEM DESCRIPTION & CONTRIBUTION TO JOINT VISION 2010

The Tactical Aircraft Mission Planning System (TAMPS) is a computer-based method for weapons planning and optimizing mission routes against hostile targets. TAMPS is employed extensively by embarked Navy and Marine Corps mission planners to achieve *information superiority* for the *dominant maneuver* force of naval tactical aviation. TAMPS is designed to provide a common automated system for rapidly processing large quantities of digitized terrain, threat and environmental data, aircraft, avionics, and weapon systems parameters that assist in the *precision engagement* of enemy forces. The system has an intended capability to meet the tactical mission planning and digital data upload requirements of fixed and rotary wing aircraft, standoff weapons, avionics systems, mission support systems, and unmanned air vehicles.

TAMPS core software should provide flexible interfaces to a wide variety of USN and USMC C<sup>4</sup>I systems to provide users near real time updates to weather and intelligence data bases. A modular, open system architecture was developed to satisfy specialized aircraft weapons and avionics systems requirements while maintaining consistent displays and user interactions across all platforms. Platform unique requirements are provided via a Mission Planning Module (MPM) system that integrates platform developed MPMs with appropriate core libraries and servers providing a complete planning environment for any user platform. This integrated MPM planning environment is used to develop, analyze, and store missions as well as create mission planning products (including digital loads, strip route charts, and pilot kneeboard cards) supporting tactical aviation combat operations.

The current Mission Planning Local Area Network configuration for TAMPS, aboard the carrier, consists of an Enterprise 4000 server in CVIC with Sun Ultrasparc 12/1300 workstations located in CVIC and in the Ready Rooms. There is also a Sun Ultrasparc 2300 backup server with three PC-based systems in CVIC, as well. The Sun Ultrasparc systems have upgraded memory, improved processing speeds, and increased system stability over previous hardware. This configuration of TAMPS is currently installed in all the carriers.

## **BACKGROUND INFORMATION**

TAMPS evolved from interest in modification of the Strategic Air Command's Deployable Aircraft Planning System (DAPS) to support A-6 and F/A-18 mission planning in December 1985. DAPS and the McDonnell Douglas Tactical Aircraft Planning System evolved into TAMPS, and at the direction of the Secretary of the Navy, attained initial IOC in December 1986 with two workstations aboard USS Carl Vinson. No IOT&E was conducted prior to fleet release. Responsibility for TAMPS was transferred to the Program Executive Officer for Tactical Aircraft Programs (PEO(T)) in August 1991.

FOT&E (OT-III A) was first conducted from December 1990-April 1991 on TAMPS S/R 4.2 and the F/A-18 digital storage unit. COMOPTEVFOR concluded that TAMPS S/R 4.2 was potentially operationally effective for mission planning and system support, but not operationally effective for mission support (and potentially operationally suitable). Major corrections from recommendations of OT-III A were implemented in subsequent software releases and verified by squadron operations with TAMPS S/R 5.1.

OT-III C in 1994 concluded TAMPS S/R 6.0 was potentially operationally effective and potentially operationally suitable with recommendations to proceed to OT-III D contingent upon the resolution of 15 critical software trouble reports (STR) related to system crashes and major errors in loadout data bases.

OT-III D Phase I in 1995 concluded S/R 6.0 was potentially operational effective and potentially operationally suitable, with procession to Phase 2 contingent upon the resolution of 26 critical STRs. Phase 2 was concluded in August 1995 and determined that S/R 6.0.3 was operationally effective and operationally suitable and should therefore be recommended for fleet release.

TAMPS S/R 6.0.5 was determined to be not ready for full operational test at the OTRR in May 1996. TAMPS 6.0.5 was to be fully tested in support of F/A-18 Operational Flight Program (OFFP) 11C; but COMOPTEVFOR raised concerns about system stability and human machine interface issues discovered during a DT assist period. As a result, the planned test period in October 1996 was

downgraded to an OA with recommendation for no more than a limited fleet release to those units with OFP-11C and critical data upload requirements.

In February 1998 TAMPS 6.1/6.1.1 was found operationally effective as a mission upload device for supported weapons. However, 6.1/6.1.1 was found not operationally effective for strike planning, threat representation, cockpit quality outputs, environmental effects analysis, and joint interoperability. Version 6.1 was also found to be operationally suitable on DTC hardware, but not suitable on portable hardware, and Version 6.1.1 was found to be suitable on new Sun Ultrasparc hardware. COMOPTEVFOR reported that a “non-fleet release” recommendation would be warranted if TAMPS was not already widely deployed and required for digital upload of many weapons systems.

### **TEST & EVALUATION ACTIVITY**

Operational testing of TAMPS 6.2K is complete and COMOPTEVFOR’s report is pending. Version 6.2K is functionally identical to 6.2 but Y2K compliant. System enhancements observed during the test include greatly improved system reliability and human machine interfaces, including a Navy-Portable Flight Planning System (N-PFPS) interface for flight planning. The fleet preferred this software and an interface was provided to directly input the data into the mission plan.

Functions examined this year were the F-18 Mission Programming Module, F-18 data loading weapon MPMs (JSOW/JDAM, SLAM, SLAM-ER, and HARM), Forward Area Minefield Planning system, F-14 MPM and F-14 data loading, and HH-60 Global Positioning System data loading.

### **TEST & EVALUATION ASSESSMENT**

TAMPS has evolved from a stand-alone mission planning support system to an integral part of key weapons systems including the F/A-18C/D/E/F, F-14D, E-2C, HARM, Joint Standoff Missile (JSOW), Standoff Land Attack Missile Expanded Response (SLAM-ER) and Joint Direct Attack Missile (JDAM). Other key functionality includes operations with Global Positioning System, Tactical Electronic Reconnaissance Processing and Evaluation System, Common Operational Modeling, Planning and Simulation Strategy, and the ARC-210 radio. TAMPS has become a critical mission planning and data upload system that will be required to become operationally effective and suitable to achieve mission success. Current software releases provide basic functionality and system stability has been improved. The system is now deployed on all aircraft carriers and provides precision weapons planning and data loading.

Key issues that have been resolved are system stability (“crashes”), human machine interface issues, and new functionality support of major weapons programs. TAMPS 6.2K has been evaluated using fleet operators as trusted agents to provide inputs. Major new functionalities such as JSOW, JDAM, and SLAM-ER capabilities were tested along with shipboard integration. DOT&E expects operators to continue using N-PFPS for basic mission planning and TAMPS version 6.2K as a mission upload device for more complex mission planning tasks requiring threat analysis terrain data. TAMPS 6.2K and its final version 6.2.1 are the springboard for the roadmap Joint Mission Planning System. Version 6.2.1 is expected to begin OPEVAL in June 2000.

