

## TACTICAL AIRCRAFT MISSION PLANNING SYSTEM (TAMPS)



The Tactical Automated Mission Planning System (TAMPS) is a computer-based method for planning routes and the delivery of weapons for naval aviation systems. TAMPS provides an automated system for rapidly processing large quantities of digitized terrain, threat and environmental data, aircraft, avionics, and weapon systems parameters to assist in strike planning and other missions. The system was also designed to provide data transfer from mission planning computer to the tactical computers aboard fixed and rotary wing aircraft, standoff weapons, and unmanned air vehicles.

The system's software interacts with other naval C<sup>4</sup>I systems so that planners are able to use current weather and intelligence databases. Its modular and open system architecture was developed to satisfy specialized aircraft weapons and avionics systems requirements while maintaining consistent displays and interactions across all platforms. The system produces a variety of products used by naval aviators during combat missions: digital loads, strip route charts, and pilot kneeboard cards.

There are two configurations for TAMPS 6.2.1: stand-alone and networked in a mission-planning, local area network (MPLAN). The stand-alone system uses Sun UltraSPARC 1200 or 1300 workstations. The MPLAN configuration allows shipboard collaborative planning within a carrier air wing/battle group. Mission planning is performed on personal computer client workstations connected to an Enterprise 4000 server. A Sun UltraSPARC 2300 is used as a backup server.

After TAMPS 6.2.1 development has been completed, no future upgrades are planned. The Navy will migrate mission planning to the Joint Mission Planning System (JMPS) when that system becomes operational. The only TAMPS activity planned after 6.2.1 will be to sustain current users.

### **BACKGROUND INFORMATION**

TAMPS was initially designed in December 1985. No IOT&E was conducted prior to fleet release. During the 1990s, TAMPS was upgraded to Version 6.0, which first underwent FOT&E in late 1994 (this test phase was designated OT-IIIC). Other releases of the 6.X versions have also undergone FOT&E. These releases have added capabilities, attempted to correct deficiencies, and have moved towards off-the shelf products and a more networked, collaborative mission-planning environment. As TAMPS evolved, it focused less on aircraft mission planning and more on smart weapon deliveries and as a conduit for transferring data to and from aircraft computers. Aircraft and weapon computers have become increasingly dependent on TAMPS for mission planning, aircraft computer programming, and data transfer. The JMPS, which is currently under development, will eventually become the mission planning system used by both the Air Force and the Navy and replace TAMPS.

FOT&E of versions 6.2 and 6.2K was completed in June 1999. Version 6.2 was found to be operationally effective and suitable for some F/A-18 mission planning, but not operationally effective for AH-1W tactical waypoints and routes data loading. Version 6.2K was determined to be operationally effective for some specific types of weapons planning and data loading, but some key aspects of operational effectiveness were not tested due to test limitations. Version 6.2K was found to be operationally suitable in a stand-alone configuration, but not operationally suitable in the MPLAN configuration. Specific deficiencies cited included continued problems with ARC-210 radio; planning printouts that were of limited value; sensitivity to dropped network connections; a slow process to restore replication server failures; incompatibility with a shipboard environment and storage cases; inadequate training (for both operators and administrators); and inadequate documentation. Fleet release was recommended only in the stand-alone configuration and only for a specific set of weapons; fleet release was not recommended for the MPLAN configuration.

TAMPS 6.2.1 is the latest version and is supposed to correct the deficiencies encountered in 6.2 and 6.2K and improve stability and performance in the MPLAN configuration. A new user interface was added, the operating system upgraded, and a new contractor team was hired to take over system development.

### **TEST & EVALUATION ACTIVITY**

FOT&E of version 6.2.1 began in January 2001. Test and Evaluation Squadron NINE (VX-9) conducted the test, primarily with their mini-LAN configuration at China Lake and when Carrier Air Wing ONE used TAMPS during the Air Wing detachment Fallon in April. Testing of some specialized functionalities (e.g., E-2C, P-3) was a smaller subset of the overall test and was conducted at other locations. Operational testing was conducted in accordance with a TEMP and test plan approved by DOT&E. In spring 2001, operational testing of version 6.2.1 was suspended due to three major deficiencies in weapon mission planning: F-14 Joint Direct Attack Munition (JDAM) load failures; Joint Stand Off Weapon (JSOW)/JDAM Combined Mission Planning Module (CMPM) crashes; and JSOW/JDAM CMPM failures associated with expired data loads from other weapons. Software changes made during operational test corrected each of these major deficiencies and testing resumed in June 2001. A final report was made by COMOPTEVFOR on December 20, 2001.

### **TEST & EVALUATION ASSESSMENT**

COMOPTEVFOR reported that TAMPS 6.2.1 was operationally effective for creating data loads for five aircraft (F-14B/D, E-2, S-3B, SH/HH-60, P-3); weapon planning for four weapons (JDAM, JSOW, HARM, SLAM-ER); and for use with F/A-18 aircraft tactical software avionics.

COMOPTEVFOR also reported that TAMPS 6.2.1 was operationally suitable in stand-alone and networked environments provided the system was adequately supported by uniquely qualified support personnel, "ship-riders," that currently augment deploying units.

Aircrew primarily use TAMPS to transfer weapon data between desktop computers and aircraft and weapon computers. They rarely, if ever, use it in other areas of mission planning. As highlighted by COMOPTEVFOR, the Navy must pay particular attention sustaining adequate funding for the uniquely qualified ship riders whose system maintenance skills keep TAMPS operationally suitable while deployed. The Navy plans to begin using JMPS when development of this system is completed. If JMPS replaces TAMPS as planned, TAMPS 6.2.1 is the final version of TAMPS that will be evaluated.