

# ARCHIVED REPORT

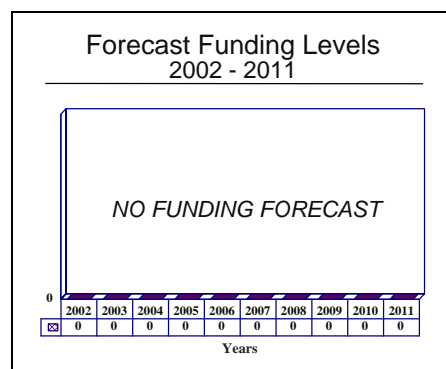
For data and forecasts on current programs please visit

[www.forecastinternational.com](http://www.forecastinternational.com) or call +1 203.426.0800

## Theater Mission Planning Center (TMPC) - Archived 11/2003

### Outlook

- Upgraded efforts to be completed by December 2002
- Minor enhancements may continue
- Any additional funding likely to come from other projects
- Barring any surge in activity, this report will be archived in the near future



### Orientation

**Description.** Theater Mission Planning Centers (TMPCs) are responsible for the preparation and distribution of mission route data and command and control (C<sup>2</sup>) information used by nuclear and conventional Tomahawk cruise missiles. TMPCs are under the operational control of the US Navy Commander-in-Chief, Atlantic (USCINCLANT) and the US Navy Commander-in-Chief, Pacific (USCINCPAC).

#### Sponsor

US Navy - Naval Avionics Center  
Indianapolis, Indiana (IN) USA

Naval Electronic Systems Eng. Activity Detachment  
Philadelphia, Pennsylvania (PA) USA

Naval Ship Weapon Systems Engineering Station  
Port Huenene, California (CA) USA

Naval Surface Weapons Center  
Dahlgren, Virginia (VA) USA

#### Contractors

General Dynamics Corp.  
3190 Fairview Park Drive  
Falls Church, Virginia (VA) 22042-4523

USA

Tel: +1 703 876 3000

Fax: +1 703 876 3125

Web site: <http://www.gd.com>  
(TMPC/APS)

Johns Hopkins University  
Applied Physics Laboratory (APL)  
11100 Johns Hopkins Road  
Laurel, Maryland (MD) 20723-6099  
USA

Tel: +1 240 228 5000

Web site: <http://www.jhuapl.edu>  
(TMPC/APS)

Boeing Company  
(formerly McDonnell Douglas Corp.)  
PO Box 3707, M/S 10-06  
Seattle, Washington (WA) 98124  
USA  
Tel: +1 206 655 1131  
Web site: <http://www.boeing.com>  
(TMPC/APS)

Science Applications International Corp. (SAIC)  
10260 Campus Point Drive  
San Diego, California (CA) 92121

USA  
Tel: +1 619 546 6000  
Fax: +1 619 546 6800  
Web site: <http://www.saic.com>  
(TMPC/APS)

Telos Corp.  
19886 Ashburn Road  
Ashburn, Virginia (VA) 20147-2358  
USA  
Tel: +1 702 724 3800  
Web site: <http://www.telos.com>  
(Tomahawk Weapon Control System Components)

Tiburon Systems Inc.  
Tiburon Business Center  
39350 Civic Center Drive, Suite 280  
Fremont, California (CA) 94538  
USA  
Tel: +1 510 792 2108  
Fax: +1 510 792 2897  
Web site: <http://www.tibinc.com>  
(TMPC/APS)

**Status.** New national sensors and software architectural enhancements in progress with completion set for December 2002. The Theater Mission Planning Center (TMPC) and the associated Afloat Planning System (APS) Initial Operational Capability (IOC) were completed in late 1993. Production of the Advanced Tomahawk Weapon Control Systems (ATWCS) hardware components for the Track Control Group (TCG) began in 1997.

**Total Produced.** Not applicable.

**Application.** The TMPC program is being upgraded to support command and control (C<sup>2</sup>) requirements for maintaining nuclear and conventional land attack missiles.

**Price Range.** Does not apply since this is a support program.

## Technical Data

**Design Features.** The TMPC provides database generation, processing, and onboard software for Tomahawk missions. This onboard software (navigation flight and route data) enables the

Tomahawk to attack predesignated land-based targets. TMPCs also distribute Tomahawk mission data and C<sup>2</sup> information to operational units via the operational commander.



US warship firing a Tomahawk missile

Source: US Navy

## Variants/Upgrades

**TMPC Upgrade.** The TMPC upgrade initiative was designed to develop new software that would decrease mission planning time in response to contingency requirements, improve mission data production rates for distribution, and provide automated C<sup>2</sup> information for Tomahawk employment and strike planning.

**Afloat Planning System (APS).** The APS uses the TMPC's upgraded software on downsized computer hardware on board Navy flagships to support Afloat Strike Warfare Commanders.

## Program Review

**Background.** Shore installation of the Theater Planning/Mission Preparation System and Communications System began in FY82. FY83 and FY84 efforts involved completing the CINCLANT Mission Planning System, installing and testing the Rapid Strike Planning System Phase II, initiating Phase III, and continuing terrain and digital scene matching improvements.

Much of the work performed in FY85 and FY86 was classified. By FY87, the US Navy had completed TMPC Block 8.0 and integrated it with the Tactical Data Information System. FY88 plans included a continuation of engineering development upgrades and initiation of TMPC Upgrade Phase II and Phases IV and V. In FY89, funding for the TMPC was transferred from PE#0604707N Over-The-Horizon-Targeting (OTH-T) to PE#0604367N Theater Mission Planning. At this time the funding was combined with work on the Afloat Correlation System.

Commencement of ISPS was accomplished in FY90. FY92 work included completion of TMPC Upgrade and TMPC Upgrade Precedence 2. In FY93, the TMPC Upgrade Precedence 3 and APS development were completed. In FY93, a funding reduction of US\$4.1 million deleted the Air Warfare support of Integrated Strike Planning.

TMPC was transferred to PE#0204229N Tomahawk and Theater Mission Planning Center in FY94. During this time, there was operational testing of full capability imagery integration, and work continued on software architectural enhancements. In addition, installation of a representative APS production unit on board ship and afloat testing and operational evaluation were completed.

Work during FY95 included TMPC national imagery integration and architectural software upgrades, correction of APS operational evaluation deficiencies, and continued testing of Special Compartmental Information (SCI) Isolation Segment (SIS) and operational employment/coordination functionality.

Originally, APS and SIS testing were expected to be completed and transitioned to production in FY96. However, that timetable hit some snags, and production

was rescheduled to FY97. On a more positive note, APS Strike Module/Operational Employment and APS operational deficiency corrections were initiated, and enhancements were made to the TMPC national sensor integration and software architecture. Efforts in FY97 continued along these same lines and included finishing the APS Strike Module Development/Operational Employment.

FY98 program activities included updating the TMPC for integration of New National Sensors and Software Architectural Enhancements, the continued exploration and development of software changes in order to maintain a relative similarity in comparison to the commercial off-the-shelf (COTS) market, increasing processing efficiency, and supporting enhancements to a portion of the Tomahawk Strike Planning project.

The integration of New National Sensors and Software Architectural Enhancements into TMPC continued into FY99. Other activities included support of enhancements to a portion of the Tomahawk Strike Planning Tools and work performed for the Small Business Innovation Research assessment in accordance with 15 USC 638. TMPC integration of New National Sensors and Software Architectural Enhancements continued through FY00 and into FY01.

TMPC efforts for FY02 focused on continued development of system updates to Tomahawk command and control systems necessary to employ the Tactical Tomahawk missile. The acquisition strategy for this project is to maintain contractual continuity to develop system updates to continue TMPC integration of New National Sensors and Software Architectural Enhancements. By the end of December 2002, TMPC is expected to be fully developed and operational, with future work focusing on operational maintenance and upgrades.

**Note:** For related information, please see the "Over-The-Horizon Targeting (OTH-T)" report in this binder and the "AGM-109/BGM-109 Tomahawk" report in the *Missile Forecast* binder.

## Funding

<u>US FUNDING</u>						
	<u>FY01</u>		<u>FY02</u>		<u>FY03</u>	
	<u>QTY</u>	<u>AMT</u>	<u>QTY</u>	<u>AMT</u>	<u>QTY</u>	<u>AMT</u>
RDT&E (US Navy)						
PE#0204229N						
Tomahawk and TMPC						
Project A1784						
TMPC	-	1.75	-	0	-	0

All US\$ are in millions.

Source: US Department of the Navy FY2003 RDT&E Project Justification(R-2a)

## Recent Contracts

<u>Contractor</u>	<u>Award (\$ millions)</u>	<u>Date/Description</u>
Telos	7.7	May 1997 – FFP contract for Advanced Tomahawk Weapon Control Systems (ATWCS) hardware components for the Track Control Group (TCG) production and launch control group requirement. Contract options, if exercised, would bring the cumulative value to US\$15.5 million. Completed December 1999. (N00019-96-C-0018)
Litton PRC	7.0	Mar 2001 – A CPFF contract for engineering and technical services to support the development, integration, and implementation of programs and changes or improvements to programs assigned to the Space & Naval Warfare Center San Diego, C <sup>4</sup> I Programs Office. The systems to be supported include but are not limited to TAMPS, Tomahawk, MDS, APS, TMPC, JSIPS-N, DPL, IPL, and so forth. This contract includes a base period of performance and an additional four one-year options. If all options are exercised, the contract would be valued at US\$37.1 million. Contract completed March 2002. (N00140-01-D-E407)

## Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
	FY1989	Complete TMPC tech base
	FY1990	Original date for TMPC Upgrade IOC
Oct	1992	Reschedule IOC date for TMPC Upgrade
	FY1993	Reschedule IOC date for TMPC Upgrade; rescheduled IOC date for ASP delivery
Jul	1994	TMPC Upgrade FOC
Sep	1996	APS FOC
	FY1997	Complete APS Strike Module Development/Operational Employment
	FY1998	Continue TMPC integration
	FY1999	Continue exploration/development of software and TMPC integration
Dec	2002	TMPC development complete, minor enhancements only to continue

## Worldwide Distribution

This is a **US Navy** program for use on board various surface and underwater combat vessels.

## Forecast Rationale

The US Navy's Theater Mission Planning Center (TMPC) program tests all aspects of database input, database storage, mission route planning, and mission distribution for the Tomahawk land attack missile (TLAM). It is made up of four primary segments: the Digital Imagery Workstation Suite, the TLAM Planning System, the Mission Distribution System, and the Precision Targeting Workstation. The TMPC provides database generation, database processing, and preparation and distribution of flight mission data, and command and control information for both nuclear (TLAM/N) and conventional (TLAM/C and D) Tomahawk missiles.

Over the years, this research, development, testing, and evaluation (RDT&E) project has been allotted approximately US\$179.445 million. With the upgrade effort scheduled for full completion by the end of 2002, no further funding has been requested. However, some minimal funding will likely filter through from other programs and projects to address issues on an as needed basis.

As the TMPC Upgrade is expected to be fully completed by the end of December 2002, this report will be archived in the near future.

## Ten-Year Outlook

ESTIMATED CALENDAR YEAR FUNDING (\$ in millions)													
Designation	Application	Thru 01	<u>High Confidence Level</u>				<u>Good Confidence Level</u>			<u>Speculative</u>			Total 02-11
			02	03	04	05	06	07	08	09	10	11	
TMPC	Prior Prod'n:	179.455	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000